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A typology of agrarian production systems by relations of reproduction in the Pacifico Sur Region of Costa Rica

Antonio Ybarra-Rojas

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A typology of agrarian production systems by relations of reproduction in the Pacifico Sur region of Costa Rica

Ybarra-Rojas, Antonio, Ph.D.

Iowa State University, 1989

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A typology of agrarian production systems by relations of reproduction in the Pacífico Sur Region of Costa Rica

by

Antonio Ybarra-Rojas

A Dissertation Submitted to the Graduate Faculty in Partial Fulfillment of the Requirements for the Degree of DOCTOR OF PHILOSOPHY

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For the Graduate College

Iowa State University
Ames, Iowa
1989

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CHAPTER I. INTRODUCTION

The purpose of this dissertation research is to conceptualize, design, and test a typology of agrarian production systems of the Pacifico Sur Region of Costa Rica. The typology should be able to classify the different social classes of rural producers and identify the differentiation properties that characterize each type. Also, the typology searches to identify the different transitional social class situations of producers affected by participation in the labor markets as wage earners. The thesis that is advanced by the dissertation is that commoditization that expresses degrees of market mediate reproduction of the relations of production is the organizing criteria that distinguishes the different producer types in the rural capitalist social formation of the Pacifico Sur Region of Costa Rica.

The development of the typology, by degrees of commoditization, is a theoretical alternative to the problems of conceptualization of rural social classes of producers. First, the typology, as a multi-dimensional classification system, searches to account for the different types of producers present in the social class structure of the rural social formation. Second, the typology searches to overcome the theoretical confusions originated in the conceptualization of agrarian production systems developed from the
perspectives of the theory of modes of production. The typology is formulated from the theoretical framework of the theory of social classes in the perspective of social formations, that is, in real historical societies.

The typology will be able to identify the division of labor effects of the law of uneven and combined development of the capitalist relations of production on the rural Costa Rican social formation. The present dissertation searches to characterize the labor market specialization of rural producers and identify the predictors of the process of proletarianization of the family farmer.

The description of the following chapters identifies how the objectives of this dissertation are to be achieved.

Chapter II introduces the theoretical debate that has taken place in the effort to conceptualize an agrarian production system. The chapter focuses exclusively on the different theoretical approaches that have tried to conceptualize the peasantry.

Both inductive and deductive traditions are reviewed. The chapter will identify the shortcomings of the different approaches and will center on the criticism of the Marxist deductive debate over the concept of the peasantry. The purpose of this chapter is to identify the origin of the misconceptions, with regard to the peasantry in the theoretical confusion derived from the use of
the theory of modes of production. The objective of this chapter is to explain and illustrate the need to address the conceptualization of the peasantry and of other agrarian social classes from the perspective of the theory of social formations.

Chapter III will present and develop the theoretical framework that will guide the dissertation, based on the concepts of social class from the theory of social formations. In this chapter, the principal effort will be to illustrate both Karl Marx and Max Weber's concept of social class as centered in the process of reproduction of relations of production that under capitalism are identified as mediated by the market. The chapter will also present the theory of development of capitalist relations of production in social formations, as affected by the uneven and combined effects of the world capitalist market, distinguishing the effects of the market in central and in peripheral or dependent capitalist social formations, as in the case of Costa Rica. The theory of Leon Trotsky on combined development will be presented and its implications discussed.

Chapter IV will introduce the effects of the uneven and combined development of capitalist relations of production as they affect the Costa Rican social formation in contrast to other Latin and Central American Societies. The concept and design of commoditization will be developed into the
proposed typology of agrarian production systems. The chapter will also address the discussion of the characterization of each producer type and the transitional class situations of producers that also participate in off-farm work for a salary. The theoretical propositions, that identify the properties of the typology and will serve to differentiate and characterize the different agrarian production systems, will also be presented. The division of labor process in the Pacifico Sur Region will be conceptualized by the theoretical proposition that addresses the labor market specialization of each producer type. In the last section of the chapter, the model that predicts the odds or chances of proletarianization of the simple commodity producer will be presented and discussed.

Chapter V is devoted to the presentation of the methodological procedures followed in this research. The presentation and review of the background of the research process, that originated the data set, is undertaken. The characteristics of the data set, the sample, and discussion of the statistical analyses to be carried out, are discussed. The operational definitions of the typology and of the concept of commoditizations are presented. The presentation of the hypotheses, that will be tested in reference to different dimensions of the theoretical propositions, constitute the central object of this chapter. Also, the
hypotheses that address the propositions of labor market specialization are presented. The design of the model that predicts the log of the odds of proletarianization of the simple commodity producer is developed together with the hypothesis associated with the model.

Chapter VI presents the findings of the test of the hypotheses related to each theoretical proposition. The chapter is divided into three sections. The first is devoted to the presentation of the results of the test of the hypotheses that address properties of the typology. Secondly, the findings of the hypotheses, that refer to the labor market specialization of each producer type, are presented. The third section presents the results of the test of the hypotheses that addressed the proletarianization of the simple commodity producer. Also, the results of the test of the logit model, that predicts the log odds of the simple commodity head of household of joining the labor force by participating in off-farm work, are presented.

Chapter VII discusses the findings following the same structure as Chapter VI. The goal of this chapter is to establish the connections among the findings of the test of the different theoretical proportions and to relate the results to the structuralist sociology of Peter M. Blau and Peter L. Berger. After the review of the findings, the theoretical, methodological, and applied conclusions of the
dissertation will be specified. The conclusions will confirm that the proposed typology, by degree of commoditization, should be reduced to include the three producer types of capitalist, simple commodity, and peasant. All three producer types, clearly identified within a social formation in relation to the market mediate reproduction of their relations or production, would hold true the asymmetrical and transitivity properties of the typology.
CHAPTER II. OVERVIEW OF THE PROBLEMS OF CONCEPTUALIZATION OF AN AGRARIAN PRODUCTION SYSTEM: THE PEASANTRY

Studies of technological change in agriculture have focused traditionally on the effects of change on farming systems. In my opinion, technology, itself, is a social product. Its social and economic impact on the farmers' traditional production systems is fundamentally determined by the institutional and social setting of each society or social formation. Since these societies appear at different stages of development (Balibar, 1970), technology will have different effects on different types of agricultural production systems within the same contexts (Gutelman, 1974).

I will investigate two theoretical problems: 1) The concept of peasant itself; and 2) The great heterogeneity of the rural population in developing countries that raises the need to distinguish between simple commodity and peasant farmers within a common theoretical model.

The two problems are interrelated. The development of the concept of peasantry has led to the recognition of the need to insert this concept within a more general theoretical frame. A model that encompasses the other agrarian production systems with which the peasants interact needs to be developed. The concept of peasantry is clarified once its structural relations with the other production systems is established and in contrast with them. The present
chapter will address the development of the concept of peasantry under different perspectives and their limitations.

Through the overview of the problems of a deductive conceptualization of the peasant production system, the need for a clarification of the theoretical frame will be illustrated. Concentrating in the understanding of the concept of mode of production, the theoretical perspective that will guide this research will be formulated in terms of the theory of social formations.

Developmental Trends of the Concept of Peasantry

Peasantry, as a theoretical social science concept, has been used loosely by the scholars. In recent times, three trends indicate a shift in orientation of peasant studies away from the purely cultural content of the concept.

1. Research has shifted toward the political and economic problems of the peasants. The main proponents here are Shanin (1973) and Wolf (1966).

2. Studies undertaken to describe the normative implications of peasant behavior are based on the nature of peasant economic life. James C. Scott (1976, 1978), for example, argues that the predominant concern to assure their subsistence is at the center of the social, technical, and moral decisions in any peasant society.
3. The third trend is represented by the developing studies that center their attention on the household as the economic unit of analysis. This current has as its principal exponents, Chayanov (1925) and The Russian Organization and Production School. They have inspired the most recent developments.

Recent peasant studies have eroded the purely cultural content of the term peasant and have focused attention on the definition of the concept based on those group characteristics that relate to the nature of the peasant economy. Within this perspective, there are at least two orientations used in defining the peasantry. One is based on the characteristics abstracted, and later generalized from the empirical studies. Another conceptualizes the peasantry as a form taken from the more general theoretical model of the simple commodity mode of production and defines the term in reference to this model or ideal type. The latter approach distinguishes the peasantry by contrasting its expected and observed characteristics against existing theoretical concept within political economy.

The Inductive Characterization of the Peasantry

The first approach, which is based on empirical findings of comparative rural area studies, uses an inductive procedure to define the concept. The main characteristics that have found wide recognition among scholars of
this tendency, are: 1) the existence of asymmetric relations of peasants with outsiders within their society; and 2) the agreement that at the heart of this form of economy is the peasant household itself, the agricultural labor unit with varying degrees of control over the means of production.

The asymmetric relations of peasants with outsiders

Wolf (1955) build a typology within the perspective of this structural asymmetry, based upon how peasant surplus produce is disposed. In a later work (1966), he modified his typology, introducing the notion of exploitation. He based the typology on the ways in which surplus is extracted by the ruling class. For Garcia (1967), these typologies failed to distinguish peasants as anything other than exploited, small-scale producers arranged according to their power relationships with the nonpeasants. Garcia said these typologies were static because they could not account for changes in the different types of positions of the peasantry, or for different types of peasants themselves. These typologies had to be abandoned. They gave way to efforts like those of Johnston and Kilby (1975) and McEwen (1980) that incorporated the notion of the changes in the different peasant status and categories. The differences among types of peasants and the relations existing among them were
incorporated in the concept of peasants by the typology developed by Mintz (1973). However, these efforts failed to account for the external relations to which peasants are subjected, with regard to the wider economy and the other agrarian production systems.

The focus on the peasant household itself

For most scholars, the second characteristic constitutes the most important distinguishing feature of the peasantry. Galeski (1972) asserts that family labor determines the peasant farm. The family farm, as a production unit, is simultaneously identified with the domestic economy of the family household. For Shanin (1971a, 1972), the peasant farm is a small economic unit whose production is a function of family consumption needs. Even if the peasantry produces commodities for a market, it is still primarily concerned with subsistence production. He said that the political economy of peasant society has been, generally speaking, based on the expropriation of its "surpluses" by powerful outsiders through corvee, tax, rent, interest, and terms of trade.

In a similar vein, Chayanov (A. V. Chayanov, 1966), whose theory influenced scholars like Shanin, Thorner, and Galeski, asserted in 1923, that the family, as a unit of work and consumption, is the constitutive feature of peasant economies.3
Chayanov's Theory of the Peasant Economy

Chayanov (1925) formulated the theory of a specific peasant economy (peasant ownership, but without hired labor) as a particular economic system. He tried to show that to the distinctive categories and modes of production Marx had recognized (slavery, feudalism, capitalism, socialism) there should be added another -- the peasant economy.

Chayanov's main contribution was first to provide a theory of peasant behavior at the level of the individual family farm. Second, he showed that peasant economy, at the national level, ought to be treated as an economic system in its own right. In Chayanov's view, since the peasant family labor farm has its own principles of organization, it can be studied in isolation from the external conditions of peasant agriculture (international and interregional trade and expansion).

In Chayanov's theory, the notion of a balance between subsistence needs and a subjective distaste for manual labor (dis-utility) plays a central role, for this determines the intensity of cultivation and the size of the net product. He shows that the prevailing concepts of classical economics, as well as the marginalist theory explaining the behavior of a capitalist entrepreneur, do not apply to a peasant family that depends solely on the work of its own family members. In the peasant farm, the decreasing returns
of the value of marginal labor do not hinder the peasant's activity, so long as the needs of his family are not satisfied. It is until an equilibrium has been achieved between the satisfaction of his needs and the drudgery of his effort, that he would stop working. That is why the social mechanism has been called labor-consumer balance (Basile Kerblay, 1971). 5

A Critic of Chayanov's Theory

The evaluation of Chayanov's theory should start with the central notion of self-exploitation. There are difficulties with Chayanov's theory. Littlejohn (1978) argues that Chayanov's analysis assumes a proportional relationship between earnings, expressed in the annual labor product, and the physical effort of family members, so that one can speak of labor units on which the peasant family can base its evaluation of the labor consumer balance. 6 Chayanov argues that peasant families have established labor units from experience, despite year to year variations. When one factor, like capital, is short, a proportionate drop in another factor may decline, like the size of the farm. 7 However, his theory does not tell when the contrary situation occurs. When there is a surplus of capital or land, accumulation and expansion of economic activity by hiring nonfamily labor does not occur. He presumes that once peasant family needs are met, further work for expan-
sion or accumulation by family or nonfamily labor is pointless. For me, this suggests that he did not take into account the effect of capitalist penetration in the peasant production system, but only developed his theory to work in isolation from such influences and articulation.

Chayanov's theory has also been criticized for not linking, theoretically, the subjective motivation of peasants to the structural constraints posed by the wider society (Littlejohn, 1978; Harrison, 1977). Despite the allusion to the structural effects of the external economy, however, Chayanov still gives primacy to the subjective mode of determination by leaving the structure of the wider economy untheoretically linked and by concluding that the categories of economic calculations available and used by the peasants can be found in any economic system. This conclusion implies that the wider economy must always be consistent with the principles governing peasant economies. The wider economy, whatever its structure, must be compatible with the continued existence of the subjectively determined peasant economy.

Changes in the economic structure, that may transform the peasant economy by undermining the formation of categories for calculating the labor-consumer balance, are beyond the scope of the theory. The over-emphasis on
subjective determination to the neglect of peasants links to the wider economy is the heart of my criticism.\textsuperscript{8}

Chayanov's theory, without the modifications that would be necessary to link the effects of the integration of the peasant household into the market economy, would be less useful in analyzing the peasantry in relation to the development of capitalism in agriculture, the main feature of this sector in all the developing nations. At this level of analysis, the link of the peasantry to the outside world is not discussed.

The Deductive Characterization of the Peasantry

The second approach, that conceptualizes the peasantry as a form taken by a more general theoretical model of the simple commodity mode of production, is the one that could lead to the solution of the problem of Chayanov's theory. This approach links the peasant farm organization to the wider society.

As Daniel Thorner (1966) stated, "Chayanov, in proclaiming the viability of peasant family farming, set himself against the mainstreams of Marxist thought in Russia and Western Europe." The problem was generated by the way Marx, himself, conceptualized the peasant as the one who hires no labor, but has a twin economic personality. Writing in Theories of Surplus Value (1968, pp. 193-94), the peasant as "...owner of the means of production he is a
capitalist, as worker he is his own wage worker." According to the law of the increasing division of labor in society, small-scale peasant agriculture must inevitably give way to large-scale capitalist agriculture. For Marx, this will happen either by the peasant becoming a capitalist himself or a proletarian. Chayanov criticized the characterization of the peasant as having a twofold nature, combining in himself the attributes of both a capitalist and a wage worker.9

However, Chayanov was correct in claiming that Marx first stated the problem in essentially capitalist terms. Instead of the peasantry having both characteristics, capitalist and worker, it had neither of them.

It is Rosa Luxemburg in "The Accumulation of Capital" who first stated this problem within the Marxist theoretical perspective. She wrote: "It is an empty abstraction to apply simultaneously all the categories of capitalist production to the peasantry, to conceive of the peasant as his own entrepreneur, wage labor and landlord all in one person. The economic peculiarity of the peasantry, if we want to put them into one undifferentiated category, lies in the very fact that they belong neither to the class of capitalist entrepreneurs nor to that of the wage proletariat, that they do not represent capitalistic production but SIMPLE COMMODITY PRODUCTION," page 368.
The simple commodity mode of production is only useful for understanding the economic activities of actual commodity producers who may have existed prior to the expansion of the capitalist mode and may still exist within a capitalist society. For Samir Amin (1974), this mode, which he calls petty commodity mode within capitalist social formations, is slowly emptied of content as it is dominated by capitalism, because under conditions of expansion, it is not unusual for initial simple commodity producers to employ wage laborers. For Marx (1967: V.1), both modes of production, the capitalist and the simple commodity, are modes of commodity production.

The Characterization of the Peasant Economy with Regard to the Simple Commodity Mode of Production

Four positions have been taken to relate the relationship of the peasant economy to the simple commodity mode of production. Each perspective tries to identify the characterization of the peasant production system in contrast with the simple commodity mode of production. However, the focus of each is directed toward deducing the properties of the peasant economy from a different theoretical objective or purpose. The four problematics can be characterized as follows:

A. The peasant economy is an independent mode of production. The peasant mode of production is outside the
complete control of market relations and is a system of production separate from slavery, feudalism, capitalism, and socialism. It is a unique mode of production with a logic of its own. This perspective distinguishes the peasant mode from the simple commodity mode or any other.

B. The peasant economy is not an independent mode of production, but should be identified with simple commodity production. The peasant system of production is not independent because it is a historical fact that peasants in this period surrender a surplus to capitalist domination. Also, the dynamics that explain the extraction of surplus are located outside the peasant mode.

C. The peasant economy is not a mode of production, but it has a mode of producing. The peasant mode is included in the simple commodity mode of production. But, this mode does not have an independent historical existence today under capitalism.

D. The peasant economy is rejected as being neither an independent mode or a form of the simple commodity mode of production articulated to capitalism. Peasants are to be seen instead as a class or fraction of a class within different modes of production. This position concluded their analysis stating that there is no empirical evidence of the existence of a peasant mode that is not contaminated by the capitalist relations of production.
The Peasant Economy as an Independent Mode of Production

The first perspective, with the peasantry defining a distinct and general type of economy, considers that the peasant mode is stable. In contrast, the simple commodity mode of production, is viewed as a very unstable mode because of its ability to adopt strategies which could lower cost and to invert in large-scale production, even to employ wage labor when the need arises. Unlike the simple commodity mode, peasant production is linked to the product market only via the occasional sale of agricultural produce. Peasant economies may operate within a social formation dominated by capitalism, but their weak links to the factor markets also mean weak links to the wider economy. In this perspective, scholars like Mouzells (1976) assert that unlike the simple commodity mode, which is completely integrated to the national market, the main character of peasant production is its partial integration to the market. The operation of peasant production outside the control of the market relation led to the position that the peasants form is a distinct economic system.

The answer for a new tradition of Marxist scholars was to review the debate of the classics and come up with another answer in theoretical terms. The authors that propose a specific peasant mode of production in the contemporary Marxist literature include Diaz-Polanco in
Mexico (1977), Rojas and Moncayo in Colombia (1978), and Gutelman in France (1974). Gutelman (1974) has done the most rigorous study of the articulation of modes of production producing the required specifications of the social relations of this mode.\(^{13}\)

This current conceptualizes peasants in such a way that they present a particular understanding of the nature and future of peasants: Because they are motivated, not by profit, but by survival, they are functional to the dominant capitalist mode of production in ensuring a supply of cheap food, and as such acquire a stable existence in capitalist society. However, the distinction between the theoretical concept of mode of production as an ideal type and the concrete historical realities of social formations was not accomplished by this perspective.

The Peasant Economy as a Form of Simple Commodity Production

The second perspective challenges the notion that the peasantry make up a distinct mode of production. If it were a unique mode, the following conditions would have to be met: 1) The labor process would be organized around the universal identity of the production unit with the domestic group; 2) A specific relation of production (nonexploitative family and communal relations) could be deduced from the demographic and economic activities of the individual
household; and 3) The conditions of existence or reproduction of the peasantry would be entailed in the theory of the mode (the reproduction of independent peasants could occur within the mode).

The conclusions of Banzon Bautista (1983) and Friedmann (1980) are very extreme. They suggest that because the social formation, from which the character of peasant households derives, may change in a variety of ways, one cannot speak of a homogeneous peasant economy. According to them, the penetration of commodity relations in agriculture either transforms the peasants into capitalist producers, or causes them to be dispossessed. In this type of analysis, a complete capitalist take over is produced, either by proletarianization or by capitalist transformation. What about the reproduction of the simple commodity forms themselves?

Following Friedmann (1980), Bautista would put forward the following definition of peasantry/peasant economy. It "...denotes forms of agricultural production managed to a greater or lesser extent by household units with a rudimentary division of labor based on sex and age, producing agricultural crops in varying degrees for the market, but mainly to satisfy basic subsistence needs" (p. 306). The basis of empiricist definition, like these conceptions or misconceptions of the forms of determination, is their
misunderstanding of the notion of social formation, and articulation of modes of material production. This perspective arrives at the same conclusion that Harris (1978) did when he stated that empirically production of commodities in peasant farms does exist. But that unlike simple commodity production, it involves important communal and/or class relations which limit the penetration of commodity relations into the production process. The solution is the same as for Friedmann (1980), since the concept of peasantry deviates from the theoretically expected characteristics of simple commodity production, the latter cannot replace it although the concept is useful in delineating an observable sector of the economy.

Within this current, other authors have made a better argument in favor of the characterization of the peasant economy as simple commodity production without having to deny its existence, and without having to lead to the denial of simple commodity production altogether.

For Servollin (1972), today’s peasants were born from the dissolution of the feudal mode of production, but are now representatives of the simple commodity mode of production. He states that this petty production develops in coexistence with capitalism and under its domination. Vergopoulos (1978) will add that the peasant is a salaried worker working on piece-rate. For this reason, it is
cheaper to produce food under peasant production than under capitalist production, since the latter requires the average rate of profit whereas peasants do not. As a result, a set of conditions is created by the state, in particular through terms of trade, that is adverse to the penetration of capitalism into agriculture. However, the limitations of this perspective lie in that, while it identifies the peasantry to simple commodity production, it fails to distinguish the characteristics that differentiate both forms of production.17

The Peasant Economy From the Perspective of the Classics of Marxism

The third perspective

This perspective came out of the debate within the classical Marxist's position that took place on the issue of the peasantry. The debate centered on whether peasants are disappearing as a social group or, as capitalism develops, or do they survive by assuming a logical function within the new economic system.

For Marx (1968, 1978), three aspects were retained to characterize the peasants: 1) Peasants are a class and yet not a class. Their mode of production isolates them from one another instead of bringing them into mutual intercourse. The peasantry is "not" a mode, it "has" a mode of producing; 2) Peasants in a capitalist society hold a contradictory location within class relations in that they
are simultaneously both bourgeois and/or proletarian; 3) Marx saw the peasantry under capitalism as an outcome of the dissolution of feudalism and as a transitory form whose downfall originates in the development of large-scale capitalist agriculture. The backward nature of peasant farming dooms peasants to misery and disappearance (1967, pp. 806-8).

However, Marx (1967:V.1) also used the concept of a simple commodity (or petty commodity) mode of production which he himself identified with peasants and artisans. What is at issue here is that Marx, himself, and his contemporary did not fully distinguish what were they referring to when they wrote on modes of production. There are not only problems of terminology, but problems that may have transpositions that were misleading and still are, with respect to the definition of peasantry.

In "the Agrarian Question," Kautsky (1976) analyzes the situation in which the capitalist mode of production is dominant (he takes the notion that the mode has a historical reality) but vestiges of other modes remain (with historical existence). Kautsky did acknowledge a functional interrelation between commercial and peasant farmers within the capitalist mode of production (mode again as a historical reality), that explained their tendency to survive for some time.
In my opinion, Kautsky was identifying the problem correctly. However, neither his conclusions nor his forecasts based on such conclusions were correct. For him, this functional dualism is unstable and the peasant is ultimately bound to disappear as a social category under capitalism. In agreement, Lenin (1959, Vol. 4, pp. 95-100) added that the state may intervene through reform programs to shore up this functional dualism for some additional period of time and, thus, attempt to prolong the existence of peasants, but they will ultimately disappear as Kautsky and Marx predicted.

What they did not understand was that the capitalists' laws of motion had another component that would explain the persistence of the peasantry. Peasants with precapitalist relations of production would continue to manifest themselves, in the highly industrialized social formation and even more in the semi-colonial world. That law is the one Trotsky proposed, the law of combined and uneven development, that shall be developed later to adequately clarify this contradiction. However, at the time of that debate, this was not understood, moreover, it was complicated by the other theoretical confusion of the term mode of production. This is the frame of reference that can situate the debate later with the populist and the Bolsheviks.21
In spite of massive rural-urban migration in the Third World, large numbers of peasants still exist in most countries, and even in the industrialized centers of the world. In recent years, recognition of the role of peasants in their contribution to the production of low-cost foods and to the reproduction of the labor force has led to the rediscovery of their political and economical importance.

The Peasant Economy as Neither a Mode of Production nor a Form of Simple Commodity Production

In order to evaluate this perspective, the line of criticism that contemporary authors of a Marxist persuasion present to the concept of a peasant economy should be reviewed. For example, de Janvry (1981a) would present his four defining characteristics of a peasant mode, and then contrast these with fact elements that he extracts from empirical data. The purpose of his analysis is to identify that there is no "pure" evidence of the existence of a peasant mode that is not contaminated by the capitalist relations of production. Alain de Janvry's conclusion is stated in the following terms (1981a, p. 106): "Because different modes of production tend to coexist in a social formation, particularly feudal, communal, and capitalist in Latin American agriculture -- different peasant classes correspond to each of these articulated modes."
The underlying cause of this type of criticism can be found in the question of whether the concept of mode of production has a historical reality or whether it is a theoretical concept, an intellectual construct that helps clarify the comprehension of historical reality as an ideal type. The question is, whether the notion of a particular social formation can be defined then as a combination or articulation of coexisting modes of production in some fashion.

Two Distinctions in the Concept of Mode of Production

The common problem of the four perspectives, is that they all "think" they are intended to deal with real historical objects when they define the term mode of production. Therefore, it is too easy for them to criticize each other on the basis of "empirical evidence," empirical evidence of something that does not exist. They all conceive social formations as some type of combination of coexisting modes of production, side by side, or articulated, or interpenetrated or what have you. But, when they, as rigorous researchers go "out there" to the real world and try to find data, they cannot find anything other than social relations of production.

This is the reason why, like the other Marxist classics, Preobrazhensky (1965a, b) is rather informal and flexible in his use of the concept of mode of production and
can state that: "Peasants are not a mode of production, but rather under capitalism are a subset of the petty bourgeoisie economy and are engaged in petty commodity production" and they are seen as a differentiating, and hence, a transitory social category."

The classical writers did not help in the solution of this problem of clarification. But, they did lay out the main features of the principal tendencies and laws of motion of the capitalist system. The Marxist classics, Marx (1968), Kautsky (1976), Kamenev (1973), Boukharine (1973), Preobrazhensky (1973, 1965a, b), and Trotsky (1973) analyzed peasant problems without postulating specifically a peasant mode of production, and without postulating a specific definition of mode of production. There are three types of references to the term: 1) First a system of broad organization of the labor production process, division of labor and productive forces; 2) A more rigorous definition of the above, but that implies a specification of relations of production and productive forces; and 3) A concept that refers to the organization of society as a whole. These three have been assembled into two, one that refers to the concept of material production, and the other that refers to society as a whole. It is only the Marxist French Structuralist Althusserian School that has attempted to fully specify the categories of mode of production and
social formation. In Marx himself, the term "mode" refers sometimes to concrete historical objects when he speaks of material production, and other times to an abstract model of society. The problem then lies in the fact that this confusion was not clarified, until Louis Althusser accomplished the task.

Mode of Production as Characterizing a Global Social Totality

I think, following Louis Althusser (1969), that the reduction of this concept to the economical level limits its meaning, which is implicit in "Capital," Marx's most accomplished work. For, when he studied the mode of production of material goods, called process of production, he did not only define it as a process of a technical nature. The technical process is always described within a social context of specific social relations that make the technical process possible. In the formation of these social relations, we find the intervention of suprastructural elements, the political and ideological ones can be found. Engels (1935) explicitly refers to this intervention in the anti-Dühring. Marx (1967) shows how suprastructural conditions are needed to sustain specific types of socio-technical production processes.

Marx, however, identifies a relationship in this totality of global society between these different levels,
supra- and infrastructure. A relationship of dominance and determination between the different levels or structures.

So, for Marx, besides the previous characteristics of this theoretical concept, mode of production is a global structure where one of these regions "dominates" the others.29

That is why, even if different regions in different modes of production can exercise the dominant role, it is the economical level or structure that "determines," in last instance, which of these is to play that role.

**Dominant and determinant roles**

The distinction between the "dominant" role and the "determinant" role is fundamental to the understanding of this theoretical concept of mode of production. According to Althusser (1969, 1970), the combination of this state of affairs, conceptually is stated as a "structure of dominance." 30

Althusser's conception of the classical Marxist assertion that the suprastructure is relatively autonomous, but the economy is determinant in the last instance rest on the notion of "structure of dominance." The phrase "in the last instance" does not indicate that there will be some ultimate time, or ever was some starting-point, when the economy will be or was solely determinant, the other instances preceding it or following it.
Reproduction of a mode of production

In Marx and Engels, this distinction is hard to find because their main object of study was a particular mode of production, the capitalist mode, in which both determination and domination coincide with the economic level or region. In this mode, as in all other, the economic structure is determinant in last instance, but it also exercises the dominant role. We will clarify the notion of dominant role by the statement that in a mode of production, we will consider dominant the structure that has the most important role in assuring the reproduction of that specific mode of production.31

The next element we will include, to characterize this theoretical concept, is its dynamics, that is, its continual form or reproduction. This implies that a mode of production, at the same time that it reproduces these relations of production, must reproduce their condition of suprastructural existence, the ideological and power relations that permit its continual functioning. In the capitalist mode of production, for example, this means that at the same time that it produces the material goods, as commodities through the mediation of markets, it divides the people of this social totality into capitalist and workers. Also, it must favor the expansion of an ideology that legitimizes this type of production, and a form of political power that
protects and stimulates the continual reproduction of these conditions of production. In the capitalist mode of production commoditization identifies the process of extended reproduction of the capitalist relations of production.

At this point, then, we can advance the definition of mode of production as: the theoretical concept that permits us to think the social totality as a structure in dominance, in which the economic structure is determinant in last instance (Althusser, 1969, 1970).

The matrix of a mode of production

To end this discussion, it is important to insist that the matrix of a mode of production is its relation of production. These relations are the ones that can explain the specific type of articulation of the different levels or regions in each mode of production. The relations of production assign which structure will play the dominant role in each mode of production. As Marx (1967) stated (in Capital V.3, p. 733), "the direct relation that exists between the owners of the means of production and the direct producers are what reveal to us the most hidden secret, the occult base of all the social constructions."
The Concept of Mode of Material Production

The previous definition was important because now we can present the definition of mode of material production as the central concept of the theory of the economic structure which distinguishes the manner or form of production. The mode of material production can be defined following: Althusser (1969; 1970) as a complex structure, doubly articulated by the production forces connection, and the relations of production connection, and containing three elements: the laborer, the means of production (subdivided into object of labor and instruments of labor), and the nonlaborers.33

So, by now, these two concepts can be clearly distinguished, mode of production in reference to the totality of society, and the mode of material production, the economic structure, level, or region of a mode of production, both nonexistent objects because they are ideal types, thought models, and are not present in reality.

The Concept of Social Formation

The concept of mode of production refers to an abstract-formal object, a pure social totality as an ideal form or model, in which the production of material goods is developed in a homogeneous fashion. The mode of production is an ideal type that does not exist in the strong sense in reality. In the great majority of historically determined
"real" societies, the production of material goods is not performed in a homogeneous way. In a society, we can find different types of relations of production.34

However, even if in a social formation, we can find a combination of different forms of production of material goods, like feudal, capitalist, simple-commodity, or slavery, this does not mean we can encounter a combination of different modes of production (see the previous distinction made between the two). What we face are different types of relations of production that co-exist in a historically determined society or social formation. Their co-existence, however, is neither anarchic or isolated one from another, but one of them occupies a dominant situation, imposing on the other its own laws of development and reproduction. The domination takes place without eliminating the subordinate forms of relations of production that are present and left with relative autonomy, and assigned a role to play in the totality of that complex structure.35

In the case of Latin America, where different types of relations of production exist, the capitalist relations coexist with communal type relations in some secluded regions.36

It is the complexity of the economic structure and the dominant character of one of the relations of production that co-exist among others that identifies the diversity of
the ideological and juridical-political structures of any historically determined society. In order to give this reality a name, I will use the term of "Social Formation." It refers to a concrete reality, complex and impure, like any reality. So, I will define, following Althusser (1969, 1970) **Social Formation as historically determined, concrete social totality.**

The elements that constitute a social formation

The concrete social totality, historically determined, can refer to a country, a set of countries at one period of time, or to a region within a country, by common features that would justify such a distinction. This social totality, concrete and historically determined, is composed of an economic structure, an ideological structure and a political structure. These structures present a very complex internal organization, the first also referred to as the infrastructure and the last two as the suprastructure of a social formation.37

The distinction between social formation and mode of production

According to this understanding of social formation, it is now important to clarify that a social formation is not a combination of modes of production. Social formations are not abstract or ideal social totalities, but a concrete, historically determined reality. Social formations are
structured around the way that the different relations of production, that co-exist in its regional complex economic structure, have been combined under the domination of the dominant relations of production prevalent.\textsuperscript{38}

The thesis of social formations sustains that it is the complex economic structure where different relations of production are combined that determines in last instance the processes of the suprastructure. In a social formation, the complex structures do not correspond automatically, because they enjoy a relative autonomy.

\textbf{The failure to distinguish between social formation and mode of production}

The problems, misunderstandings, and misinterpretations that characterized the first four deductive theoretical perspectives, reviewed previously, had all in common, the concepts of mode of production and social formation. For these perspectives, the issue of identifying or not identifying the peasant mode of production resided in the criterion that they did not find the corresponding empirical verifications of their quest.

This problem has one of its origins in a definition elaborated by Nicos Poulantzas (1973) of a social formation as a combination of modes of production.\textsuperscript{39}

Even if Poulantzas (1973) states that he uses the concepts, as presented by Althusser (1970) and Balibar
1970), Harnecker Marta (1982) has criticized Poulantzas for his misuse of the concepts. It is not true, and cannot be true, that a material, social totality, historically determined, real thing, could ever be constituted by unreal formal objects like the "concepts" of model of production, because they do not exist in reality, and are only theoretical, ideal constructs.

However, according to Eric Olin Wright (1983, p. 100), "real societies always involve complex combinations of modes of production, co-existing with each other in various ways.... The term "Social Formation" has been used to designate the specific forms of combinations of different modes of production within concrete societies." The concept of mode of production that he uses is a combination of Poulantzas concept and that of G. A. Cohen.

Then, in reference to notions 3 (Cohen) and 4 (Poulantzas), he will state: "This concept is more closely associated with the work of Nicos Poulantzas (the 4)....I do not wish to enter into the debate over the appropriateness of one or another of these usages (mode of production). This debate is important, if only because substantive discussions are often confused by an inadequate specification of concepts involved. But it would take us too far to deal with it rigorously here (pp. 82-83).
I just would have hoped that he would have made an effort to "rigorously" deal with the debate, because of the implications of his notion. The results of such a phenomena is the widespread "position" exemplified by Alain de Janvry (the agrarian question and reformisms in Latin America, 1981a) that continues to misuse the concept of mode of production.

For when Alain de Janvry (1981a) could not find the verification of the peasant mode of production "out there in the world of reality," he concluded that there must not be such a mode, or even a peasant mode articulated to capitalism.40

It is so easy to verify the nonexistence of something that does not exist anyway, in the first place. There is no peasant mode of production out there, because there is no reality to the existence in material historical terms to any mode. Social formations are real, so they cannot be the combination or articulation of ideal concepts, not even if it were in a rhetorical manner of speech. Social formations are complex structured articulated regional structures organized around the combined relations of production according to the nature of whatever (real) relation of production is dominant in a place and time, where real people live and work.
I hope that I have made my point. The real question is not if there is or not a peasant or simple commodity mode of production, "out there," but are there simple commodity production relations "out there" reproducing themselves under the domination of capitalist relations of production, and in combination with what other "real" relations of production. In consequence, what specific type of classes are those relations of production affecting, and what type of rural social stratification is being configured? What type of processes of social differentiation are going on in that class structure, in those peasant "groups" that these authors say they cannot see because they did not encounter any "mode of production" at work out there in reality?

If there is any articulation "out there," it is articulation and combination of relations of production and never of modes of production.

Conclusion

The discussion of problems of conceptualization of the peasantry have centered in those derived from the application of the concept of mode of production. However, many questions of characterization of the peasantry and its relations with other agrarian production systems remain unanswered. What differentiates the peasants from simple commodity or from capitalist producers? What common deductive classification model of agrarian production
systems centered in the process of reproduction of the dominant relations of production can characterize the peasantry? Only a new deductive theoretical perspective centered in the study of social formations would be able to overcome the characterization of the peasantry in isolation. From a theory that accounts for all agrarian production systems in a historical society would emerge a conceptualization of the peasantry in relation to the wider world.

The fifth theoretical perspective, that guides this research and that will be presented in the next chapter, is centered in the conceptualization of agrarian production systems and social class structures of a rural social formation. My theoretical alternatives will study the peasantry together with the other types of agrarian producers, both as specific production systems and as the social classes of rural producers in the Pacifico Sur Social Formation of Costa Rica.
CHAPTER III. THE THEORETICAL FRAMEWORK

Introduction

The process of production is at the base of the formation of social classes, and as a system, will be reflected in the social stratification of a social formation. The social structure, itself, has its foundation upon the infrastructure and this is its complex economic level. However, what serves as a matrix for the organization of that structure, are the dominant relations of production present.¹

The purpose of identifying the character of the reproduction of the relations of production of each mode of material production is to achieve an ideal type for the understanding of its logic of independent reproduction. Once these relations of production are identified in a social formation, the research goal should be to understand how they are articulated and through what mediations and mechanisms do the dominant relations of production submit the subordinate to their own logic of reproduction.

In order to present the social class stratification theory from this fifth theoretical perspective, it is necessary to first develop the model in reference to the production process, itself, from the perspective of the mode of material production. Once the theory is clear, with
reference to one process of production, it will be developed from the perspective of the social formation.

From the Perspective of the Capitalist Mode of Production

As stated by Balibar (1970), simple reproduction has been often regarded as a simplified "model" of extended reproduction. The analysis of reproduction as the realization of production in history, is the introduction of temporality into the analysis of production, in the form of the conditions of its continuation. Balibar shows, however that simple reproduction is the "concept" of social production (1970, p. 318). Social production is only apparently the production of things; in reality it is the production of a social relation, i.e., the reproduction of the relations of production. Hence, simple and extended reproduction are synchronic concepts of the mode of production.

In the case of capitalism, at the same time that it produces commodities, it reproduces the capitalist relations of production, capital and wage labor, Bourgeois and Proletariats. What is being reproduced is the very division of labor that characterizes this mode of production. Its social division of labor, between those that control and posses the means of production and those that are the direct producer.
The Concept of Social Classes

In reference to the model of a mode of production, and to the capitalist mode, in particular, Marx (1978:V.1.3) identifies the process of reproduction of relations of production at the origin of the concept of social classes.5

The static analysis and definitions of social class have only made reference to the "place" people occupy in the production process.6 **In static terms, within a mode of production, social classes can be defined as social (human) groups that are antagonistic on the basis that one appropriates the work of the other.** In this sense, each mode of production is conceptualized as having two fundamental antagonistic social classes. **In dynamic terms, the concept of reproduction of the relations of production is what gives these groups a historical continuity, and also defines a tendency to their development.** In the capitalist mode, for example, the tendency is of polarization, increasing the number of wage-workers and decreasing the number of capitalists.7 The other implication of the notion of reproduction refers to the impact that should be expected upon "other" precapitalist classes, by the reproduction of proletarians and capitalists. The tendency here is to absorb into each class, those of the previous modes, either by transformation or alliance.8
The Concept of Class Structure from the Perspective of a Social Formation

It is necessary to clarify, that for a class to be formed, in reality, this process has to take place within a real, historically determined society, that is within a social formation. In relation to a social formation, the first concept that should be distinguished is that of class structure. Class structure is the articulations of the different classes and fractions of a class in the different levels or regions formed by the complex structures of the economic, political, and ideological levels of that complex social totality. Within a social formation, there will always (in class societies) be a class or fraction of a class, or classes that will present a dominant role over the rest of the articulated classes. The class or classes in this position will be those expressed or as an effect of the dominant relations of production.

In the class structure, however, we will find a variety of other classes, combined accordingly to the combination of their respective relations of production, but besides those that appear as antagonistic, there will be others that will be defined as in transitions. I shall define as a class in transition, the classes that only appear in a social formation as the effect of the disintegration of old relations of production, that at a previous stage, were exercising a dominant role, or classes that are not present-
ing relations of production that are antagonistic. Non-
antagonistic class fractions are generated from nonexploita-
tive relations of production, both under the process of
decomposition, or under the development of the new dominant
relations of production. An example of nonantagonistic
class fractions are the simple commodity and peasant classes
of producers.

The distinction of classes in transition

In order to clearly grasp the notion of class in
transition, or fraction of class in transition, I will
present two cases, relevant to agricultural production,
first, the landowners and second, the simple commodity
class.

As I had previously stated, from the perspective of the
mode of production, the model only takes into account two
classes. However, this third class, the landowner "with
whom the capitalist has to share part of the plus-value,"
only appears when the analysis of class relations is
undertaken from the perspective of a social formation. The
landowner class can be explained, then, as generated from
relations of production (ownership of natural forces), that
have not grown out conceptually of the capitalist mode of
production, but have passed on to it. This also clarifies
the confusion of the presence of three classes in the model
of the capitalist mode, derived from the last chapter of the
third volume of Capital where Marx identified three classes based on profit, wages and rent. In that context, he was making reference to England, a historical social formation. In social formations today, many types of relations of production are combined even if they are under domination of the capitalist relations of production.

The characterization of a third class in a capitalist social formation

The appearance of a third class within a Capitalist Social Formation requires the specification of the "circumstance" that explains their presence. Those circumstances are only those that are compatible with the requirements of the reproduction of the capitalist relations of production. Marx (1968) suggests this when he says, that even the state could control the land, but that someone should own the land as a "requirement," "so long as it is not the worker. If he owned the land, then the worker would not have to sell his labor power, there would be no surplus-value, no profits, and no capitalist. In a social formation, the precise study of those "circumstances" (even if of secondary importance) do contribute to explain the concrete historical alternatives that have appeared.
The characterization of the simple commodity class in a capitalist social formation

The second case is that of the simple commodity producer. The traditional Marxist or classical perspective, that we previously have presented, can be synthesized as follows: The small commodity producer artisan, or agrarian producer, is a class in transition, because it is the product of a form of production, based on serf labor. Capitalism helped to destroy the serf, liberating them from the landowner class, and converting them into small independent producers. Capitalist penetration, that produces this disintegrating effect, continues to erode the simple commodity class, because they are incapable of competing with capitalist production in the marketplace. That is why these producers of the simple commodity form, are not a class of the conceptual capitalist mode of production, but can be found as a class in transition in historically real social formations. A class in transition of disappearing, with their intermediary position, between capitalist and proletarian.¹⁰

However, as stated, that has not been the case in many social formations, and simple commodity relations of production, especially in the countryside among the rural population continue to structure certain producers into the simple commodity class. Marx’s (1968) presentation of the case of the landowner class was correct, in my view, but
when he distinguished the case of the simple commodity as a class in transition, there are definite features of characterization that he did not identify.

The simple commodity class, as a class in transition, is articulated, through relations of exploitation with the capitalist class, through the forms of the social production process, through its reproduction. Their exploitation, as discovered by Roger Bartra (1980, p. 152), is as proletarians because of their condition (class situation) as petty bourgeoisie. In reality, says Bartra, they exploit themselves in benefit of someone else. In distinction of the proletarian, that offers to the market their labor power as commodity, the simple commodity producers offer the product of their labor power that they produced over their land. The similarity is that both commodities, labor-power, and produce of the land, are sold to the market at the necessary price to permit the reproduction of both labor forces, the proletarian and the simple commodity labor force. That is why they are exploited as proletarians (at the equivalence of their cost of reproduction) but because they work as a simple commodity producers. The reason for this type of relation is the effect, or manifestation, of the form by which the capitalist relations of production exercise their role of domination.
The process of capitalist penetration then would work without obstacle, absorbing and decomposing the class of simple commodity producers, at the level of its capacity to expand indefinitely. The process would continue until it made them all disappear into proletarians, wage laborers, using the simple commodity class as a reserve army of workers. However, this has not happened.*3

Reproduction of class situation

To conclude, it is important to clarify the concept of class situation. A class is defined by its situation in the social structure, which depends on the specific relations these social groups have with the means of production. But, I will define class situation of an individual by the place that individual has in the social structure in relation to the process of social production.

Viewed from this perspective, the social classes are the bearers (Trager, not in the sense of support) of the economic structure. The effects of the relations of production from which they "come out of."*5

But, if the social classes are the effects of relations of production, and these can only be understood as a process of reproduction of relations of production, the secret for understanding of social classes lies in this process of reproduction, that is to say, in the process that allocates the individuals of a society into a class situation.
However, this process of social production allocates different individuals to different classes, using as a form of determination, the technical and social relations of production in which they participate.  

The outcome of the process of reproduction of social production is not only a class structure but a system of social classes. Structure can be defined as an articulated totality formed by a set of internal stable relations, that determine the functions the elements achieve within the totality.

Following Bartra (1980), I can define the concept of social classes, as a system of social classes, represented in a social stratification of great groups of people that cluster together in a distribution along a continuum but that can be distinguished by the process of reproduction of their class situation.

The mediation role in the reproduction of social classes

In order to study the reproduction process of a system of social classes in a historically determined capitalist social formation, it is necessary to identify the form of mediation by which the social class situation of social groups and individuals is allocated.

In any capitalist social formation, the process of reproduction of the relations of production is assured by
the market. The same as in antiquity, politics mediated the reproduction of relations of production, and ideology mediated the process under feudalism; under capitalism it is the market that brings together and unites the potential agents of production.

The theoretical framework will bring both Karl Marx and Max Weber together to a common theoretical understanding of the theory of social classes in capitalist social formations.

Social Classes and the Role of the Market

According to Jeffery M. Paige (1975), both Weber and Marx defined class in relation to property. For Marx, the conceptualization of social class led to the distinction of a static and dynamic approach. The static perspective identifies the relations of production as production structures, while the dynamic approach expresses these production relationships as ongoing processes.

The consequence of this analysis is that in a model of extended reproduction of social production, distribution and consumption are the mediations for the realization of production. For production to initiate a new cycle in a commodity economy, the produce must circulate, be distributed and consumed in order to be transformed into money. As capital, money can generate a new production process, enabling production to occur through the purchase of input
commodities in the goods and labor markets. From the perspective of the capitalist mode of production, the markets are the mediation of reproduction which permit the realization of production. The mediations of the reproduction process of production relations are the markets of goods and labor.

Max Weber's concept of social class

Under the dynamic Marxist perspective of social class, Max Weber's formulation constitutes a continuation and higher degree of specification of the concept of class situation in the capitalist mode of production. For Max Weber (1978, p. 927), "we may speak of a 'class' when (1) a number of people have in common a specific causal component of their life chances, insofar as (2) this component is represented exclusively by economic interests in the possession of goods and opportunities for income, and (3) is represented under the conditions of the commodity or labor markets. This is "class situation." It is the most elemental economic fact that the way in which the disposition over material property is distributed among a plurality of people, meeting competitively in the market for the purpose of exchange, in itself creates specific life chances."

The traditional opposition raised between Marx who centers classes in the sphere of production, and Weber who
centers classes in the sphere of distribution, can be overcome by an understanding of the process of class formation under conditions of extended reproduction of relations of production. In extended reproduction of production relations, the mode of distribution and markets that mediate the realization of production, cannot be seen as antagonistic, but as part of the extended reproduction process of social production.

The explanation of the distribution mode's role can be stated as Max Weber's particular contribution to the concept of social classes.

For Weber (1978, p. 927), "...the mode of distribution, in accord with the law of marginal utility, excludes the nonwealthy from competing for highly valued goods, it favors the owners and, in fact, gives to them a monopoly to acquire such goods. Other things being equal, the mode of distribution monopolizes the opportunities for profitable deals for all those who, provided with goods, do not necessarily have to exchange them. It does not matter whether these two categories become effective in the competitive struggles of the consumers or of the producers."

Weber (1978, p. 928) concludes "...but always this is the generic connotation of the concept of class; that the kind of chance in the market is the decisive moment which presents a common condition for the individual's fate."
Class situation is, in this sense, ultimately market situation." Later Weber's distinction between class and status will be addressed.

**The law of exchange and simple reproduction**

For production to generate commodities, it is not sufficient for the product to have only use-values. Production must generate use-value for others, that is social use-value or exchange value. A useful product becomes a commodity only because it is a product of the work of an individual or group of individuals who perform their work independently of each other. In other words, the labor of the individual asserts itself as a part of the labor of society only through the relations which the act of exchange establishes directly between the products and, indirectly, through the producers.

In the capitalist mode of production, the purpose of production is not merely to produce commodities, but to produce commodities that enable the realization of surplus-value. For surplus-value to be realized, commodities must be transformed into money and money into capital. Capital can then set the production process in motion.

The law of exchange requires that only exchange values of a commodity be considered equal to one another; it presupposes a difference in the use-values of the commodities. The means for exchange is money. However, for Marx
the conversion of money into capital is achieved through the process of simple reproduction. Simple reproduction does not explain the first operation, the emergence of the capital which sets the process in motion, therefore, the destination of surplus-value must be introduced. For Marx, surplus-value is the property of the capitalist, which when converted to capital, can be advanced for the purpose of production. But for surplus value to be converted into capital which can generate a new cycle of the production process, it is necessary to present the concept of accumulation of capital.

According to Marx (1978, V.1, p. 543), "...employing surplus-value as capital, reconverting it into capital, is called accumulation of capital." The transformation of money into means of production and labor-power, is the first step taken by a sum of value that is going to function as capital. For Marx (1978, V.1, p. 529), "this conversion takes place in the market, within the sphere of circulation." Marx adds that the second step, which completes the production process, is achieved as soon as the means of production have been converted into commodities. However, these commodities now have a value that exceeds that of their original component parts. The total value contains the value equivalent of the capital originally advanced to procreate the production process as well as an additional
value created by the surplus-value generated during the production process.\textsuperscript{22}

The role of the market in extended reproduction

The market's role as the mediator of the accumulation process also introduces the limitations of the model of simple capital reproduction.\textsuperscript{23}

The "real foundation of capitalist production" is the full social scale of capitalist reproduction through the market. Only under its scope can the notion of the formation and reproduction of social classes be stated. The isolated production process of simple reproduction can identify the individual capitalist and the individual laborer. The social classes of capitalist and laborer are conceived as the effect of capitalist production's full swing, which is extended reproduction through the market. Marx explains (1978, V.1, p. 536) "...then we contemplate, not the single capitalist, and the single laborers, but the capitalist class and the laboring class, not as an isolated process of production but as capitalist production in full swing, and on its actual social scale."

The distinction between the static and dynamic perspectives of social classes

The static perspective of social class identification as a location, with regard to the relations of production, corresponds to the model of simple reproduction. The
dynamic perspective that focuses social class identification as the effects of the process of reproduction of relations of production corresponds to the actual social scale of capitalist production. The dynamic approach relates to the production process that grows out of simple reproduction and moves into a new form, one that changes into a type of spiral which can be conceived as the process of extended reproduction. 24

Extended reproduction, which in the model of capitalist production, reproduces the relations of production on a social scale, is mediated by the market. Even if the market does not add to total production, it is essential for its realization into capital. 25

The market and the reproduction of social classes

Market mediated capitalist extended reproduction also reproduces the capitalist relations of production. The social classes of capitalist and wage-laborers are reproduced because their market participation reproduces them as buyers and sellers of labor-power. 26

Under conditions of extended reproduction of capitalist production, the full-scale transformation of surplus-value into accumulated capital takes place. The market is the mediation for the accumulation process and for social class identification of production modes. 27
Marx identifies the labor market's role in the proletarianization of peasants in primitive accumulation. Marx writes (1978, V. I, p. 699), "In the history of primitive accumulation, all resolutions are epoch-making that act as levers for the capitalist class in course of formation; but, above all, those moments when great masses of men are suddenly and forcibly torn from their means of subsistence, and hurled as free and "unattached" proletarians on the labor-market. The expropriation of the agricultural producer, of the peasant, from the soil, is the basis of the whole process." However, in a historical social formation, this process of proletarianization of the peasantry would be counteracted partially by the reproduction of peasant relations of production combined and articulated to the dominant capitalist relations, also acting through the participation or nonparticipation in the labor market and the market of farm goods.

Max Weber's concept of class under capitalism

In the first complete English edition of Economy and Society of Max Weber (1978), a number of extant translations were completely replaced. However, the first formulation had been up to that point the main source for the distinction in Weber's stratification theory between class and status group. The old text led both supporters and critics to falsify Max Weber's formulation of these
concepts. Supporters, like Nisbet (1966), had developed a dichotomy in Weber’s concepts, in which class referred to the economic sphere and status group to the social order. A second distinction was then performed, one that opposed Marx’s concept of class to that of Weber on the basis of the issue that Weber rejected the notion that classes were not communities.29"

Regardless of Nisbet’s failed prediction, the significant fact is that Weber was identically interpreted by his opponents and critics. The case of Poulantzas (1973) who has greatly influenced North American Marxist sociologist like Eric, Olin Wright is representative of the falsification of Weber’s stratification theory.30 Max Weber (1978) in a later text that now occupies the section on classes of Part One of the Complete Edition of ‘Economy and Society’ would clarify the true distinction he had in mind between class and status, as related or not to market economies.31

Nisbet and Poulantzas’ misconception was that they conceived the distinction between class and status as different types of groups according to the economic or social spheres in Weber’s theory. For Weber, however, they are characteristic of different types of social groups but corresponding not to different spheres (the economic or social) but of different types of societies. Status is applicable to the feudal society and class applicable to the
capitalist society. Status refers to irrational consumption patterns and monopolistic appropriations and class refers to free market economies. Specifically, commercial classes proper to market-oriented economies and status to patrimonial liturgical societies. From Weber's perspective it would indeed be inappropriate to suggest, as does Nisbet, that 'status' should substitute for class as a tool of analysis of modern contemporary capitalist society. Status is the mode of stratification based on hereditary privileges. In Max Weber's social class theory, the distinction between a "property class" and "a commercial class" becomes the pertinent one with regard to a society centered in market-economy. Besides the privileged commercial classes, he also identifies laborers with varying degrees of qualification (skilled, semi-skilled, and unskilled). In any case, these classes which Weber called the commercial classes, are the most representative of the capitalist society and market mediated social class reproduction.

Weber's social class theory of a class situation identified with a market situation is not in contradiction with Karl Marx's theory of social classes. On the contrary, in the latest text, Weber developing his concept of social class, explicitly makes reference to Marx's identification of social classes in 'Capital' and coincides with it.
However, Weber's objective is to further develop a concept just initiated by Marx, through the introduction of additional features of differentiation of the labor force itself. The development suggested by Max Weber is based on the differentiation of levels of skills in the work force. Marx and Weber's contributions will be integrated into my typology of the agrarian production systems in the Pacifico Sur Region of Costa Rica.

Capitalist Development and Market Differentiation

Market mediate capitalist reproduction involves the distinction of two types of interrelated markets: First, the internal or home market and, second, the international or world capitalist market. Both are necessary conditions to assure development of the capitalist relations of production and the reproduction of these relations. With regard to the small peasant, Marx identifies the process of his transformation as intimately related to the formation of the internal or home market.\textsuperscript{35} For Marx, the peasant family before capitalism produced means of subsistence and raw material for its own consumption. However, once capitalism develops, the farm products become commodities, and a differentiated market appears.\textsuperscript{36} For Marx, the destruction of the peasant production system is precisely what enables the large farmer to develop a market of agricultural goods for industry.\textsuperscript{37}
The centralization of capital

The second market dimension of the capitalist mode of production is the world market. For Marx, the international character of the capitalist regime of production is a consequence of the development of the tendency towards centralization of capital.38

The development of capitalist relations of production provoke the collapse and annihilation of individualized petty production.39

Marx explains the annihilation of small property production and the world market character as a consequence of the law of centralization of capital.40

The role of the world market

According to Marx, the world-market character of the capitalist regime is the basis and the vital element of capitalist production.41 The three cardinal facts of capitalist production for Marx are: 1) concentration of the means of production; 2) organization of labor itself into social labor; and 3) the creation of the world-market. However, among these factors, Marx (1978, V.3, p. 333) identifies the world-market as the basis of the capitalist mode of production.42
Interaction between Internal and world markets

Both markets, the internal or home market and the world or international market, are related, in a formation stage, one market preceding the other. In contrast, the relation between these two markets is different if the world-market relates to an internal economy of pre-capitalist type. Marx analyzed the relations between England with India and China to illustrate this point.

From the perspective of Marx's model of the capitalist mode of production, the relations between the internal market and the international world market are sequential. The world market is the expression of the outgrowth of the internal market of the capitalist mode of production. The internal market is the precondition for the development of the analysis of historical social formations, the relationship will depend on the distinction of the type of social formations under review. A very different rapport will be established between both markets, in the case of relations between internal markets of central industrialized capitalist social formation, and their exchange or of the relation of exchange with peripheric nonindustrialized capitalist social formations.

Market relations between developed social formations

In the case of the relations between central industrialized capitalist social formations, the role of the
world market relationship would be to further stimulate the internal markets of each social formation. However, even among these type of social formations, the advantage would tend toward the society with a higher developed industrial internal market in the long run.45

For Marx, the process of development of the European capitalist social formations follows closely the patterns of the model of the capitalist mode of production. The historical experience of these societies served as the basic empirical reference for the ideal type of the model of the capitalist mode of production. In these social formations, transformation of the internal market followed the transformation of merchant capital.46

The outcome of the process of capitalist development in European industrialized societies ended by assigning to the internal industrial markets a leading role over the external commercial markets of the world. Production finally achieved the supremacy over the markets and industrial home production became a commodity for the world market.47

*Market relations between unevenly developed social formations*

When the world market relations connect the internal markets of a central industrial capitalist social formation with the internal markets of a peripheral nonindustrial capitalist or precapitalist social formation, the outcome is
different. The underdeveloped countries or peripheral capitalist or precapitalist social formation have suffered a double tragedy through their insertion into the world capitalist market. As pointed out by Mandel (1980, p. 160), they have been victims, of the process of centralization of capital that has affected their internal market by a net transfer of surplus value accumulated to the international centers of the industrialized capitalists social formation. Also they have been hampered in their own process of industrialization by the flood of industrial goods from these international centers. The peripheric social formations have had to undergo their own process of primitive accumulation of capital under the adverse conditions of a world market saturated with industrial goods. While the world market has stimulated the internal economies of the industrialized capitalist social formations, it has destimulated the development of the internal markets in the peripheric social formations of the developing world.

For Marx, the process of dislocation of the internal economies of the peripheric social formations started as a process simultaneous to the primitive accumulation of capital in the center. From the start, the capitalist center, at the time the European social formations corresponded to the looting and exploitation of the peripheric developing and colonial world.48
The contradiction of the process of development of capitalism through market reproduction at the periphery of the world capitalist system, was that societies as a whole were being submitted to the effects of proletarianization of a global scale division of labor. In this process, capitalism was just establishing its laws of development on a world scale. 49

The process of insertion of peripheral capitalist social formations into the world capital market can identify the specific type of effects on the internal markets and the internal class structure of these societies. To situate the case of Costa Rica it would be necessary to distinguish the social formation within the Latin American experience.

The Law of Unequal Development in the Capitalist Mode of Production

The first period of capitalist development was marked by unequal exchange of values. For Marx (1978, V.3, p. 329), the development of the merchant's country's capital implied the lack of development of the exploited country. Merchant's capital accumulates profits by both selling dear and buying cheap. 50 The effect of the unequal exchange is to destroy the pre-capitalist relations of production and to introduce the reproduction of capitalist relations. 51

In the early period of capitalist development, exchange itself was conceived by Marx as marked by unequal transfers
of value. However, for Marx the effects of unequal exchange become more pronounced as the distance between the two roles of the exchange relations becomes larger. In the case of developed countries' market reproduction of relations of production, increases the equalization of the exchange values between commodities.

**Unequal exchange between unevenly developed social formations**

In contrast, when exchange of unequal values takes place between highly developed societies and underdeveloped societies the unequal differential increases. The factors that increase the unequal nature of exchange between societies at different poles of development are the differences in prices of production and the pre-capitalist relations of production themselves.

The disproportionate advantage of unequal exchange between developed and underdeveloped societies made Marx compare trade with a system of robbery. The effects on unequal exchange then result in the development of accumulation of capital in the merchant's country and lack of development in the country submitted to the system of robbery.

Unequal exchange, besides provoking unequal development among societies, promotes the destruction of the production organization of the old mode of production. According to
Marx's model, the consequences of the extension of unequal exchange provoke the dissolution of the old mode of production.\textsuperscript{56}

To itself, unequal exchange would have found no resistance to bring down the old forms of production. However, combined development in historical social formations reproduces the old forms of production under the logic of reproduction of capitalist relations.

**Unequal development in the sphere of production**

The capitalist mode of production did not remain in its infant stage. As it fully developed, exchange became the transferer of equal values. However, inequality continued to mark the development of the mode of production, leaving the sphere of circulation and concentrating in the sphere of production. Exchange under capitalism became, as stated by Mandel (1980, p. 154), "...unequal exchange of equal values...." The explanation lies in the unequal exchange between labor and capital in the process of production, the notion of exploitation, and the appropriation of surplus value.

The expression of the unequal exchange can take the shape of wage differentials within a country or among different countries.\textsuperscript{57}
The role of the world market in unequal accumulation of capital

In an international scale the average intensity of labor is different from country to country. So, not only does capital exchange unequally with labor an equal value for an unequal exchange in the form of surplus value, but from country to country it can increase the unequal ratio by the play of different levels of intensity of labor.

Marx (1978) explains the increase of the share of profit by the more productive nation, by the fact that it can sell its commodities at the average price in the international market thus realizing higher surplus value than the countries, which produce at a lower intensity of labor.

The exchange of unequal International values are then the expression of the development of the capitalist mode of production. The principal consequence of such an unequal International value of commodities is the difference in nominal and relative wages of laborers in those different countries. As a footnote, Marx (1978:V.1) explains that the price of labor is usually lower in poor countries where the produce of the soil, and grain is cheap, however, its real price is actually higher because it is not the wage that is given to the laborer which constitutes his price. The real price is that which a certain quantity of work performed actually costs the employer. For Marx, in this
light, labor is in almost all cases, cheaper in rich countries than in those that are poorer, although the price of food is lower in the poorer countries, but productivity is higher in the richer countries.

World market and unequal exploitation of labor

The main feature of capital is to extract profit from the difference between the value of labor (which includes its surplus-value) and the real price of labor. So, if it can exchange less labor for more labor, it can increase its profits. The nature of unequal exchange of labor value is also realized through the trade between more developed and less developed countries.62

The secret of the country with more advanced productive forces is that it uses its labor advantage achieved through technological innovation to under sell its competitors and yet realize a surplus-profit.63

Under colonial situations, the explanation of the source of unequal exchange of equal values is explained by the over-exploitation of labor.64

The last stage of unequal exchange just extended the division of labor to a world scale that the process of separation of the laborer from the means of production had generated. Under the forces of unequal development, proletarianization of the less developed countries would have been as inevitable as the expropriation of all peasants.
from their land. However, to understand the application of unequal development in real historical social formations, we must now introduce the concept of combined development presented by Trotsky (1965).

Uneven and Combined Development Versus the Evolutionist Theory of Successions of Modes of Production

Marx in Das Kapital quoted by Irving Louis Horowitz (1970, p. 3) writes: "The country that is more developed industrially only shows to the less developed, the image of its own future." Horowitz would add, that "It is amazing to note that what the mid-nineteenth century must have considered a wildly romantic thought is commonplace today. Current events have become more complex than Marx could possibly have anticipated, more centered on facts than on images." The facts about the third world are that it did not replicate the forms of societies of the industrialized world. The outcome in less developed or backward countries has been a combined result of modern and traditional forms. Marx's prediction did not come to pass, the identity of underdeveloped countries is far from that of the developed industrial societies today.

Marx's evolutionist perspective was founded on his theory of the process of successions of modes of production as a theory of societal change. In 1859, Marx in the preface of "A Contribution to the Critique of Political
Economy, presents a model of the materialist conception of history.65 Marx (1959) propositions are the basis of the classical formulation of the fundamental principles of historical materialism. From the perspective of the theory of modes of production, the workings of the law of uneven development of capitalism explains the process of dissolution of pre-capitalist modes of production. According to the theory of modes of production, the pre-capitalist modes would disappear leaving the capitalist mode as dominant and finally as the only mode of production.

However, in reality, the less developed countries did not replicate the model of production of the highly developed countries. In real societies, the pre-capitalist forms of production did not disappear and even if the capitalist form of production became dominant, it achieved this status, combined with pre-capitalist forms of production. The theory that can explain the survival of backward pre-capitalist forms of production in less developed capitalist societies is the theory of permanent revolution developed by Leon Trotsky. The theory is applicable to real social formations and is based on the law of uneven and combined development.
Trotzky's law of combined development as applied to historically determined social formations

Trotzky's analysis of Russian society was meant to be linked, and was effectively linked in his writings, to a theory of the Russian Revolution; the theory is known as "the theory of the permanent revolution." According to Trotzky, the theory of permanent revolution arises out of the conception of backwardness as treated in perspective of uneven and combined development. In the review of this conception, I shall focus my attention on the notion of combined development.

Ernest Handel (1980, p. 23) reveals the importance and influence of this law. "The organic unity of the capitalist world system by no means reduces this combination...on the contrary: The Capitalist world system is, to a significant degree, precisely a function of the universal validity of the law of unequal and combined development." Citing a passage of a later text of Trotzky (1939, pp. 40-41), where the author explains the sense of this effect of "combination," it is read that "colonial and semi-colonial countries are backward countries by their essence. But, backward countries are part of a world dominated by imperialism. Their development, therefore, has a combined character: The most primitive economic forms are combined with the last word in Capitalist technique and culture...."
The term "law of combined development" was coined by Trotsky in his "History of the Russian Revolution," only in this and subsequent works, that is only in the 1930s. The term itself does not appear in his early writings.66

The following passage is the one in which Trotsky (1972, pp. 27-28) makes first reference to this law. "The laws of history have nothing in common with a pedantic schematism. Unevenness, the most general law of the historic process, reveals itself most sharply and completely in the destiny of the backward countries. Under the whip of external necessity, their backward culture is compelled to make leaps. From the universal law of unevenness thus drives another law which, for the lack of a better name, we may call the law of combined development -- by which we mean a drawing together of the different stages of the journey, a combining of separate steps, an amalgam of archaic with more contemporary forms. Without this law, to be taken of course in its whole material content, it is impossible to understand the history of Russia, and indeed of any country of the second, third, or tenth cultural class."67

Societies develop in accordance with their own social, economic and cultural origins and characteristics. There is no reason to believe that all, sooner or later, evolve in the same direction on their own. The introduction of new, advanced forms of production and life styles, particularly
economic, instead of provoking development similar to that of some European countries within the context of their history -- creates an "amalgam" which is unique and which represents the particular juxtaposition of backward forms with the new ones. This process instead of contributing to the higher integration of these societies, drives them into higher degrees of internal conflict, and to conflict between each other. The underlying factor of this process of social disintegration, is that while capitalism develops one part of society, it throws back the development of other parts, hampering the integrity of the whole.

The character of the adoption of innovations under combined development

Because of the juxtaposition of backward forms and new forms, the new forms bear no relation to the old, much less do they evolve from them. On the contrary, the new forms are at first simply "appended" to the backward society. And this accounts for "combined development" in the sense of the adoption, as one stroke of the latest form. At the point of adoption, therefore, society may be said to change not from within but from without (because it never was able to appropriate and integrate the innovation). The innovation was adopted not by evolving within but by "grafting on" it; appending new ways of life. If this is the case, there are no processes or stages as yet, but only a leap. In append-
ing new forms, the backward society takes not their beginning, nor the stages of the evolution of an innovation, but rather the finished product itself.68

This explains why the new forms in a backward society, appear more perfected than in an advanced society where they are approximations only to the ideal for having been arrived by trial and error. This positive side of the phenomenon does not mean that every backward society will automatically exploit the advantages. In each case, the "Amalgam" will be different, depending upon the local "ingredients," but the phenomenon of "combined development" will always emerge the outcome, revealing that the results will vary, depending on the differential logics of accumulation and social relation present in each social formation.

Social generalization of Trotsky's theory of combined development

As compared with Marx's propositions of societal change, Trotsky's theory of the process of uneven and combined development can be said to break from the former as a case where diverse systems of production are combined and constitute a specific moment of a social formation.69

Because the sociological analysis of backwardness stops where the political analysis begins, my objective here is to center on the effects of uneven and combined development as they relate to the apparent juxtaposition of different forms
of agrarian production systems. The amalgam formed by this process will also be reflected in the co-existence of contradictory social classes related to the very old and very new forms of production. The amalgam identifies a social class stratification that will be reflected by my typology of agrarian producers. The uneven and combined development effects of the reproduction of commodity relations of production will distinguish these rural social classes through the asymmetrical and unequal access to life chances and other nominal and graduated parameters of status.

Conclusion

The direct contribution of the law of combined development will be to explain in my typology the differential effects of the process of proletarization through the modern and traditional labor markets. The effects of the law of combined development is that the pre- or noncapitalist forms of production instead of having disappeared are still present. The subordination of the pre- or noncapitalist forms of production to the logic of the capitalist production forms of accumulation are mediated by the markets of farm goods and labor.

In order to address the specific characterization of the amalgam of the Costa Rican Social Formation, I shall now present the process of combined and uneven development of
the Latin American Social Formations. The dependency model of Cardoso and Faletto (1968) elaborates the theory of the historical development of these social formations. The dependency model is based on the specific effects that combined and uneven development had on the formation of the nations -- states of Latin American societies. The model of Cardoso and Faletto also integrates the analysis of social classes, as viewed by both Marx and Weber from the perspective of their market situation.

The uneven development effects will be identified by the state of inequality among the production systems of the Pacifico Sur Region. The distribution of the asymmetric properties and indicators will follow a direct relationship to the penetration of the capitalist and commodity relations of production affecting the agrarian production system studied. The combined development effects will be identified by the juxtaposition of different forms of production systems set against one another. According to Trotsky (1970), the combined characteristics of the capitalist development process that affects nations like Costa Rica are distinguished by the opposite results it creates in different branches and sectors of the productive structure. The process is characterized by developing some parts while hampering and throwing back the development of others. For Trotsky, only the correlation of these two fundamental
tendencies explain to us the living texture of the historical process.
CHAPTER IV: A TYPOLOGY OF AGRARIAN PRODUCTION SYSTEMS FOR A DEPENDENT LATIN AMERICAN RURAL SOCIAL FORMATION

Introduction

The present chapter will identify the effects on the Costa Rican social formation of its entrance into the world market and the effects of this market-mediated process of reproduction on the system of rural social classes of this society. The characterization of the Costa Rican agrarian production structure will allow me to present the typology of agrarian production system and stratification of rural social class situations of the Pacifico Sur Costa Rican producers.

The central purpose of this chapter is to identify each theoretical proposition that will characterize the social stratification system of Pacifico Sur rural producers and their corresponding agrarian production systems. The theoretical propositions will be divided into two categories. The propositions on the properties of the full typology of both production systems and social class situations by degrees of commoditization and second specific propositions which refer to the differentiation of the rural labor markets by type of producers and social class situations in transition.

The last section presents the conceptualization of the causal model that predicts the odds or chances of proletar-
lanization of the simple commodity producers that participate in the labor markets. The causal relations of the model are identified and the specifications and theoretical relations between the prediction factors are explained.

The Dependency Model of the Latin American Social Formations

For Cardoso and Faletto (1968), the effects of underdevelopment in Latin America are a consequence of the forms of integration into the world capitalist market and system. Insertion into the world capitalist system created new problems to the process of formation for the nation-states in Latin America.¹

The external constraints that created restrictions to the management and decisional autonomy of the ruling classes in Latin America also created the situation of dependency. The study of the types of dependency consists in the analysis of the degrees of autonomy that the social actors were able to develop.

The variables that effect the degrees of autonomy

The different levels of autonomy that the local dominant classes in Latin American developed depended, according to Cardoso and Faletto (1968, p. 39) on the "ways they were able to establish their control or participation in the productive process and defined sure ways of institutional controls over them."
The relations between the economic system and the power structures that were established since the beginning of the independent life of these nations were conditioned by their peculiar status during the colonial period.

It should be stated that the two types of variables, the internal social structure and the capacity of the export groups to assure the control of this sector, influenced each other and conditioned the outcomes of the objective development possibilities of these nations.²

The cases of different historical outcomes

After independence, the immediate period that followed, the "anarchic" period, the development of the Latin American countries was characterized by more or less prolonged periods of acute internal struggles among the local power groups. According to Cardoso and Faletto (1968), two factors influenced this phenomenon:

1) From the point of view of the new influence of England, the hegemonic center of the world capitalist system.³

The general tendency was for the British to work through the local export power groups, which reinforced their position vis a vis the local oligarchy.

2) From the point of view of the internal situation.

The variations in successfully establishing internal alliances, were conditioned by the capacities that the local economic groups that controlled the export-productive
sectors had in assuring a significant economical contribution to the national income as a whole. In these cases, they were well established and were able to develop alliances with the oligarchy.

In the case of Costa Rica, the issue was not the high level of development achieved by the export-productive sectors during the period that followed the independence in 1821, but the very weak influence achieved by the internal oligarchy. Costa Rica was the most peripheric settlement of the Central American colonial entity, known as the "Capitania General de Guatemala." Its center was Guatemala, its most extreme and remote region was Costa Rica. The very poor and scarcely populated province of Costa Rica was not able to have conditions for the development of the "Hacienda" production system that was the base of the oligarchy in Latin and Central America. The power base of the export-productive groups found no resistance in a very weak traditional oligarchy to consolidate a stable and lasting alliance. The foundation of a long lasting democracy in Costa Rica was the extended small scale family farm system, the absence of an influential oligarchy and the relative strength of a ruling power group linked to the world market through the export of coffee.
The linkage through the enclave

The results of the local power groups struggle to control their internal economic base directed to the export markets was not homogeneous in Latin America. In the less successful cases, some of the countries found themselves bound to the world capitalist economic system through centers of extractive or primary activities that were controlled directly by these hegemonic centers. This is the case of the enclaves.

Within the types of enclaves, the one that is more relevant for our study is the type that was an expression of the direct expansion of the central capitalist economies.

For the countries that had only been able to incorporate themselves marginally to the world economy, like the Central American nations, and some Caribbean countries, the enclave had special consequences. In these countries with late linkage, and that were characterized by a prolonged period of "anarchy," an unstable alliance with the internal power groups or a prolonged rule of the local oligarchies, their insertion in the world capitalist system was at the initiative of imperialism, that through the plantation enclaves ordered their economies.4

Consequences of the enclaves

According to Cardoso and Faletto (1968), the consequences of the enclave were the loss of significance of the
role of the local producers in the direction of the national economies. Together with the loss of their economic functions, they also lost the capability of organizing a local distribution of the resources of the nation. The weakness of this social group left these countries without the leadership of any power group that could have defended the national interest of their resources, with regard to the external monopoly.

For the dependency model, the emergence of the enclave was a consequence of the new character of capitalism at the time. The period was characterized by the change from a financial and commercial emphasis in its controls of the perispheric underdeveloped nation, to a control of the very centers of the production activities themselves.\textsuperscript{5}

**Types of enclaves**

Two types of enclaves can be distinguished -- the mining enclaves and the agriculture or plantation enclaves.\textsuperscript{6}

They can be differentiated by the following characteristics:

1. by their use of labor power,
2. by the level of productivity achieved, and
3. by the degree of required capital concentration of the operation.
The Plantation Enclaves and the Central American Social Formations

The dependency model identifies among the socio-economic effects of this type of enclave its competition with land dedicated for subsistence farming, which increases the prejudice to the local internal market already weakly developed.

Developing a foreign producer-export sector does not promote an increase of qualified labor, but it reinforces the low qualified abundant labor supplies already available in the local economy tied to the traditional forms of production. Among other characteristics, this model states that the plantation enclave reinforces the traditional local power structures of internal domination and increases the loss of independence, weakening the institutional frames that would be necessary for an autonomous development. The dependency was aggravated in the case where the local social groups lost control over their export sector, like in Honduras.7

Costa Rica represents the second case in which a previous existing export sector was controlled by local power elites tied to this production process. In the case of Costa Rica, the national leadership groups had more margin of leverage. The national elites could use tactics of increased pressure against the foreign interest because they could rely on the resources of their own productive
sectors to demand a better distribution of gains from the enclaves. This more aggressive policy was substantiated by the internal alliances they consolidated with their oligarchies that had a subordinate role in the internal power structures. These policies largely depended on the international market prices of their other export crops or products they directly controlled and the level of cohesion they had achieved with their internal alliance in backing the institutional political measures and autonomy of their policies. The higher degree of autonomy also expressed a higher consciousness of their national and class interest with regard to the externally controlled enclave.

In the case of Central America, this situation of greater autonomy of the local social groups controlling these productive sectors and local state-apparatuses was exemplified by Costa Rica and Guatemala. In both countries, the dominant classes could count on coffee production-export activities to negotiate more aggressively with the banana enclaves and obtain more concessions from them. A good indicator of this level of autonomy and strength of bargaining could be the tax rates they were able to extract from the enclaves in comparison with countries in the least advantaged case like Honduras. In both cases, Guatemala and Costa Rica, the dominance of the export-orientated local power elite explained the
control of the state-apparatus by this group. However, in Guatemala, where the oligarchy was in its stronghold, this group left the traditional hacienda and transformed itself into an export-oriented capitalist sector. In Costa Rica, the absence of a strong oligarchy permitted the export oriented capitalist groups to sustain a long lasting control of the state-apparatus under democratic rule, without a need for the authoritarian mechanisms that were used in Guatemala.

The enclave in the transition period of Central America

Among the uneven and combined results, the enclave in these countries transformed peasants into highly concentrated masses of agricultural workers. Even if the peasants were isolated from the rest of the population, they were able to develop high levels of organization and union consciousness. The enclave process made it possible for these worker groups to initiate an early political and social participation under their own banners.

The process of capitalist development of agriculture led by a transformed oligarchy pushed the peasant population (one that could not be absorbed by the enclave) into the subsistence economy. The enclave, however, played a role in reducing these tensions. Because of its massive use of labor power, the enclave contributed by reducing the ex-
The explosive nature of this situation. The enclave employed the landless peasants as agricultural workers.

The enclave and the Costa Rican agrarian structure

For Costa Rica, the result was to form a juxtaposition of two production systems in agriculture. First, the banana enclave system that was an extension of the central capitalist economies that controlled this production sector. The enclave's only support to the nation's productive forces was its massive use of landless rural workers, the rural proletariat. The enclave shared with the local export capitalist agricultural sector the supply of Costa Rican rural wage-labor class. The subsistent Costa Rican peasants served as a reserve army of labor for both the foreign enclave and the capitalist Costa Rican agrarian producers. The peasants, in this role, subsidized the capitalist productive sector, both the foreign enclave and the local export sector. The peasant, by assuming the self-reproduction cost of the future agricultural workers, saved the capitalist sector from these costs. Also, the enclave shares in the self-exploitation of the simple-commodity agrarian production sector of Costa Rica. The Costa Rican farmers or the simple commodity producers that grew food crops for the internal market, subsidized the costs of reproduction of the whole capitalist sector both urban-industrial and agrarian. The farmers subsidized the capitalist sector by producing cheap
food crops, so the cost of reproduction of the workers was kept at the lowest possible level. The results were lower salaries and higher levels of surplus value for the employers. The depression of the prices of the food crops for the internal market benefitted both the enclave and the Costa Rican capitalist agriculture producers by allowing them to pay lower wages. The division of labor that specialized the farmer to cultivate food crops for the internal market and the capitalist for export crops identified the advantages for the capitalist to neglect the food crop production activities. The role of the state in depressing the prices of food in the local economy was essential in this result.

In order to address the typology of Costa Rican production systems in the agrarian sector, the distinction between the enclave and the local agricultural productive sector is essential. The typology will not include the enclave because, even if this production sector was situated geographically in Costa Rica, it did not represent part of a Costa Rican production system. The enclave was a foreign production system, an extension of the economy of a developed central capitalist social formation extended into an underdeveloped peripheric social formation. The main effect of this productive system of enclave plantation was to employ landless peasants and transfer their surplus value to the foreign economic centers. Independent from its other
effects on the Costa Rican society as a whole, it cannot be considered, for our purpose, as an element of the agrarian production systems of Costa Rica. The typology will only include the Costa-Rican production systems as characteristic of the agrarian structure of this social formation.

A Typology of Agrarian Production Systems

Max Weber’s theoretical legacy from his "Agrarian Sociology of Ancient Civilizations" (1976) was to propose a typology of production forms based on the types of systems of surplus extraction. For Max Weber, the starting point for the analysis of agrarian production systems in ancient social formations were the ways in which the dominant classes extracted surplus labor from the subordinante classes.13

For Jonathan M. Weiner (1982:388) the typology based on the forms of extraction of surplus value in the ancient world is an approach which is "...characteristically Weberian in that the argument consists of presenting a limited number of ideal types, each of which represents one historical solution to a recurrent problem of social organization, and which together represent the full range such solutions have taken." The same approach was shared by Karl Marx for whom surplus value should be understood as congealed surplus labor. As for Weber, Marx’s guiding factor to distinguish social formations was the identifica-
tion of the forms taken by the extraction of surplus labor.  

In the capitalist mode of production, the extraction of surplus labor takes the form of the accumulation of commodities because this form of production is characterized by the generalized production of commodities. The same holds true for agricultural production under the dominance of the capitalist form of production. The contribution of Arthur L. Stinchcombe was to develop a typology of rural class relations based on the analysis of rural enterprises instead of occupational structures where rural enterprises predominate. Stinchcombe stated (1961:167) "Our problem then, is to relate type of agricultural enterprises and property systems to the patterns of class relations in rural social life."

However, Stinchcombe could not integrate into his typology of commodity oriented production systems, those that did not produce for the market, like the peasantry. Stinchcombe (1961:166) explicitly stated, "Moreover, I have deliberately eliminated from consideration all precommercial agriculture, not producing for markets, because economic forces do not operate in the same ways in precommercial societies and because describing the enterprise would involve providing a typology of extended families and peasant communities, which would lead us far afield."
The theoretical challenge posed by Stinchcombe is to generate a typology of agrarian production systems which operate under the dominance of commodity production, but which include pre- or noncommercial agricultural producers, which, even if not producing for the market, are integrated into the overall capitalist process of extraction of surplus-labor and thus, an integral part of the capitalist social formation. For Marx, the historical conditions of commodity production presuppose that pre-commodity or noncommodity production systems would have had to be submitted to the dominant forms of reproduction of relations of production of the commodity form. However, the combined and uneven effects of the process of commoditization of agricultural production did not just eliminate previous forms, but also preserved older forms under a new amalgams. According to V. I. Lenin (1965:168-169), "In reality we have an heterogeneous phenomena to deal with."

In order to address the theoretical challenge of constructing a typology of agrarian production systems in a social formation dominated by commodity relations of production it is necessary to precise the concept of social reproduction under commodity relations of production. A situation in which pre-commodity or noncommodity production forms constitute mosaic with fully market mediated reproduction and where the process of extraction of surplus labor
which involves all the production systems is dominated by the capitalist market-oriented enterprises.

**Commoditization and social reproduction**

Commodity relations are market mediated reproduction of relations of production, however, the reproduction process of commodity relations identifies a process of social reproduction through commoditization. According to Bernstein (1979), commoditization is a process of deepening commodity relations within the cycle of reproduction. H. Friedmann (1980:162-163) explains that this process takes place in agriculture when households that are producers develop a dependency on the markets for their reproduction, stating "Commoditization occurs to the extent that each household is severed from direct reciprocal ties, both horizontal and vertical for renewal of means of production and of subsistence, and comes to depend increasingly on commodity relations of reproduction."\(^{18}\)

The development of commodity relations does not take place without resistance. To classify the notion of the process of extension of commoditization it is important to specify the characteristics of the process of social reproduction. The nature of the cycle of reproduction will illustrate that resistance to commoditization is also a form of social reproduction.
Following Friedman (1980) it can be stated in synthesis that reproduction is the renewal of both technical and social elements of production from one round to another, such that production recommences in its previous form at each cycle. The inequality of access to goods and services is an indicator of social relations based on privilege and domination reproduced by the markets. In a capitalist social formation like the Costa-Rican rural Pacifico Sur Region which is characterized by the generalized circulation of commodities, the conditions of social reproduction under the effects of uneven and combined development of capitalist relations of production can take two different directions: First, the process of commoditization implies that each individual household with access to land can become an enterprise, whose relations to outsiders progressively takes the form of buying goods and labor and selling products through the markets. Commoditization will begin with simple commodity production and end with capitalist production by full scale capitalist agrarian enterprises. Second, reproduction as stated by Friedmann (1980:163) may take another direction "...if household reproduction is based on reciprocal ties, both horizontal and vertical, for renewal of means of production and subsistence, the reproduction resists commoditization." In this case, households with access to land, that are repro-
duced through the mediation of direct, nonmonetary ties, within each household and to other households, and that are reproduced through institutionally stable mechanisms of reciprocity of kin or community will resist commodity relations. Such households are limited in their ability to penetrate the cycle of reproduction, through commodity relations.

Under the effects of the generalization of commodity production, the first result is the differentiation of agricultural producer by varying degrees of commoditization. From full predominance of commodity relations to the lack of integration into markets for the renewal of means of production and subsistence, the degree of penetration of commodity relations stratifies the agrarian producers from capitalist to peasants with an intermediary category the simple commodity farm producer. However, as I shall hypothesize, the effects of this social stratification will be related to consequences of social differentiation which will correspond to a linear distribution of properties among these agrarian production systems. An asymmetrical distribution of indicators of access to goods and services will characterize the social differentiation of the producers.

If the effects of the law of uneven development can explain the different degrees of commoditization and the lack of commoditization through reproduction under resis-
tance to commoditization, it does not account for the
effects of the law of combined development. The sole action
of the process of commoditization would in the long run
produce the transformation of those producers marginalized
from market mediated reproduction into nonproducers expropriating them completely from their land and proletarianize
them in absolute terms. First, the simple commodity
producer would fall under the competition of the capitalist
producers because they do not accumulate surplus-value and
thus could not compete in the long run. However, proletarianization is not the only outcome possible for the
simple commodity producer, transformation can also occur by
which the simple commodity producer can become a
capitalist. In the case of simple commodity producers
that intensify their commodity relations by not only selling
their products to a market of agricultural goods but also by
becoming a buyer of labor power in the labor market, the
transformation to capitalist production is a possible
outcome.

Under the effects of the law of uneven development,
transformation then can generate at least two outcomes, one
transition into capitalist production, and transformation
into proletarianization. The effects of combined develop-
ment, however, explain the stabilization and relative
permanence of the pure simple commodity form and its co-
existence with a proletarian simple-commodity producer. The proletarian simple-commodity farmer sells his labor power and combines these relations of production with his/her participation in the market of agricultural products as a simple commodity producer.

In the case of the peasantry, the combination of these two laws, of uneven and combined development, can be better appreciated. Historically, the destruction of the peasant production form was a precondition for the emergence of capitalist production itself. Uneven development of commoditization left to its own action should have decomposed completely the peasant subsistence economy, freed the peasant from access to land and completely proletarianized them into agricultural laborers. However, not only has a peasant producer, who is reproduced in resistance to commoditization, continued to prevail, but the process of transformation affects this producer in two directions, the same as it affected the simple commodity producer. In the case of a decrease of the resistance to commoditization and an integration into the market of agricultural produce, the peasant producer can be transformed from a solely subsistence producer into a simple-commodity producer. However, if transformation is affected in the opposite direction and the peasant integrates into the labor market and sells his/her labor, then the process of proletarianization is
accelerated and the outcome would be to lose his/her status as a producer and become solely a wage earner. The effects of the law of combined development will explain that the presence of a purely subsistence peasant production system has been preserved and that it even can co-exist with a semi-proletarianized peasantry under the effects of transformation towards proletarianization. The outcome is a peasant worker of sub-proletarian standards.

Transformation is, in all cases, the undermining of reproduction and the recombination of elements of production into new relations of production. However, it is not always the recombination with only "old" or pre-commodity forms of production as was stated by Friedmann. The understanding of these different possible outcomes require a differentiation of the role of proletarianization by differentiated co-existing labor markets and the distinction between participation in the labor markets under the differentiated status of buyer or seller of labor power.

Commoditization and proletarianization

For Friedmann (1980:166), "...the chief unifying and distinguishing characteristic of the peasantry is partial integration into markets. Within the limits of no integration into markets at one extreme and complete integration into markets at the other, there is no specific level of integration of any particular peasantry." However,
Friedmann does not distinguish between labor markets and produce commodity markets, and does not take into account within the labor market the crucial difference between buyers and sellers of labor power. In regard to the market of farm produce commodities, the effect of integration or not is indeed a crucial difference in itself, because both buyers and sellers of commodities are on, theoretically at least, equal standing, exchanging commodities at equal value. To participate in the market of agricultural commodities distinguishes accurately between commodity reproduction and resistance to commodity reproduction. In one case, accumulation is possible under conditions of capitalist production, but in the other, no accumulation will occur because of subsistence production which eventually will all be consumed. Integration or non integration is not a distinguishing factor when the market of labor power is the case. In the case of the labor market, buyer and seller of labor do not exchange theoretically equal value for the commodity that is bought or sold. The reason is that the commodity labor power is not exchanged at the same value. The buyer of labor power buys labor power under its value, the sellers of labor power sells under its value. The buyer of labor power can thus accumulate surplus value and convert it into capital, the seller of labor power
sells labor power at a price equivalent to his/her cost of subsistence and thus cannot accumulate capital.\(^{26}\)

I contend that the only agrarian producer that is truly being proletarianized in the case of the Pacifico Sur Region of Costa Rica are the simple-commodity producers that combine their farm production with their participation as sellers of labor power mainly into the journeyman -- "Jornalero" day-to-day occasional labor market for agricultural production for capitalist enterprises. The peasant subsistent agrarian producer, that sells his/her labor power mainly to the seasonal labor market, specialized toward the harvest of seasonal export crops. Such a peasant is, in fact, already a proletarian disguised as an agrarian producer.

The peasant worker subsidizes with his/her own subsistence production the over exploitation of his/her own work by compensating the low salaries received and the over accumulation of surplus value permitted to the buyers of labor power. In any case the peasant is in fact a subproletarian, member of the reserve army of labor which has yet to be absorbed into the class of agriculture workers. The reason for the semi-proletarian status of this type of peasant is the under development of the capitalist production system, to provide full time employment for seasonal workers. In reality, the exploitation of the peasant is
increased by his/her own self-exploitation. The peasant as a subsistence producer for consumption, contributes to subsidize the historical high levels of surplus value that the export cash crop production sector of the capitalist agrarian economy has been able to accumulate.

The peasants that combine their own production with a participation in the labor market is, in fact, the lowest category of all producers in terms of standards of living, and suffers the greatest degree of inequality in the access to live chances and receives the smallest share of the social wealth generated by the agrarian production system.27

The presence of capitalist agriculture producers that combine their own production with employment outside their enterprises cannot be identified as being transformed by proletarianization. The capitalist producer that is a wage earner does not specialize or concentrate his/her participation either in the labor market of seasonal labor or that of the journeyman, occasional day-to-day laborer market, but will be surely integrated to a significant degree into the permanent labor force market that permits a level of full employment year round. The capitalist employee receives a retribution compatible to their levels of training, education and skills, that will combine with his/her own gains from their enterprises. However, I hypothesize that his/her participation in the labor market as a seller of labor power
Identifies a degree of resistance to full commodity reproduction and that situates this producer in a disadvantage with regard to surplus-value accumulation vis-a-vis the capitalist producer that does not sell his/her labor power. The process of transformation suffered by a capitalist producer that also sells his/her labor power either to a commodity production labor market or a noncommodity production labor market is affecting this producer from the full benefits of complete commodity reproduction. Either the transformation process is converting him/her into a wage earner of a skill or semi-skill labor market, or he/she is in transition from being an employee with skill labor qualities into a full capitalist producer. Either he/she is a wage earner that is in transition to become a full capitalist exclusively reproduced by commodity relations or a capitalist in transition of becoming a seller of his/her labor force in a skilled or semi-skilled labor market.28

Labor force participation will distinguish each category of producer from those that in their same level or with the same degree of commodity relations are not participating. If the uneven development of commoditization characterizes the different agrarian production systems within a capitalist social formation, the combined effects of labor market participation transformation will differentiate each type of
producer by the effect of added resistance to commoditization within each category or type.

The uneven and combined development of commoditization will characterize an agrarian production system by degrees of commodity relations and resistance to commoditization. Labor force participation will result in reproduction differentiated within each type by the added effect of the recombination of relations of production from the selling of their labor power generated by the process of transformation. The social stratification system resulting from this agrarian production system differentiated by degrees of commoditization will correspond to a social differentiation of social classes and classes in transition. The production systems and rural classes will present differences in characteristics, opportunities and share of societal resources that will follow a linear progression in the distribution of their properties. The typology that follows, which presents different production systems and social class situations of producers organized around the specific causal component of commoditization, will identify the life chances of these categories of people. The theoretical propositions stated will identify how the life chances of these classes are affected by their degree of market mediated reproduction into class situations.
A typology of agrarian production systems by degrees of commoditization

Commodity reproduction, as I have stated, is affected by the degree of integration and the resistance to integration into market reproduction and by the resistance to commoditization generated by their participation in the labor force. The joint effects on the uneven development of commodity reproduction and the combined resistance to commoditization by labor market participation produce a system of social classes. Based on the process of reproduction of commodity relations identified as degrees of commoditization, I shall distinguish both a system of agrarian production types and a system of social classes for the Pacific Sur Region of Costa Rica.

I propose a typology of agrarian production systems and household reproduction into class situation based on the following mediation: 1) market or nonmarket production, and 2) hiring or not hiring labor power.

The reproduction of agrarian production systems and households class situations by the mediation of commodity accumulation through participation in markets can be represented as follows:
<table>
<thead>
<tr>
<th>Buys Labor Power from Labor Markets</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sells produce of land holding to markets of agricultural commodities</td>
<td>Yes</td>
<td>1. Capitalist producer(^31)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Simple commodity producer(^32)</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>4. Nonproductive land holding recreational-leisure(^33)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Peasant producer(^33)</td>
</tr>
</tbody>
</table>

After functional reduction, the typology will only include three types, characterized by varying degrees of commoditizations ranging from higher with the capitalist producer, medium degree with the simple-commodity producer and lower with the peasant producer. The degrees of commoditization will now be qualified among each type by the effect of added resistance to commoditization resulting from labor force participation.

Applying the process of construction of a full typology called by Lazarsfeld (1937) substruction, I shall extend to all types the property space that identifies the dimension of labor force participation. Labor force participation will be defined as the selling of labor power in the labor markets.
Typology of Agrarian Production Systems and Household Class Situations by Degrees of Commodity Evolvement

Resistance to commoditization by the effect of transformation through labor force participation - Sells labor power in labor markets

<table>
<thead>
<tr>
<th>Level of commoditization</th>
<th>No</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>High: Capitalist producer</td>
<td>1. Higher capitalist entrepreneur</td>
<td>2. Lower capitalist employee</td>
</tr>
<tr>
<td>Medium: Simple commodity producer</td>
<td>3. Higher simple commodity farmer</td>
<td>4. Lower simple commodity farm worker</td>
</tr>
</tbody>
</table>

1. The highest degree of commoditization identifies the capitalist entrepreneur, this type is devoted exclusively to the agricultural enterprise and does not sell labor power in the labor markets, but is reproduced entirely by the mediation of commodity relations from selling agricultural production to the markets of agricultural commodities and from buying labor power in the labor markets. The production unit is characterized as a full capitalist enterprise devoted to agricultural production. The class situation is exclusively capitalist as owner and controller of the means of production and appropriator of surplus-labor power. Differentiation within this type will vary according to the characteristics of the agricultural enterprise.

2. The second highest degree of commoditization identifies the capitalist employee, this type combines the commodity relations with the relations of production generated from the selling of labor power to the labor markets. The class situation is defined as a class in transition either to become a full capitalist entre-
preneur or if the effects of the resistance to commoditization are not overcome, toward a full time wage earner, member of the labor force. The differentiation from the other agrarian producer that also sell their labor power will be based on the nature of the labor market that characterizes this type of employee from the rest. The specification of the type of specialization in the labor market that identifies and distinguishes the capitalist employer will be stated in the theoretical proposition that will follow. In advance, however, I can state here that the capitalist employee will specialize in the skilled and semi-skilled labor market concentrating in permanent full time employment.

3. The medium high level of commoditization is represented by the simple-commodity farmer. The simple commodity production type is characterized by exclusive reproduction through the mediation of the markets of agricultural commodities. The class situation is characterized by the exclusive commodity relations of selling the produce of the farm and by the exclusive use of family labor within the production unit. The different degrees of commoditization within this type will depend on the ratio of market oriented production versus production for self consumption of the household, as well as of the characteristics of the production units or farm.

4. The medium low level of commoditization is represented by the simple-commodity farm worker. This type of producer is characterized by the combination of commodity relations as a simple commodity farmer and the relations of production resulting from the selling of their labor power in the labor markets. The class situation is that of a class in transition either towards full commodity relations reproduction as exclusive simple-commodity producers or if the resistance to commoditization prevails to full-fledged proletarianization as a process that leads to the expropriation of means of subsistence viable enough to prevent the force sale of their labor powers to the labor markets. The differentiation with regard to the other types of producers that also sell their labor power will be stated as a theoretical proposition that will identify the type of specialization this type of producer has in the labor market. For now I state that this type of producer specializes in selling labor power to the journeymen, occasional day-to-day labor
market. The journeyman, day-to-day occasional labor market is a semi-skilled and unskilled labor force market.

5. The low higher level of commoditization is the peasant producer. The peasant producer is reproduced exclusively by the use of family labor devoted to agricultural production for the exclusive use of self-consumption. The subsistence farmer or peasant farmer are characterized in their class situation by resistance to commoditization, representing a low degree of commodity relations penetration of their relations of production. In fact, the peasant farmer is a sub-proletarian, member of the rural reserve army of labor that has not been integrated into the ranks of the rural proletarian farm workers' labor force. The class situation is stable and the differentiations among this type will depend on the consumer ratio balance defined by Chayanov (1925) between the amount of subsistence agricultural produce generated in the farm and the consumption needs of the peasant household. The balance between subsistence needs and the subjective distaste for manual labor as dis-utility depends on the degree of self-exploitation which is subject to the ratio between working members and nonworking members of the peasant household.

6. The lowest degree of commoditization is represented by the semi-proletarian peasant. The semi-proletarian peasant producer is reproduced by the combination of the added factors of resistance to commoditization exemplified by subsistence farming and exclusive use of family labor in farm production with the relations of production generated from the selling of their labor power to the labor markets. The class situation of the semi-proletarian peasant is that of a class in transition either to become a full peasant farmer, capable of assuring all the consumption needs of their household, or if the effects of the resistance to commoditization are overwhelming to lose the land holding and become a landless peasant. I can advance the proposition that will be formally stated later, that the semi-proletarian peasant specializes in the seasonal labor market. The hand picking of seasonal export cash crops, the lowest skilled labor market, generally involves even the children of the peasant household. The semi-proletarian peasant is truly the underclass of all rural classes with access to land. The condition of subproletarians or lumpen-proletarians is aggravated by the extraction of surplus labor they provide as
subsidies to the agro-export sector. The peasants compensate for their low wages with their own self exploitation, assuming during a great part of the years available working time their own cost of reproduction through subsistence farming, saving their employers the pay needed to have them available for the harvest and other unskilled types of work.

The typology presented is constructed on one single dimension that identified different levels of commoditization which correspond to different agrarian production types and class situations. Commoditization ranked by different degrees from highest to lowest is the theoretical concept that sustains my typology.

Typology of Agrarian Production Systems and Class Situations by Degrees of Commoditization

From higher to lower:

- Capitalist entrepreneur: P. 6
- Capitalist employee: P. 5
- Simple commodity farmer: P. 4
- Simple commodity farm worker: P. 3
- Peasant farmer: P. 2
- Semi-proletarian peasant: P. 1

The following theoretical propositions will identify the distribution of the life chances that these different types of producers and social classes achieve as a consequence of the degree of penetration of commodity relations in the reproduction of their class situations.
Theoretical Propositions on the Properties of the Agrarian Production Systems

The following general propositions will characterize the agrarian production systems and the class situations together with the intermediate class locations of the categories in transition by their associative-consequential properties derived from their degree of market mediate reproduction through commodity relations of production.

The first proposition refers to the foundation of the typology and stratification system on the basis of the concentration of landed property. The proposition states: "Higher the degree of commoditization, higher the concentration of landed property." The proposition identifies that as commoditization levels increase, the access to land increases.

The second proposition refers to the organic composition of capital or fixed capital incorporated in the farms or production units. The proposition states: "Higher the degree of commoditization, higher the degree of the organic composition of capital." The proposition identifies that, as commoditization increases, the degree of fixed capital or the technological level of mechanization in the farm increases.

The third proposition refers to the specialization in the type of production to which the farms are committed. The proposition distinguishes between export-oriented
products versus food crops for the national markets. The proposition states: "Higher the degree of commoditization, higher the specialization of production for export markets."

The fourth proposition refers to the risk factor involved in production. The proposition distinguishes between the perceived degree of security versus risk derived from the type of production orientation of the farms. The proposition states: "Higher the degree of commoditization, higher the shared perception that the type of production is secure."

The fifth proposition refers to the relationship between the export oriented or specialized character of the farm production and the evaluation of the security versus risk nature of that type of production activity. The proposition states: "Higher the export specialization of production higher the shared perception that the type of production is secure."

The sixth proposition refers to the amount of production generated in the farms or production units. The proposition distinguishes farms by their level of activity and production. The proposition states: "Higher the degree of commoditization, greater the production of the farms."

The seventh proposition refers to the distribution and access of institutional services for production. The proposition distinguishes between the agrarian production
systems and their uneven access to institutional services like technical assistance for production and credit. The proposition states: "Higher the degree of commoditization, greater the access to institutional services for production to the farms."

**The eighth proposition** refers to the degree of participation in the financial and capital service institutions. The proposition distinguishes between agrarian production systems and their uneven access to the banking and financial institutions specifically. The proposition states: "Higher the degree of commoditization, higher the level of participation in the financial and banking institutions."

**The ninth proposition** refers to the intensity of the use of labor in the work process of the production units or farms. The proposition distinguishes the uneven distribution of the intensity of the demands for the occupation of labor in the different types of production systems. The proposition states: "Higher the degree of commoditization, higher the intensity of the occupation of labor in the farms."

**The tenth proposition** refers to the application of technological practices in the production process of the farms. The proposition distinguishes between the types of agrarian production systems and the level of technological innovation adopted. The proposition states: "Higher the
The eleventh proposition refers to participation in formal organizations within the community. The proposition distinguishes the uneven levels of social participation in the formal groups present in the community from the different types of agrarian producers and social classes conceptualized in the typology. The proposition states: "Higher the degree of commoditization, higher the degree of participation in formal organizations by the producers."

The twelfth proposition refers to stability of residence. The proposition distinguishes the agrarian producers with regard to their time of residence in the rural community. The proposition states: "Higher the degree of commoditization, higher the stability of residence of the producers in their rural communities."

The thirteenth proposition refers to the social differentiation generated by the differential access to education. The proposition distinguishes the producers and class situations that correspond to the different types of agrarian production systems by their uneven access to education. The proposition states: "Higher the degree of commoditization, higher the level of education of the producers."
The fourteenth proposition refers to the social differentiation by differential access to quality housing. The proposition distinguishes the producers of the different agrarian production system and their class situation by their uneven participation to quality housing. The proposition states: "Higher the degree of commoditization, higher the access to quality housing."

The fifteenth proposition refers to the social differentiation by differential access to household appliances. The proposition distinguishes the agrarian production systems and the class situation of the producers and their households by the uneven distribution of household appliances that indicate different levels of quality of life standards. The proposition states: "Higher the degree of commoditization, higher the access to household appliances."

The sixteenth proposition refers to social differentiation by differential access to health care. The proposition distinguishes between the agrarian production systems and the class situation of the producers and their families by the uneven participation as clients in the health care service institutions. The proposition states: "Higher the degree of commoditization, higher the access to health care services."

The seventeenth proposition refers to social differentiation by the inequality of the distribution of female-
headed households between the families of the different types of production systems. The proposition states: "Higher the degree of commoditization, lower the presence of female heads of households on the farms."

The eighteenth proposition refers to the social differentiation of the agrarian production systems by the uneven concentrations of families and people concentrated in each type of production system. The proposition states: "Higher the degree of commoditization, the higher the concentration of population incorporated and dependent of the farms' production activity."

The following specific theoretical proposition refers to the labor market differentiation of type of agrarian production system and social class situation of the producer. The proposition distinguishes the different types of specialization of the labor force into different rural labor markets according to the type of production system they participate in.

The first labor market proposition refers to the labor force specialization of the capitalist employee. The proposition distinguishes that members of the labor force, who are also producers of the capitalist agrarian production system, specialize in the permanent full time employment labor market. The proposition states: "Capitalist
employees concentrate their labor force participation in the permanent, full time employment labor market."

The second labor market proposition refers to the labor force specialization of the simple commodity farm worker. The proposition distinguishes that member of the labor force who are also producers of the simple commodity agrarian production system specialize in the journeyman, occasional day-to-day employment labor market. The proposition states: "Simple commodity farm workers concentrate their labor force participation in the journeyman, occasional, day-to-day employment labor market."

The third labor market proposition refers to the labor force specialization of the semi-proletarian peasant. The proposition distinguishes that members of the labor force that are also producers of the peasant agrarian production system specialize in the seasonal employment labor market. The proposition states: "Semi-proletarian peasants concentrate their labor force participation in the seasonal employment labor market."

Theoretical Propositions Predicting Proletarianization

The following theoretical proposition refers to the causal, conceptual model of predicting proletarianization. The propositions distinguish the causal factors that predict the chances or odds of participation in the labor markets as a member of the proletarian labor force.
The first proletarianization proposition refers to the type of agrarian producer that is subject to participation in the labor force through proletarianization. The proposition distinguishes that among the different types of agrarian producers in social class situations in transition that participate in the labor force, only the simple-commodity farm worker suffers proletarianization. The proposition states: "The simple-commodity farm worker is the only agrarian producer whose participation in the labor force can be predicted on its chances or odds of proletarianization which increase as the amount of landed property decreases, the educational level increases, the organic composition of capital decreases, and the dependency ratio increases."

The second proletarianization proposition refers to the causal factor of access to land or amount of land property. The proposition distinguishes that the chances or odds that a simple commodity producer has to participate in the labor market are inversely related to the amount of landed property at his or her disposal. The proposition states: "Lower the amount of landed property disposable, higher the chances or odds of proletarianization."

The third proletarianization proposition refers to the causal factor of education. The proposition distinguishes that the chances or odds to participate in the labor markets
are directly related to the level of education achieved by the simple-commodity producer. The proposition states: "Higher the level of education achieved, higher the chances or odds of proletarianization."

The fourth proletarianization proposition refers to the causal factor of the organic composition of capital or level of mechanization of the farm. The proposition distinguishes that the chances or odds of participation in the labor markets are inversely related to the degree of the organic composition of capital or the level of technological mechanization of the simple commodity producers' farm. The proposition states: "Lower the degree of the organic composition of capital, higher the chances or odds of proletarianization."

The fifth proletarianization proposition refers to causal factor of the dependency ratio level. The proposition distinguishes that the chances or odds of participation in the labor markets is directly related to the level of the dependency ratio of the simple commodity producer's household. The dependency ratio is defined as the proportion of nonworking household members in the household. The proposition states: "Higher the dependency ratio of the household, higher the chances or odds of proletarianization."

The four causal factors conceptualized to predict the participation of the simple-commodity producer in the labor
markets interact as a causal model. The interactions of the model are specified in the following diagram:

The Causal Model that Predicts the Odds or Chances of Proletarianization of the Simple-Commodity Producer

 Specification of the interactions of the model:

1. Lower concentration of landed property, higher levels of education.\(^{35}\)
2. Higher concentration of landed property, higher degrees of the organic composition of capital.\(^{36}\)
3. Higher concentration of landed property, lower dependency ratio.\(^{37}\)
4. Higher level of education, higher dependency ratio.\(^{38}\)
5. Higher levels of education will predict higher odds or chances of proletarianization.\(^{39}\)
6. Lower concentrations of landed property will predict higher odds or chances of proletarianization.\(^{40}\)
7. Lower degrees of the organic composition of capital will predict higher odds or chances of proletarianization.\(^{41}\)
8. Higher dependency ratios will predict higher odds or chances of proletarianization.\(^{42}\)
Conclusion

The theoretical propositions, both general and specific, presented in this chapter have been based on the previous theoretical framework developed. The purpose of this effort has been to be able to generate a typology of the agrarian production systems of the Pacifico Sur Region of Costa Rica.

In order to test our proposition, I will first present the methodological procedures that generated the data on the rural producers and their households in Costa Rica, the nature of the sampling, gathering and coding of the data. The following chapter will center on the operationalization of my theoretical propositions into testable hypothesis and the construction of the causal model that predicts the proletarianization of the simple commodity producer.

The causal model that predicts proletarianization will be tested on all three types of agrarian producers, the capitalist, the simple-commodity producers, and the peasant producer. However, it is my theoretical proposition that only the labor force participation of the simple-commodity producer will be predicted through the proletarianization causal model. The producers of the capitalists or peasant systems that participate in the labor markets will not be predicted by the model of proletarianization. The goal of the model is to identify the contribution of access to land,
education, organic composition of capital, and the dependency ratio in the prediction of the odds or chances for simple-commodity producers to join the labor force.
CHAPTER V. METHODOLOGY AND OPERATIONAL DEFINITIONS
OF THE PROPOSITIONS

Introduction

The classical methodological approach that has guided this research has consisted of three distinct stages. Stage I which was developed in the previous chapter consisted of defining the concepts and theoretical propositions and stating the relationship between them. The present chapter will be devoted to Stage II. The purpose of the present chapter consists of devising ways to measure the concepts and propositions empirically.

In Stage III, the hypothesized relationships between the variables will be tested and either verified or rejected. The following chapter will be dedicated for that purpose.

Background and characteristics of the data set

The Costa Rican Pacifico Sur rural data set was created as the result of a research project carried out by the Inter American Institute of Cooperation on Agriculture (I.I.C.A.) as part of the Projecto de Informacion Agropecuaria del Istmo CentroAmericano (PIADIC), and the Ministry of Agriculture of Costa Rica. On October 16, 1979, these institutions formalized an agreement to execute a research project that consisted of the application of a field survey methodology
of area profiles for the region. The purpose was essentially to generate a data set on the rural households and farms for the design of technological packages as alternative production practices for small producers.

The area profile research project of the Pacifico Sur Region was carried out with the input from two sources of information. The first source available was secondary data that were collected and analyzed on the households and farms of the region. The product of the first component of the research effort was a publication of bibliographies and secondary source data. (For more information, see Ybarra-Rojas, 1981).

The second source of information came from primary data that were obtained through field survey. I was, at the time, the principal investigator responsible for IICA carrying out this research project. The implementation of the project was made possible because of the collaboration of the Regional Pacifico Sur Center of the Ministry of Agriculture of Costa Rica and the financial support received by the Regional Operational Central American Program (R.O.C.A.P.) of the United States Agency for International Development (U.S.A.I.D.).

The first phase of implementation of the research project consisted of the design of a pilot questionnaire and training of the enumerators. From December 17-21, 1979, the
training seminar took place under my supervision and 37 staff members of the Costa Rican agricultural public agencies of the region were trained to carry out a field test of the pilot questionnaire.

The second phase consisted of the design of the final questionnaire and operational plan to carry out the field study. The second phase was accomplished between January 2 and February 22, 1980. The structure of the questionnaire and the identification of the variables to be studied was my responsibility. A multiple-purpose data set was collected to assist different agencies of the Ministry of Agriculture devoted to extension activities to gather detailed data on farm activity at the lowest geographical unit possible.

The questionnaire was structured into four separate sections. The first section applied to the overall unit of analysis -- the rural household -- and consisted of 32 questions on the socioeconomic and demographic characteristics of rural families and their members. The second section consisted of 26 questions and was devoted to obtaining information on the land holdings, units of production and farms. This only applied to rural households with access to land under the condition that their holdings were defined as rural production units. The definition of a rural farm corresponded to that of the 1973 Costa Rican agricultural census and included farms with at least 1/8 of
a manzana (1 manzana = 1.7270 acres) of coffee or 1/2 of a manzana with other crops or with more than five heady of cattle.

The third section of the questionnaire was designed to obtain specific technological information on each of the two major crops of each production units. The agricultural technology section had specific questions on crop production practices.

The fourth and final section of the questionnaire was centered on the technological characteristics of cattle production. The cattle technology section was only applied to those producers who had five head of cattle or more. It collected data on production practices and technological characteristics of their farm activity.

The total size of the largest possible questionnaire for a producer household would have been a 39-page questionnaire with four sections. For farms without cattle production, the size of the questionnaire was 33 pages. In the case of rural households without access to land, the applicable questionnaire would have been only nine (9) pages of the first section. (For a detailed description of each topic area, dimension, question, and variable studied in the questionnaire, see Ybarra-Rojas, February 1981).

The third phase consisted of the design of the survey sample and the interview training session for the inter-
Training of interviewers was held between February 22-March 7, 1980. The training session was coordinated by me and contained professional contributions from both the PIADIC and ROCAP specialists for Central America. It took place under the auspices of the San Isidro del General Ministry of Agriculture Regional Center in Perez Zeledon Province.

The sample was designed to meet the methodological area profile data requirements conceptualized for the IICA/PIADIC-ROCAP program and the information specifications of the Costa Rican extension services of the Ministry of agriculture. The Regional Pacifico Sur Center of the Ministry of Agriculture specified that it needed to be able to have representative information at the base level of their service areas. For this purpose, the sample was designed to include a representative segment of the population, rural households and farms at the census segment level, the district level, the canton level, and for the region as a whole.

A simple random sample of 10 percent of all houses registered in the 1973 Costa Rican National Housing Census was aimed to be obtained. The total number of houses within the Pacifico Sur Region was formed by a population of 22,875 houses. (Details of the design and implementation of the survey may be found elsewhere -- Ybarra-Rojas, June 1981.)
From the 437 census segments of the 1973 Costa Rican census in that region for rural areas, the sample included 397 census segments. The census segments included in the random drawing represented a geographical area of over 9000 square kilometers and formed 91 percent of all rural census segments of the Pacífico Sur Region of Costa Rica. The census segments excluded from the sample were all either rural census segments included within foreign-owned banana plantation enclaves (with a high-density population), or a few census segments situated in inhabited national forests or jungle areas, as well as the Talamanca Indian Reservation.

The fourth phase consisted of field gathering of the data. The informants were generally the persons identified as the head of the household or, in a few cases, another adult member of the household. The agricultural production information refers to the cycle of the 1980 production year. The final sample included 1967 rural households. Of those, 996 were rural households with productive land holdings dedicated to the exploitation of either agricultural or cattle raising activities. The sample included 871 rural households without access to land formed by urban workers with rural residences, agricultural farm workers, and landless peasants. The subsample of rural households
without access to productive land holdings formed 46.6 percent of the total sample.

The difference between the households surveyed and those included in the original sample was due to the fact that many houses identified in the 1973 Housing Census were not there in 1980 or had been abandoned. Rural migration and the unstable characteristics of many rural residences, especially the rural poor without access to land, explained the high mobility encountered. Also, after reviewing the questionnaire, cases were eliminated because of the incompleteness of response and because there were many questions with a substantial amount of missing data. As stated by the two principal researchers supervising the coding and computing of the data (Rosalie H. Norem and Eric A. Abbott, 1982, p. 5), "Cases which contained so much missing data that there was no confidence in the interview were deleted from the sample. About 35 interviews were lost this way."

The Pacific Sur Region, in the five years prior to the 1980 survey, had experienced a net loss of 1922 inhabitants due to the negative balance between emigration and immigration in and out of the region. According to the secondary source data analyzed by Ybarra-Rojas (1981, pp. 253-375), the Pacifico Sur Region in the previous five years of the survey had lost 343 houses -- just in families that had abandoned the region all together. The additional effects
of intra-rural and rural-urban migration occurring since the 1973 census would explain the decrease of rural housing and the changes identified in abandoned houses. The sample included 996 households with farms which represented approximately 8.8 percent of the total population of 11,359 farms of the area included in the sample of rural Pacifico Sur, Costa Rica.

The coding, data set management, and documentation of the data were completed by Iowa State University through efforts sponsored by a Title XII Grant administered by the World Food Institute from 1981-1984. The assistance offered by Iowa State University was the result of an agreement between ISU, the InterAmerican Institute for Cooperation on Agriculture, ROCAP/USAID, and the Ministry of Agriculture of Costa Rica. Together with Mr. James R. Hulbert, I was able to undertake the recoding of the Pacifico Sur Data set and the organization of the computerized systems files using the Statistical Analysis System (SAS, Institute, Inc., 1979). My research role was sponsored by the World Food Institute of ISU under a Title XII strengthening grant under the direction of Dr. Rosalie H. Norem and Dr. Eric A. Abbott, both Faculty at ISU. Dr. John L. Tait, my major professor, has guided and supervised the development of this dissertation research effort and the analysis of the data.
The last phase consisted of the final organization and review of the subdata set formed by the 996 households with farm holdings.

Structural characteristics of the Pacifico Sur data set

In the presentation of the descriptive characterization of the sample, I shall contrast the total sample from the subdata set of agrarian producers. The review of the total sample characteristics will follow closely the presentation previously developed by Norem and Abbott (1982, pp. 5-17).

Table 1. Descriptive characteristics of the Pacifico Sur sample

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Total sample</th>
<th>Subdata set of producers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent of female headed households</td>
<td>11.5</td>
<td>6.5</td>
</tr>
<tr>
<td>Mean household size</td>
<td>5.18</td>
<td>6.29</td>
</tr>
<tr>
<td>Average age of household head</td>
<td>45.5</td>
<td>47.6</td>
</tr>
<tr>
<td>Age of youngest head of household</td>
<td>17</td>
<td>19</td>
</tr>
<tr>
<td>Age of oldest head of household</td>
<td>97</td>
<td>87</td>
</tr>
<tr>
<td>Average time in present residence</td>
<td>12.15</td>
<td>15.89</td>
</tr>
<tr>
<td>Self-assessment of literacy of head of household (percent)</td>
<td>72.3</td>
<td>79.5</td>
</tr>
<tr>
<td>Self-assessment of illiteracy of head of household (percent)</td>
<td>16.7</td>
<td>12.8</td>
</tr>
<tr>
<td>Percentage of heads of households that acknowledged having read newspapers, magazines or bulletins</td>
<td>49.9</td>
<td>56.6</td>
</tr>
</tbody>
</table>
Among other characteristics the subdata set formed of households with access to land is differentiated from the total sample by concentrating a lower proportion of female-headed households, having a higher average age for the heads of households and concentrating a higher number of persons on average within each household.

From the correlation between size of household and social position through the control of societal resources like land, housing, and social organizations, it can be deduced that the subset of producers, who form a group with a higher proportion of larger families within the sample, can be distinguished by a higher social position and life chances than those that and do not have access to land. The households with access to land presented a higher level of education. The households with access to land are also distinguished from the total sample in their use of media.

Commoditization, as the basis of my typology, would explain the distribution among the producers of differential levels to access to land. Without denying the extremely important structural influence of the amount of landed property in the differentiation of households that have access to land, it is necessary to also account for the structural processes that determine the distribution of this productive resource? The purpose of the typology based on different levels of commoditization and resistance to
commoditization seeks to address this crucial question. Commoditization is the underlying process which determines the distribution of landed property among the producers of the Pacifico Sur Region of Costa Rica.

The following section of this chapter presents the operational definitions of the theoretical proposition into testable hypothesis starting with the operationalization of the typology.

Operationalization of the typology of agrarian production systems

Capecchi (1986), who accepts the concept of Lazarsfeld (1937), agrees that the essential characteristic of typologies is that they involve a "reduction" of a "property space." For Blalock (1969), the theory construction process of typology begins with a cross-classification of attributes (or variables), were only certain of the possible category combinations are selected for emphasis. The process is what McKinney (1966) defines as a "construction type" which begins as a purposive, planned selection, abstraction, combination, and possible accentuation of a set of criteria with empirical referents that serve as a basis for comparison of empirical cases. It has been Blalock's (1969) observation that typology construction for some reason, does not lend itself to an explicit focus on propositions and their interrelationships. However, the works of McKinney
and Capecchi, as Blalock (1969) points out is compatible with a causal orientation in the treatment of typological analysis.

McKinney (1966) endorses the notion that the typologist should think in terms of continuous variables, as well as dichotomous ones. As stated by Blalock (1969), there is nothing inherently anti-quantitative in the use of typologies.²

My methodological purpose is to introduce a case example of treatment of typological analysis that does serve as a basis for comparison of empirical cases. The steps that I will follow will consist of presenting an explicit set of propositions in a test table format of the interrelationships among the several types of agrarian production systems. The typology will be constructed on the basis of the dichotomization of the definitional variables, but theoretical explanations will be advanced to account for the distribution of the positive or negative associations between the properties and types. As suggested by McKinney (1966, Chapter 5), I will consider my dichotomous variables as merely polar types used to visualize the end points of a continuum.

The methodological reasons why I have chosen the typological approach is that I theoritize the existence of a peculiar interaction effect between the types of production
systems and their property characteristics. Commoditization, which identifies degrees or levels of commodity mediated reproduction of relations of production, is conceptualized as an ordinal variable, but with types that are polar or end points of a continuum of both production systems and social class situations. The interaction effects of these types on a dependent variable that identifies a property distribution is theoretized to be linear. The first requirement of the test of the typological theoretical construction is to verify first that the types do discriminate among the empirical cases. The second requirement is to verify that the typology as a distribution of values of an independent variable does correspond to a distribution of the dependent variable which identifies a theorized property of the types on a linear progression. In the present study, I will limit the use of causal modeling to the logit regression model that predicts the odds or chances of proletarianization of the simple commodity type of producer.

The dichotomous empirical variables used in the construction of the typology are:

1. market or nonmarket reproduction,
2. hiring or not hiring labor power, and
3. selling or not selling labor power.

The first criterion distinguishing these producer households was accomplished by separating them into two groups, those that sold their produce to market and those that consumed their production on the farm. To measure the distribution of the households based on this criteria, I used the variables VENUNO. It is a dichotomous variable with value yes = 1 or no = 0 to the question, "Did you sell any part of the first crop." The distribution produced 793 cases that responded affirmative and 203 that responded negatively. The first group is formed by all the households that are reproduced by market mediated commodity relations and the second group is reproduced in resistance to commoditization. The second group that does not sell the farm produce is defined as the peasant production type of subsistence farmers.

The second criterion that identifies reproduction into a social class situation by the mediation of hiring or not hiring labor power was the variables JORN. The variables JORN is identified as the question "Did farmer hire paid laborers that year?" A dichotomous variable with values Yes = 1, and no = 0. From the total 996 cases, only 398 responded affirmative and 598 cases responded negatively. The variable JORN discriminated the commodity producer in two groups, first the capitalist producers that hire labor
power and sell their produce to the market and the simple commodity producers that use only family labor and sell their produce to the market.

The three types of producers' systems by levels of commoditization, distinguished by the two criteria of reproduction mediation, produced the following distribution of cases that identify the constructed variable **PRODUCER**:

<table>
<thead>
<tr>
<th>Types</th>
<th>Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value = 1. = Peasant producers</td>
<td>203</td>
</tr>
<tr>
<td>Value = 2. = Simple commodity producers</td>
<td>395</td>
</tr>
<tr>
<td>Value = 3. = Capitalist producers</td>
<td>398</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>996</strong></td>
</tr>
</tbody>
</table>

The third criterion identifies the dimension of labor force participation. The selling of labor power introduces into each type of agrarian producer a subtype that is theorized to present resistance to commoditization. The hypothesized effect of selling labor power is to differentiate each production type between two subgroups, one with higher and the other with lower degree of reproduction through commoditization. The group that sells its labor power is hypothesized as resisting commoditization, thus achieving a lower level of participation into reproduction through commodity relations of production of its social class situation. The indicator that identifies the third criteria is a composite variable, made up of the variables that identify participation into the different forms of paid
off-farm work of both head of household and household members. The indicator that was constructed is identified as WORK. WORK is a dichotomous variable with value of yes or no = 0. The affirmative response to the variable results from the addition of affirmative responses to either of the following variables: 1) OFFRMWK is the variable that identifies if the head of household participated in any type of off-farm work for pay during that year. The variable has 16 possible values that identify among the types of off-farm work combinations, which are permanent work, seasonal work, occasional work, and other nonagricultural work.\textsuperscript{9} From the total 996 cases, 362 responded affirmative to at least one type of off-farm work for the head of household that year. 2) FAMESWK is the variable that identifies how many members of the household have participated that year in seasonal paid work. The ranges were from 0 to 6 members.\textsuperscript{10} From the total of 996 cases, 201 households responded affirmative of having at least one member of the household participating in seasonal work that year in agriculture. 3) FAMPERWK is the variable that identifies how many members of the household participated that year in permanent full time off-farm work for pay in agriculture. The values ranged between 0 and 8 members per household.\textsuperscript{11} From the total 996 cases, 137 households responded affirmatively as having at least one member of the household participating in permanent off-farm
work that year. 4) **FAMOCCKWK** identifies the variable that indicates the number of household members that participated in occasional, day-to-day journeymen work off the farm that year for pay in agriculture. The values range from 0 to 6 members per household. From a total of 996 cases, 136 households responded affirmatively as having at least one member working in occasional off-farm work that year.

5) **FAMOTHWK** identifies the variable that indicates the number of household members that participated in other types of off-farm work outside of agriculture for pay that year. The ranges were from 0 to 6 members per household. From the total 996, 57 households responded affirmatively as having had at least one member work in other types of off-farm work. The types of employments were either in commerce, services, state employment, or urban employment.

If any of the variables, **OFFRMWK**, **FAMSESWK**, **FAMPERWK**, or **FAMOTHWK** had an affirmative response of at least one member of the household working or the head of household working the constructed variable **WORK** would have a value of yes = 1, on the contrary, the value would be no = 0. No missing values were registered for these variables. From the total of 996 cases, 443 households had a value of yes = 1 on the variable **WORK**. At least one member of the household or the head of household had worked off the farm for pay in 443 households of the sample of producers.
holds of producers with at least one member of the household, or the head of household, participating in the labor force as a seller of their labor power were found in all three types of agrarian production systems. The distribution among the types of producer was found to be as follows:

1. Peasant producers that also sell their labor power = 152 cases.
2. Simple commodity producer that also sell their labor power = 173 cases.
3. Capitalist producer that also sell their labor power = 173.

From the added effects of the three criteria of commoditization and resistance to commoditization mediated reproduction of agrarian production systems and social class situations the following types were found to distinguish among the empirical cases:

<table>
<thead>
<tr>
<th>Types of producers</th>
<th>Number of cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Semi-proletarian peasant</td>
<td>118</td>
</tr>
<tr>
<td>2. Peasant farmer</td>
<td>85</td>
</tr>
<tr>
<td>3. Simple commodity farm worker</td>
<td>173</td>
</tr>
<tr>
<td>4. Simple commodity farmer</td>
<td>222</td>
</tr>
<tr>
<td>5. Capitalist employee</td>
<td>152</td>
</tr>
<tr>
<td>6. Capitalist entrepreneur</td>
<td>246</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>996</strong></td>
</tr>
</tbody>
</table>

The distribution of the empirical cases among the several types concentrated a sufficient number of cases as to encourage me to advance the test of the theoretical properties of the typology with the data of the Pacifico Sur Sample.
The empirical definition of the types of producers is deduced from the operationalization of the three criteria that identify levels or degrees of commoditization. The three variables are: \textit{VENUNO}, \textit{JORN}, and \textit{WORK}. The following flowchart shows the distribution of the types of producers according to the values of the dichotomous variables used to differentiate the households of producers in the Pacífico Sur data set.

The operational definition of the types of producers is as follows:

1. The semi-proletarian peasant is the type formed by the households of producers that empirically present values of no on the variable \textit{VENUNO}, no on the variable \textit{JORN}, and yes on the variable \textit{WORK}.

2. The peasant farmer is the type formed by the households of producers that empirically present values of
no on the variable VENUNO, no on the variable JORN, and no on the variable WORK.

3. The simple-commodity farm worker is the type formed by the households of producers that empirically present values of yes on the variable VENUNO, no on the variable JORN, and yes on the variable WORK.

4. The simple-commodity farmer is the type formed by the households of producers that empirically present values of yes on the variable VENUNO, no on the variable JORN, and no on the variable WORK.

5. The capitalist employee is the type formed by the household of producers that empirically present values yes on the variable VENUNO, yes on the variable JORN and yes on the variable WORK.

6. The capitalist entrepreneur is the type formed by the household of producers that empirically present value yes on the variable VENUNO, yes on the variable JORN, and no on the variable WORK.

The six types of producers of the typology are conceptualized as six ranked levels of the independent variable commoditization. Each type identifies a distinct, mutually exclusive, and exhaustive category of cases that are ranked in decreasing order of their value on the property defined as commoditization. The operational definition of commoditization is a scale formed by the summation of one
assigned to each producer plus the recode of variable $VENUNO$ where (yes = 1) is converted to a value of 2 plus the recode variable $JORN$ where (yes = 1) is converted to a value of 2 plus the recode of variable $WORK$ where (yes = 1) is converted to a value of 0 and (no = 0) is converted to a value of 1. Commodity $= \sum_{i} VENUNO$ plus $JORN$ and $WORK$. The ranked order from lower to higher of the composed variable commoditization, that corresponds to the six types of producers is identified by an equivalent value.

<table>
<thead>
<tr>
<th>Values</th>
<th># Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower 1 = $(VENUNO=\text{no})0 + (JORN=\text{no})0 + (WORK=\text{yes})0 + 1 = 118$</td>
<td>996</td>
</tr>
<tr>
<td>2 = $(VENUNO=\text{No})0 + (JORN=\text{no})0 + (WORK=\text{no})1 + 1 = 85$</td>
<td>996</td>
</tr>
<tr>
<td>Commoditization 3 = $(VENUNO=\text{yes})2 + (JORN=\text{no})0 + (WORK=\text{yes})0 + 1 = 173$</td>
<td>996</td>
</tr>
<tr>
<td>4 = $(VENUNO=\text{yes})2 + (JORN=\text{no})0 + (WORK=\text{no})1 + 1 = 222$</td>
<td>996</td>
</tr>
<tr>
<td>Higher 5 = $(VENUNO=\text{yes})2 + (JORN=\text{yes})2 + (WORK=\text{yes})0 + 1 = 152$</td>
<td>996</td>
</tr>
<tr>
<td>6 = $(VENUNO=\text{yes})2 + (JORN=\text{yes})2 + (WORK=\text{no})1 + 1 = 246$</td>
<td>996</td>
</tr>
<tr>
<td>Total</td>
<td>996</td>
</tr>
</tbody>
</table>

I define commoditization as an ordinal scale represented by the asymmetrical properties of the ranked categories of the households of producers. The property commoditization is higher in the producer type 6 (Capitalist entrepreneur) with value 6 than in producer type 5 with value 5 (Capitalist employee). The value of commoditization is higher in producer type 5 (Capitalist employee) than in producer type 4 with value 4 (Simple-commodity farmer) and higher in producer type 4 (Simple-commodity farmer) than in producer type 3 with value 3 (Simple-commodity farm worker). The property commoditization is higher in producer type 3
(Simple-commodity farm worker) than in producer type 2 with value 2 (Peasant farmer) which has a greater level of commoditization than producer type 1 with value 1 (Semi-proletarian peasant). The ordinal scale of commoditization has the property of transitivity that holds that any higher ranked category has a higher value of commoditization than any other lower ranked category. If I name each type of producer as $P$, the two properties of the scale can be identified in their relationship as: 1) Asymmetric where $P_6 > P_5$, that is producer type 6 is greater in commoditization than producer type 5, is true but $P_5 > P_6$ is not true (that is producer type 5 is not greater in commoditization than producer type 6). 2) Transitivity were $P_6 > P_5$ and $P_5 > P_4$ then $P_6 > P_4$, it holds that if producer type 6 is greater in commoditization than producer type 5 and producer type 5 is greater in commoditization than producer type 4, then producer type 6 is greater in commoditization than producer type 4.

It is the two properties of the ordinal scale of commoditization which enable me to place the types of producers of the typology along a single continuum, from higher to lower levels of commoditization. The typology does not only identify types of producers, but also simultaneously characterizes each agrarian producer type as representing the stratification of the social class situa-
tions of the households of producers of the Pacific Sur Region of Costa Rica along a continuum. The test of the typology will measure in the power of this theoretical construct to discriminate significantly between the households of producers, their production systems and the consequential "life changes" associated with their forms of production and social class situation.

The statistical analyses of the test of linearity

In order to avoid any inadequate specification of the hypothesis, I shall state the exact nature of the linkages being hypothesized. All the general propositions that will be operationalized are declared to be asymmetrical relationships between the independent variable commoditization and the dependent variables suggested. The independent variable is the basic causal factor, that is, the variable thought to be the theoretical explanation that affects the dependent variable. The hypotheses presented do not assume any type of reciprocal relationships among the independent and dependent variables, only a direct causal asymmetric connection between the two.

The two fundamental questions to be addressed by the hypotheses that refer to the properties of the typology are as follows:

1. Is the typology itself pertinent, in qualifying the households of producers into different categories on the
property being measured. The question can also be stated writing: Is there a trend in the data? Are the means for the dependent variable influenced by the changes in the independent variable? The null hypothesis $H_0$ being tested can be written as follows:

$$H_0: \ M_1 = M_2 = M_3 = M_4 = M_5 = M_6$$

This hypothesis states that the six populations means of the producers are equal. The alternative hypothesis takes the form: $H_a$: There is some pair of population means $M_i$ and $M_j$ such that: $M_i \neq M_j$. The F test will be carried out on the data of the sample that is accepted as representative of the population of households of producers and from which inference will be established onto the population of households of producers of the Pacifico Sur.

2. The second question that is addressed in each hypothesis is on the nature of the linkage and relationship between the independent variable commoditization and the dependent variables. In some cases, the linear relationship will be specified as positive or as negative. The question can also be stated writing: Is the trend on the dependent variable means linear or nonlinear? The test of differences of the means in analysis of variance can also be stated in terms of treatment effects of the slope $B_j$ of the trend formed by the distribution of the values of the independent variable.
The fact that the slope is not equal to zero does not tell or identify if the relationship is linear or nonlinear between the independent and dependent variable, nor what direction (positive or negative) does the trend have. In order to test the second question, is the relationship linear or nonlinear, it is important to specify the characteristics of the slope, not only that it is different from zero? The null hypothesis will state that the slopes are equal to zero and the alternative hypothesis will state if the slope is greater than or smaller than zero, indicating the direction of the trend.

$$H_0: B_j = 0$$

$$H_a: B_j < 0 \text{ or } B_j > 0$$

However, the trend identified still will not establish if the best fit of the data is the simple linear equation. In order to answer the question: "What is the simplest equation that provides a satisfactory description of the data?" I shall use the procedure of the test for linearity of trend of orthogonal polynomials, proposed by Kirk (1968).18

The procedure that I will follow in the test of each equation will be to first obtain an F test that indicates if there is or not a trend in the data. The first F test will establish if there is or not a difference which is significant in the means of the dependent variable at different
levels of the independent variable. Second, if the F test indicates a trend, I shall use Kirk (1968) procedure of orthogonal polynomials to fit my set of data and use another F test to establish the significance of a linear or non-linear trend. The F test of significance of linearity concludes whether or not the linear component of the trend is significant. However, as Kirk (1968) points out, in cases where specific hypotheses with respect to the quadratic and cubic trend components of a trend, have not been advanced, an overall test for these higher-order components can be performed. Based on the fact that I have not advanced hypotheses that imply higher-order components of the trends of the data, as quadratic or cubic or other, I shall also perform a test of departure from linearity in order to fully establish the linear relationship I have hypothesized. The test of departure from linearity will also be established on the significance level of the F test. The purpose of both tests is to determine the proportion of the linear and nonlinear components of the relation.

The probability of rejecting the null hypothesis will be based on my preselected level of significance for all F tests of .05. Based on the randomness of the sample and the sample size, I consider that the power of the F tests at the .05 level will be adequate to ensure avoiding type I errors.
I am less concerned of type II errors because of the large number of hypotheses being tested on the properties of the typology. If in a case, a null hypothesis is not rejected when, in fact, it is false, the other indicators will compensate to provide a sufficient evaluation of the properties of the typology on adequate characterization of the agrarian production systems.

In each case, the test of the hypothesis will establish if the best fit of the goodness of trend of the data is a simple linear equation. Such that for variable X commoditization and variable Y (the dependent variable) when the intercept is zero, the relationship can best be represented by the equation: \( Y = \beta(X) \), which identifies that the relation has a linear component.

The statistical analysis of the test of dependency

The hypotheses that state the statistical dependency between an independent and dependent variables will be tested and the relationship found in the sample will be inferred on the population by the use of the chi-square test. A chi-square associated to a probability of \( P = 0.05 \) will be accepted as statistically significant.

The null hypothesis, \( H_0 \): The variables are statistically independent. The alternative hypothesis, \( H_A \): The variables are statistically dependent. The chi-square test
to determine the contingency between two variables was used to test hypotheses 4.2, 5.2, 5.3, and 18.1 of the first section. Also, all the hypotheses of the second section, with the exception of 19.5, 20.4, and 21.4. In the third section, it was used to test all the hypotheses, even those that involved more than two variables.

Specification of hypotheses for each theoretical proposition

First section: General characterization of the producers by degrees of commoditization. The first proposition states: "Higher the degree of commoditization, higher the concentration of landed property." The proposition will be tested as two hypotheses where the concept of 'the concentration of landed property' will be examined in terms of its two subconcepts. The subconcepts are the size of the farm and the size of total landownership. The operational measures for them will be presented before each hypothesis. The concept of landed property will be measured first by the variable TAMAFINC. This variable identifies the total landholdings (under all types of tenure systems) of the farm. The variable comes from question 36 of the questionnaire. TAMAFINC identifies the size of the farm in manzanas = 1.7270 acres) the variables is continuous and can be measured on the ratio level of measurement.
Hypothesis 1.1: "Higher the degree of commoditization, greater the size of the farm (measured by the variable TAMAFINC)."

The second operationalization of the concept of landed property will be measured by the use of variable MZTODO. The variable MZTODO identifies the total amount of land under the possession of the farmer within and outside the farm. The variable MZTODO is different from the variable TAMAFINC in two aspects: First, it includes landholdings outside the farm, but second it excludes land that is in the possession of other farmers, even if this plot was considered part of the farm measured by TAMAFINC. MZTODO is a variable that comes from question 34 of the questionnaire. The variable is continuous (MANZANAS) and can be measured on the ratio level of measurement.

Hypothesis 1.2: "Higher the degree of commoditization, greater the size of total landholdings (measured by the variable MZTODO)."

The second proposition states: "Higher the degree of commoditization, higher the degree of the organic composition of capital." The proposition will be tested as two hypotheses where the concept of 'the organic composition of capital' will be examined in terms of its two subconcepts. The subconcepts are the level of mechanization of the farm and identifying as a problem the access or not of farm
equipment. The operational measures for them will be presented before each hypothesis. The concept of ‘organic composition of capital’ will be first measured by the use of the variable \textit{FUERZA}. The variable \textit{FUERZA} identifies the type of power used on the farm. The type of power is an indicator of the level of mechanization achieved in farm production. The type of equipment and machines are identified on a scale that comprises five types from higher to lower mechanization. The highest tractor or other mechanical self-propelled farm equipment, followed by jeep or other motorized means of transportation of the farm. The third level is identified as small hand-held equipment that uses human power, followed by animal traction and animal traction equipment, and the lowest level is the exclusive use of human power with the absence of mechanization. The variable \textit{FUERZA} comes from question 44 of the questionnaire.\textsuperscript{23} \textit{FUERZA} has been coded on a scale from 0 to 5 and assumed to be an interval.

Hypothesis 2.1: "Higher the degree of commoditization, higher the level of mechanization of the farm (as measured by the variable \textit{FUERZA})."

The second operationalization of the concept ‘organic composition of capital’ will be measured by the use of the indicator \textit{EQUIPO}. The variable \textit{EQUIPO}, identifies if the farmer had problems in obtaining equipment. The indicator
Hypothesis 2.2: "Higher the degree of commoditization, greater the access to farm equipment is a problem (as measured by the variable \textit{EQUIPO}).

The Third Proposition states: "Higher the degree of commoditization, higher the specialization of production for export markets." The proposition will be tested as three hypotheses where the concept of the specialization of production for export markets will be examined in terms of its three subconcepts. The subconcepts are the export market orientation of the first and second major and both first and second major corps, or farm activities combined. The operational measures for them will be presented before each hypothesis. The concept of the first 'specialization of production for export markets' will be measured by the use of the variable \textit{FMAJ}. The variable \textit{FMAJ} identifies the first major crop or farm production activity of the farm. The variable is a nominal variable that categorizes the inventory of the 62 different types of crops and farm productive activities mentioned by the respondents of the survey. I converted the variable into a constructed interval level measurement variable of a scale from 0 to 4 assigning values on the nature of the crops and activities. The new variable \textit{FMAJ} identifies after recoding, levels of
export oriented production activities. From the exclusively internal national market oriented crops and activities to the fully export international market oriented crops and farm productive activities. A higher value on the variable FMAJ indicates a higher degree of export market type of farm activity. The variable came from question 39 of the questionnaire.

Hypothesis 3.1: "Higher the degree of commoditization, higher the value of the export market orientation of the first major crop or farm productive activity (measured by the variable FMAJ)."

The second operationalization, the 'specialization of production for export markets,' will be measured by the use of the variable SMAJ. The variable SMAJ identifies the second major crop of farm productive activity of the farm. The variable has the very same properties as FMAJ, only that it refers to the second major farm productive activity. SMAJ comes from question 39 of the questionnaire.

Hypothesis 3.2: "Higher the degree of commoditization, higher the value of the export market orientation of the second major crop or farm productive activity (measured by the variable SMAJ)."

The concept of the 'specialization of production of export markets' will be measured by the variable AGRITYPE. The variable AGRITYPE is a scale that combines both FMAJ and
SMAJ variables with values from 0 to 8. It is a composite variable built by the additive effects of the two previously mentioned variables. The purpose of this variable is to measure if the proposition holds true when both major crops or farm productive activities are considered together. as follows:

Hypothesis 3.3: "Higher the degree of commoditization, higher the value of the export market orientation of the first and second major crops or farm productive activities (measured by the variable AGRITYPE)."

The fourth proposition states: "Higher the degree of commoditization, higher the shared perception that the type of production is secure." The proposition will be tested as two hypotheses where the concept of 'the shared perception that the type of production is secure' will be examined in terms of its two subconcepts. The subconcepts are that the specialization in export oriented crops are perceived to be the most secure and the shared perceived opinion that their crops or productive activities are the most secure. The operational measures for them will be presented before each hypothesis. The original variable SURECROP is a nominal discrete variable that has been dummy coded by 0 to 1 to identify if a crop or farm productive activity has been pointed out as the most sure. The variable comes from question 12 of the questionnaire that demanded: "Which crop
was considered the most sure?" The nominal categorical variable that identifies a type of crop or farm productive activity was transformed to relate the types of crops or activities identified with their market orientation. The composite variable was set to a scale from 0 to 4 identifying internal market versus export market oriented crops or activities. The recoding of the variable SURECROP has been specified to give a higher value to export crops than to internal market oriented crops transforming the original variable into the new variable SUREEXPO. The concept of 'the shared perception that the type of production is secured will be first measured by the use of the variable SUREEXPO.

Hypothesis 4.1: "Higher the degree of commoditization, greater the specialization in export oriented crops or farm productive activities perceived to be the most secure crops or activities (measured by the variable SUREEXPO)." The concept of 'the shared perception that the type of production is secure' will also be measured by the use of the variable SURECROP. However, this time the original variable SURECROP will be measured as a dichotomous variable of values 0 and 1 only. The variable identifies if a crop or farm productive activity has been identified as the most secure. The variable commoditization will be measured as a
nominal categorical variable that identifies 6 different types of production systems.

Hypothesis 4.2: "Higher the degree of commoditization present in the reproduction of the types of the agrarian production systems, higher the shared perceived opinion that their crops or productive activities are the most secure (measured by the nominal variable SURECROP)."

The fifth proposition states: "Higher the export specialization of production, greater the shared perception that the type of production is secure." This proposition will be tested as three hypotheses where the concept 'the export specialization of production' will be examined in terms of its three subconcepts. The subconcepts are the export oriented specialization of the first, second, and both first and second major types of crops or production activities of the farms. The operational measures for them will be presented before each hypothesis. The concept 'shared perception that the type of production is secured' will be measured by the original variable SURECROP, previously identified. The variable SURECROP will be operationalized as the dependent variable in all three hypotheses.

The concept 'the export specialization of production' will be first measured by the variable FMAJ. The variable FMAJ identifies the levels of export oriented production of
the first major crop or farm activity. The variable was previously identified.

Hypothesis 5.1. "Higher the export specialization of the first major type of crop or activity, greater the likelihood that the crop or activity was qualified as the most secure (measured by the variables FMAJ and SURECROP)."

The second measurement of the concept 'the export specialization of production' will use the variable SMAJ. The variable SMAJ identifies the export orientation specialization of the second major type of crop of the farm. The variable was previously identified.

Hypothesis 5.2: "Higher the export orientation specialization of the second major type of crop or farm productive activity, greater the likelihood that the crop or activity was qualified as the most secure (measured by the variables SMAJ and the variable SURECROP).

The concept 'the export specialization of production' will be measured a third way by the variable AGRITYPE. The variable AGRITYPE identifies the export orientation specialization of the farm. The variable was previously identified.

Hypothesis 5.3: "Higher the export orientation specialization of the first and second major types of crops or activities of the farm, greater the likelihood that the
crops or activities were qualified as the most secure (measured by the variables AGRITYPE and SURECROP)."

The fifth proposition can be considered a corollary of propositions three and four.

The sixth proposition states: "Higher the degree of commoditization, greater the production of the farms." The proposition will be tested as four hypotheses where the concept of 'the production of the farm' will be examined in terms of its four subconcepts. The subconcepts are the number of heads of cattle on the farms, the number of milk bottles produced on the farms, the number of fowls produced on the farms, and the number of horses dedicated for the productive activities of the farm. The operational measures for them will be presented before each hypothesis. The concept of the farm production will be measured first by using the variable GANADO. The variable comes from question 52 of the questionnaire. The variable includes all types of cattle on the farm except OXEN, which is considered a work animal not raised as a farm productive activity, either for sale or consumption.

Hypothesis 6.1: "Higher the degree of commoditization greater the number of heads of cattle in the farms (measured by the variable GANADO)."

In the second operationalization, the concept of farm production will be measured by using the variable MILKBOTT.
MILKBOTT identifies the number of bottles of milk produced in the farm the week before the interview. MILKBOTT is measured in number of bottles (1 bottle = 0.67 liter or 1.5 pounds or 670 cubic centimeters) of milk. The variable comes from question 55 of the questionnaire.29

Hypothesis 6.2: "Higher the degree of commoditization, greater the number of milk bottles produced on the farms (measured by the variable MILKBOTT)."

In the third hypothesis, the operationalization the concept of farm production will be measured by the use of the variable CHDUCTUR. The variable identifies the number of chickens, ducks, turkeys, and other fowl produced on the farms. CHDUCTUR comes from question 54 of the questionnaire.30

Hypothesis 6.3. "Higher the degree of commoditization, greater the number of fowl produced on the farms (as measured by the variable CHDUCTUR)."

In the fourth operationalization, the concept of farm production will be measured by using the dependent variable HORSES. The variable HORSES identifies the number of horses present on the farm.31 HORSES comes from question 54 of the questionnaire.32

Hypothesis 6.4: "Higher the degree of commoditization, greater the number of horses dedicated for the productive activities of the farms (measured by the variable HORSES)."
The seventh proposition states: "Higher the degree of commoditization, greater the access to institutional services for production to the farms." The proposition will be tested as seven hypotheses where the concept of 'the access to institutional services for production to the farms' will be examined in terms of its seven subconcepts. The subconcepts are the likelihood that the producer received technical assistance that year, the number of technical assistance visits received by the producer, the likelihood that the producers were able to follow the technical assistance advice received that year, the likelihood that the producers used credit, the likelihood that the first loan was considered to be timely and the likelihood that the first loan was considered to be sufficient. The operational measures for them will be presented before each hypothesis. The concept of access to institutional services for farm production will be measured first by the use of the variable TEKAST. TEKAST identifies if the producer received technical assistance that year through any type of agency. The variable has been coded as a dummy variable with values 0 and 1. It is a dichotomous variable. TEKAST comes from question 50 of the questionnaire.33

Hypothesis 7.1: "Higher the degree of commoditization, greater the likelihood that the producers received technical assistance that year (measured by the variable TEKAST)."
In the second operationalization, the concept of institutional services for production will be measured by using the dependent variable TEKVIST. The variable TEKVIST identifies the number of visits that the producer received from technical assistance agencies that year. TEKVIST is a discrete variable, measured at the ratio level of measurement. The variable comes from question 50 of the questionnaire.34

Hypothesis 7.2: "Higher the degree of commoditization, greater the number of technical assistance visits received by the producers (measured by variable TEKVIST)."

In the third operationalization, the concept of institutional services for production will be measured by using the variable APPLYTEK. The variable APPLYTEK identifies if the producers were able to apply or follow the technical assistance advice received that year. APPLYTEK is a dichotomous variable that has been dummy coded with values 0 to 1. APPLYTEK comes from question 50 of the questionnaire.35

Hypothesis 7.3: "Higher the degree of commoditization, greater the likelihood that the producers were able to follow the technical assistance advice received that year (measured by the variable APPLYTEK)."

In the fourth operationalization, the concept of access to the institutional services of credit for production will
be measured by using the variable CREDITO. The variable CREDITO identifies if the producer used credit or not. The variable is a dichotomous, discrete variable, with values of 0 and 1, no = 0 and yes = 1. CREDITO comes from question 49 of the questionnaire.36

Hypothesis 7.4: "Higher the degree of commoditization, greater the likelihood that the producers used credit (measured by variable CREDITO)."

In the fifth operationalization, the concept of access to the institutional service for production will be measured by the variable TERONE. The variable TERONE identifies the quality of the access to this service by measuring the terms of credit received. TERONE refers to the first loan that the producer identified. It was specified to represent the producer’s most important loan and the most recent one. The variable TERONE, terms of the first loan, is measured in months. The variable comes from question 49 of the questionnaire.37

Hypothesis 7.5: "Higher the degree of commoditization, higher the terms in number of months of the first loan (measured by the variable TERONE)."

In the sixth operationalization, the concept of access to the institutional service for production will be measured using the variable TIMELY. The variable TIMELY identifies the quality of the access to this service by measuring if
the loan was considered to be timely. **TIMELY** refers to the first loan. It is a dichotomous variable, with values yes = 1 and no = 0. The variable comes from question 49 of the questionnaire. 38

Hypothesis 7.6: "Higher the degree of commoditization, greater the likelihood that the first loan was considered to be timely (measured by the variable **TIMELY**)."

In the seventh operationalization, the concept of access to the institutional service for production will be measured by using by the variable **ENOUGH**. The variable **ENOUGH** identifies the quality of the access to this service by measuring if the loan was considered to be sufficient for the purposes for which it was used. **ENOUGH** refers to the first loan. It is a dichotomous variable, with values yes = 1 and no = 0. The variable comes from question 49 of the questionnaire. 39

Hypothesis 7.7: "Higher the degree of commoditization, greater the likelihood that the first loan was considered to be sufficient (measured by the variable **ENOUGH**)."

The eighth proposition states: "Higher the degree of commoditization, higher the level of participation in the financial and banking institutions." This proposition will be tested as three hypotheses where the concept of 'the level of participation in the financial and banking institutions' of the producers will be examined in terms of its
three subconcepts. The subconcepts are the likelihood that the producer has a checking account in a bank, the likelihood that the producer has a savings account in a bank and the likelihood that the producer has a savings account in a cooperative. The operational measures for them will be presented before each hypothesis. In the first operationalization, the concept level of participation in financial and banking institution will be measured by using the variable CUENBANK. The variable CUENBANK identifies if the producer has a checking account in a bank. CUENBANK is a discrete, dichotomous variable dummy coded with values 0 = no and 1 = yes. CUENBANK comes from question 48 of the questionnaire.40

Hypothesis 8.1: "Higher the degree of commoditization, greater the likelihood that the producer has a checking account in a bank (measured by the variable CUENBANK)."

In the second operationalization, the concept of level of participation in the financial and banking institutions will be measured by the use of the variable CUENSAV. The variable CUENSAV identifies if the producer has a savings account in a bank. CUENSAV is a discrete, dichotomous variable dummy coded with values 0 = no and 1 = yes. CUENSAV comes from question 48 of the questionnaire.41

Hypothesis 8.2: "Higher the degree of commoditization, greater the likelihood that the producer has a savings
account in a bank (measured by the variable \textit{CUENSAV})."

In the third operationalization, the concept of 'level of participation in financial and banking institutions will be measured by the use of the variable \textit{SAVCOOP}. The variable \textit{SAVCOOP} identifies if the producer has a savings account in a cooperative. \textit{SAVCOOP} is a discrete, dichotomous variable with values 0 = no and 1 = yes. \textit{SAVCOOP} comes from question 48 of the questionnaire.42

Hypothesis 8.3: "Higher the degree of commoditization, greater the likelihood that the producer has a savings account in a cooperative."

The ninth proposition states: "Higher the degree of commoditization, higher the 'intensity of the occupation of labor on the farms.' This proposition will be tested as two hypotheses where the concept of 'the intensity of the occupation of labor on the farm' will be examined in terms of its two subconcepts. The subconcepts are the number of hours worked by the head of household the previous week and the likelihood that the producer will have the problem of contracting labor. The operational measures for them will be presented before each hypothesis. In the first operationalization, the concept of intensity of the occupation of labor on the farm will be measured by using the variable \textit{HRSWKD}. \textit{HRSWKD} identifies the number of hours the head of household worked the previous week of the interview. \textit{HRSWKD}
is a discrete variable measured at the ratio level of measurement. HRSWKD comes from question 30 of the questionnaire.\textsuperscript{43}

Hypothesis 9.1: "Higher the degree of commoditization, greater the number of hours worked by the head of household the previous week (measured by the variable HRSWKD)."

In the second operationalization the concept of intensity of the occupation of labor on the farm will be measured by using the variable MANOBRA. MANOBRA identifies if the producer had problems in contracting labor.\textsuperscript{44} MANOBRA is a discrete variable, dummy coded with values 0 = no and 1 = yes. MONABRA comes from question 45 of the questionnaire.\textsuperscript{45}

Hypothesis 9.2: "Higher the degree of commoditization, greater the likelihood that the producer will have the problem of contracting labor (measured by the variable MANOBRA)."

The tenth proposition states: "Higher the degree of commoditization, higher the level of technological innovations adopted as production practices of the farms." This proposition will be tested as five hypotheses where the concept of 'the level of technological innovations,' adopted as production practices of the farm will be examined in terms of its five subconcepts. The subconcepts are the amount of fertilizer used on the farms, the likelihood that
the producer used fertilizer, the use of herbicides and/or insecticides on the farm, the use of improved and/or certified and/or hybrid seed on the farms, and the technological level of the agricultural practices of the farms. The operational measures for them will be presented before each hypothesis. The first concept of the 'level of technological innovations,' adopted as production practices of the farm, will be first measured by using variable ABUNO. The variable ABUNO identified the amount of fertilizer used in the first crop, and always that fertilizer was used in secondary crops it had also been used in the first major crop. ABUNO is measured in quintals (1 quintal = 100 pounds = 45.5 kilograms = 4 arrobas). ABUNO comes from question 39 of the questionnaire.46

Hypothesis 10.1: "Higher the degree of commoditization, greater the amount of fertilizer used on the farms (measured by the variable ABUNO)."

In the second operationalization, the concept of 'the level of technological innovation,' adopted as production practices of the farms, will be measured using the dependent variable ABUNOZ. The variable ABUNOZ is a constructed variable product of the transformation of ABUNO, that dummy coded the variable into a dichotomous variable with values 0 and 1. The variable ABUNOZ identifies if the producer used fertilizer, regardless of the amount used.
Hypothesis 10.2: "Higher the degree of commoditization, greater the likelihood that the producer used fertilizer (measured by the variable ABUNOZ)."

In the third operationalization, the concept of 'the level of technological innovations,' adopted as production practices of the farms, will be measured using the variable HBUNO. The variable HBUNO identifies if the producer used herbicides and/or insecticides. The variable is discrete, measures a scale of the use of chemicals on the first crop with values from 0 for no use, 1 = herbicides, 2 = fertilizer, and 3 = both. In all cases, when the secondary crops were applied chemicals, the first crop also received this practice. HBUNO comes from question 39 of the questionnaire.

Hypothesis 10.3: "Higher the degree of commoditization, greater the use of herbicides and/or insecticides in the farms (measured by the variable HBUNO)."

In the fourth operationalization, the concept of the level of technological innovation, adopted as production practices of the farms, will be measured using the variable SEMUNO. The variable SEMUNO identifies the type of seed used in the first crop by the producer. The variable is discrete, measures on a scale, the technology in seed practices with values from 0 to 4, 0 = no seed, 1 = creole seed, and 2 = certified seed, 3 = improved seed, and 4 = hybrid
Secondary crops always used the same practice or lower level practices in seed selection than the one used in the first crop. The variable comes from question 39 of the questionnaire.

Hypothesis 10.4: "Higher the degree of commoditization, greater the use of improved, certified, and hybrid seed on the farms (measured by the variables SEMUNO)."

In the fifth operationalization, the concept of the 'level of technological innovations,' adopted as production practices of the farms will be measured using the variables AGRITEK. The variable AGRITEK is a composite variable constructed on a scale from the added values of variables ABUNOZ, HBUNO, and SEMUNO. AGRITEK is an indicator of the overall technological level from the combined effects of the practices with regards to the use of fertilizers, herbicides, insecticides, and type of seeds used on the farms. The values of the AGRITEK scale range from 0 to 8.

Hypothesis 10.5: "Higher the degree of commoditization, greater the technological level of the agricultural practices of the farms (measured by the variable AGRITEK)."

The eleventh proposition states: "Higher the degree of commoditization, higher the degree of participation in formal organizations by the producers." This proposition will be tested as two hypotheses where the concept of the degree of participation informal organizations by the
producers will be examined in terms of its three subconcepts. The subconcepts are the number of organizations the producer had knowledge of, the number of organizations the producer participates in, and the third, the cognitive participation and membership of the producers in the groups of their community. The operational measures for them will be presented before each hypothesis. The first operationalization will measure the concept of participation in formal organizations by using the variable GRUPOS. The variable GRUPOS is a composite indicator formed from the variable that identify knowledge in the existence of up to four organizations in the community. The variables that compose GRUPOS are ORGONENE (first organization) and ORGTWO (second organization), ORGTRI (third organization), and ORGFOUR (fourth organization). Each of the variables that form the indicator GRUPOS was dummy coded with values of 0 = no and 1 = yes, identifying if the producer had knowledge or not of the organization. The variable come from question 11 of the questionnaire. GRUPOS is a discrete variable measuring a scale of knowledge of organizations with values from 0 to 4, derived from the added values of ORGONENE, ORGTWO, ORGTRI, AND ORGFOUR.

Hypothesis 11.1: "Higher the degree of commoditization, greater the number of organizations that the producers have knowledge of (measured by the variable GRUPOS)."
In the second operationalization, the concept of participation in formal organizations will be measured using the variable PARTICIP. The variable PARTICIP is a composite indicator formed from the variable that identifies if the producer participated in the organizations of his/her community. The variables that compose PARTICIP are PARTONE, PARTWO, PARTRI, and PARTFOUR. The variables identify participation in the first organization (ORGONE) in the second organization (ORTWO), in the third organization (ORGTRE), and in the fourth organization (ORGFOR). Each of the variables (PARTONE, PARTWO, PARTRI, and PARTFOUR) were dummy coded with values 0 = no and 1 = yes, identifying if the producer participated in each organization. The variables that compose PARTICIP come from question 11 of the questionnaire.

Particip is a discrete variable, measured as a scale of participation in 0 to 4 organizations and assumed an interval.

Hypothesis 11.2: "Higher the degree of commoditization, greater the number of organizations the producer participates in (measured by the variable PARTICIP)."

The third operationalization will measure the concept of participation in formal organizations by using the variable ORGINDEX. The variable ORGINDEX is a composite indicator of the added effects of variables GRUPOS and PARTICIP. ORGINDEX combines the values of knowledge of
groups and participation in groups (not all groups that the producers had knowledge of did they participate in) into a scale of cognitive participation plus actual membership in groups. ORGINDEX is a discrete variable measured with values 0 to 8 and assumed an interval.

Hypothesis 11.3: "Higher the degree of commoditization, greater the cognitive participation and membership of the producers in the groups of their community (measured by the variable ORGINDEX)."

The twelfth proposition states: "Higher the degree of commoditization, higher the stability of residence of the producers in their rural communities." This proposition will be tested as two hypotheses where the concept of 'the stability of residence of the producers in their rural communities' will be examined, in terms of its two concepts. The subconcepts are the number of years that the producer has lived in present place of residence and the likelihood that the previous place of residence of the producer was a rural area. The operational measures for them will be presented before each hypothesis. In the first operationalization, the concept of stability of residence of the producers in their rural communities will be measured by using the variable YRESID. YRESID identifies the number of years the producer has lived in the community. YRESID comes from question 5 of the questionnaire, that asked how many
years the producer has lived in the present place of residence.51

Hypothesis 12.1: "Higher the degree of commoditization, greater the number of years that the producer has lived in present place of residence (measured by the variable YRESID)." In the second operationalization, the concept of stability of residence of the producers in their rural communities will be measured by using the variable PREVRES. The variable PREVRES identifies the place of previous residence as urban or rural. Stability of residence is assumed to be stronger for those producers with the rural rather than urban residence. PREVRES is a dichotomous variable, with value 1 = urban and 2 = rural. PREVRES comes from question 5 of the questionnaire.52

Hypothesis 12.2: "Higher the degree of commoditization, greater the likelihood that the previous place of residence of the producers was a rural area (measured by the variable PREVRES)."

The thirteenth proposition states: "Higher the degree of commoditization, higher the level of education of the producers." The proposition will be tested as four hypotheses where the concept of 'the level of education of the producer' will be examined in terms of its four subconcepts. The subconcepts are the likelihood that the head of household is literate, the likelihood that the head of household
had formal education, the number of years of education achieved by the head of household, and the number and types of printed media read by the head of household. The operational measures for them will be presented before each hypothesis. The first operationalization will measure the concept of 'level of education' of the producer by using the variable HEDLITER. The variable HEDLITER identifies if the head of the household was literate. The variable is a dichotomous, discrete variable dummy coded with values 0 = no and 1 = yes. HEDLITER comes from question 6 of the questionnaire. Hypothesis 13.1: "Higher the degree of commoditization, greater the likelihood that the head of household is literate (measured by the variable HEDLITER)."

In the second operationalization, the concept of 'level of education' of the producer will be measured by using the variable HEDANY. The variable HEDANY identifies if the head of the household has had any formal education. HEDANY is a dichotomous, discrete variable, dummy coded with values 0 = no and 1 = yes. HEDANY comes from question 6 of the questionnaire.

Hypothesis 13.2: "Higher the degree of commoditization, greater the likelihood that the head of household had formal education (measured by the variable HEDANY)."

In the third operationalization, the concept of 'level of education' of the producer will be measured by using the
variable **EDJEFE**. The variable **EDJEFE** identifies the years of education achieved by the head of household. **EDJEFE** is a discrete variable, measured at the ratio level of measurement. The variable comes from question 6 of the questionnaire.\(^{55}\)

**Hypothesis 13.3:** "Higher the degree of commoditization, greater the number of years of education achieved by the head of household (measured by the variable **EDJEFE**)."

In the fourth operationalization, the concept of 'level of education' of the producer will be measured using the variable **READWHAT**. The variable **READWHAT** identifies the number and types of printed media that were read by the head of household. The variable is a scale from 0 to 7 with values 1 for newspapers, 2 for magazines, and 3 for newsletters, with the rest identifying combinations of the previous. The variable comes from question 7 of the questionnaire.\(^{56}\)

**Hypothesis 13.4:** "Higher the degree of commoditization, greater the number and types of printed media read by the heads of households (measured by the variable **READWHAT**)."

The fourteenth proposition states: "Higher the degree of commoditization, higher the access to quality housing." This proposition will be tested as five hypotheses where the concept of 'the access to quality housing' will be examined.
in terms of its five subconcepts. The subconcepts are the 
likelihood that the type of dwelling of the households are 
permanent and stable, the likelihood that the conditions of 
the dwelling of the households are good, the likelihood that 
the households are serviced with electric lighting to 
dwellings, the number of rooms in the dwellings of the 
households of producers, and the number of bedrooms in the 
dwelling of the households of producers. The operational 
measures for them will be presented under each hypothesis. 
In the first operationalization, the concept of 'access to 
quality housing' will be measured by using the variable 
TIPOCASE. The variable TIPOCASE identifies the type of 
dwelling of the household. TIPOCASE is a discrete variable, 
measured on a scale that qualifies the types of dwelling 
according to their stability, with the values for permanent, 
provisional, movable, marginal, and collective housing. 
TIPOCASA ranks the houses according to their permanency and 
stability of type of construction and use. TIPOCASA comes 
from question 13 of the questionnaire.  

Hypothesis 14.1: "Higher the degree of commoditiza-
tion, greater the likelihood that the type of dwelling of 
the households are permanent and stable (measured by the 
variable TIPOCASA)."

In the second operationalization, the concept of 
'access to quality housing' will be measured by using the
variable STATEHSE. The variable STATEHSE identifies the condition of the dwelling in a scale from good, fair, and bad. The variable comes from question 18 of the questionnaire.58

Hypothesis 14.2: "Higher the degree of commoditization, greater the likelihood that the conditions of the dwelling of the households are good (measured by the variable STATEHSE)."

In the third operationalization, the concept of 'access to quality housing' will be measured using the variable LIGHTING. The variable LIGHTING identifies the type of lighting facilities that service the households. The variable is measured in a scale that qualifies the different types of means of lighting from nonelectric to electric lighting. LIGHTING comes from question 23 of the questionnaire.59

Hypothesis 14.3: "Higher the degree of commoditization, greater the likelihood that the households are serviced with electric lighting to dwellings (measured by the variable LIGHTING)."

In the fourth operationalization, the concept of 'access to quality housing' will be measured by using the variable ROOMS. The variable ROOMS identifies the number of rooms in the dwelling of the households. ROOMS comes from question 19 of the questionnaire.60
Hypothesis 14.4: "Higher the degree of commoditization, greater the number of rooms in the dwellings of the households of producers (measured by the variable ROOMS)."

In the fifth operationalization, the concept of 'access to quality housing' will be measured using the variable BEDRMS. The variable BEDRMS identifies the number of bedrooms in the dwellings. BEDRMS comes from question 19 of the questionnaire.61

Hypothesis 14.5: "Higher the degree of commoditization, greater the number of bedrooms in the dwelling of the households of producers (measured by the variable BEDRMS)."

The fifteenth proposition states: "Higher the degree of commoditization, higher the access to household appliances." This proposition will be tested as three hypotheses where the concept of 'the access to household appliances' will be examined in terms of its three subconcepts. The subconcepts are the likelihood that the producers have access to refrigerator and/or kitchen, the likelihood that the producers own a radio and/or television set, and the likelihood that the cooking fuel used by the producers is clean, modern, and processed. The operational measures for them will be presented before each hypothesis. In the first operationalization, the concept of 'access to household appliances' will be measured using the variable COCIREF. The variable COCIREF identifies if the household of the
producer had access to a refrigerator and/or kitchen. 

COCIREF is an indicator measured on a scale from 0 to 3 that characterizes the patterns of consumption of the household and their access or lack of access to household appliances. COCIREF is a discrete variable, with values 0 = no appliance, 1 = kitchen, 2 = refrigerator, and 3 = both. COCIREF comes from question 25 of the questionnaire. 

Hypothesis 15.1: "Higher the degree of commoditization, greater the likelihood that the producers have access to refrigerator and/or a kitchen (measured by the variable COCIREF)."

In the second operationalization, the concept 'the access to household appliances' will be measured using the variable RADTV. The variable RADTV identifies if the producer owned a radio and/or television set. RADTV is measured on a scale from 0 to 3. It is a discrete variable with value 0 = no appliance, 1 = radio, 2 = television, and 3 = both. RADTV comes from question 25 of the questionnaire.

Hypothesis 15.2: "Higher the degree of commoditization, greater the likelihood that the producers own a radio and/or television set (measured by the variable RADTV)."

In the third operationalization, the concept of 'access to household appliances' will be measured using the variable COCICOM. The variable COCICOM identifies the type of cooking fuel being used in the households of the producers.
**COCICOM** is an indicator measured on a scale that qualifies the types of cooking fuels from more modern, clean, and processed fuels, to less modern, less clean, and not processed, but acquired from nature. The values range from 0 to 5. The variable comes from question 24 of the questionnaire that inquires on the type of cooking fuel. Its values correspond to fuels as identified as wood = 1, coal = 2, kerosene = 3, gas = 4, electricity = 5, and does not cook = 0.64.

Hypothesis 15.3: "Higher the degree of commoditization, greater the likelihood that the cooking fuel used by the producers is clean, modern, and processed (measured by the variable **COCICOM**)."

The sixteenth proposition states: "Higher the degree of commoditization, higher the access to health care services." The proposition will be tested as two hypotheses where the concept of 'the access to health care services' will be examined in terms of its two subconcepts. The subconcepts are the number of family members of the producer's household that received medical care that year and the number of family members with personal social security coverage in the households of producers. The operational measures for them will be presented before each hypothesis. The concept of 'access to health care services' will be first measured by using the variable **SIKATTN**. The variable
SIKATTN identifies the number of family members that received medical care during that year. SIKATTN comes from question 9 of the questionnaire.65

Hypothesis 16.1: "Higher the degree of commoditization, greater the number of family members of the producer’s household that received medical care that year (measured by the variable SIKATTN)."

In the second operationalization, the concept of 'access to health care services' will be measured using the variable DIRINS. The variable DIRINS identifies the number of family members with personal social security coverage in the households of producers.66 DIRINS comes from question 10 of the questionnaire.67

Hypothesis 16.2: "Higher the degree of commoditization, lower the number of family members with personal social security coverage in the households of producers (measured by the variable DIRINS)."

The seventeenth proposition states: "Higher the degree of commoditization, lower the presence of female heads of households on the farms." This proposition will be tested as a hypothesis where the concept of 'the presence of female heads of households on the farm' will be examined in terms of its subconcept. The subconcept is the likelihood that the head of households of producers is made. The operational measures for it will be presented before the
hypothesis. The concept of the presence of female heads of households on the farm will be measured using the variable SEXHED. The variable SEXHED identifies if the head of household is male or female. SEXHED is a dichotomous, discrete variable with value 1 for female and 2 for male. SEXHED comes from question 4 of the questionnaire.68

follows:

Hypothesis 17.1: "Higher the degree of commoditization, greater the likelihood that the head of households of producers is male (measured by the variable SEXHED)."

The eighteenth proposition states: "Higher the degree of commoditization, the higher the concentration of population incorporated and dependent of the farms." This proposition will be tested as four hypotheses where the concept of 'the concentration of population incorporated and dependent of the farms' will be examined in terms of its four subconcepts. The subconcepts are the number of families incorporated into the type of production system, the number of persons per family in the households of the producers, the number of households with more children on the farms and the number of households of producers where the head of household contribute to the family income. The operational measures for them will be presented before each hypothesis. The concept of 'the concentration of population incorporated and dependent of the farms' will be first
measured by using the variable FAMILY. The variable FAMILY identifies the number of households affected by each type of production system. FAMILY comes from the Household-Farm ID number of each interview. It is part of variable 1 of the data set (together with the codes for county, province, canton, and districts). 69

Hypothesis 18.1: "Higher the degree of commoditization, greater the number of families incorporated into the type of production system (measured by the variable FAMILY)."

In the second operationalization, the concept of 'the concentration of population incorporated and dependent of the farms' will be measured using the variable PERSONS. The variable PERSONS identifies the number of persons in each family of the households of producers. PERSONS comes from question 5 of the questionnaire. 70

Hypothesis 18.2: "Higher the degree of commoditization, greater the number of persons per family in the households of the producers (measured by the variable PERSONS)."

In the third operationalization, the concept of 'concentration of population incorporated and dependent of the farm' will be measured using the variable CHTOT. The variable CHTOT identifies households by the total number of children. CHTOT comes from question 6 of the ques-
uestionnaire. CHTOT is a composite variable constructed from the identification of the number of children per household.

Hypothesis 18.3: "Higher the degree of commoditization, greater the number of households with more children on the farms (measured by the variable CHTOT)."

In the fourth operationalization, the concept of 'the concentration of the population' incorporated and dependent of the farms will be measured by using the variable CONTHED. The variable CONTHED identifies if the head of household contributed to the family income. CONTHED is a dichotomous, discrete variable with values 0 = no and 1 = yes.

Hypothesis 18.4: "Higher the degree of commoditization, greater the number of households of producers where the head of household contributes to the family income (measured by variable CONTHED)."

Second section The operationalization of the specific theoretical proposition that distinguish the producers by the types of specialization in the labor market.

The first labor market proposition states: "Capitalist employees concentrate their labor force participation in the permanent, full time employment labor market." This proposition will be tested as eight hypotheses where the concept of 'concentrate their labor force participation the permanent, full time employment labor market' will be
examined, in terms of its eight subconcepts. The subconcepts are higher frequency of employment in the agricultural permanent labor market, higher employment in the agricultural permanent labor market in contrast to other producers, in reference to both the agricultural and nonagricultural labor markets to present higher employment in the agricultural permanent labor market in contrast to other producers and to have a higher employment in the urban-nonagricultural labor market in contrast to other producers. Additional subconcepts include having a greater number of hours the previous week of the interview in contrast to other producers, to have a greater number of households with a greater number of households with at least one member employed as a nonlaborer in contrast to other producers, and to have a greater number of households without any member working as laborers in contrast to other producers. A final concept is to have a greater number of households with at least one member in the nonlaborer labor market as opposed to the laborers labor market.

The operational measures for them will be presented before each hypothesis. The concept of 'concentration in the permanent, full time labor marker,' will be first measured using the variable EMPLEO. The variable EMPLEO is a constructed indicator that has been formed by three variables, PERMW, SEASW, and OCCASW, each identify the
participation of at least one member of the households
of producers in permanent, seasonal, or occasional labor
markets. SEASW comes from question 26 of the question­
naire. PERMW comes from question 27 of the
questionnaire. OCCASW comes from question 28 of the
questionnaire. All three variables are discrete, identi­
fying the households according to the number of family
members that participated in each type of employment. The
variables have been dummy coded with values of 0 and 1,
value = 1 identifies households with at least one member
employed in each type of labor market and households with no
members participating in each respective labor market have a
value of 0 The constructed variable EMPLEO is a nominal
discrete variable with three categories formed by PERMW = 1
as category 1, SEASW = 1 as category 2, and OCCASW = 1 as
category 3.

Hypothesis 19.1: "Capitalist employees present a
higher frequency of employment in the agricultural permanent
labor market (measured by the variable EMPLEO)." The
variable CAPITALIST EMPLOYEES identified as WORKER 3 was
previously identified as the capitalist producers that
participate in the labor markets selling their labor power.
In the second operationalization, the concept of 'concentra­
tion of their labor force participation in the permanent
full time employment labor market will be measured using the
variable \textit{PERMW}. The variable \textit{PERMW} identifies the households of producers according to the number of family members that participate in the permanent, full time labor market as employees. \textit{PERMW} was transformed into a nominal variable dummy coded with values 0 and 1 to identify households with \( = 1 \) and without any member participating in that labor market \( = 0 \).

Hypothesis 19.2: "Capitalist employees present a higher employment in the agricultural permanent labor market in contrast to other producers (measured by the variable \textit{PERMW})."

In the third operationalization the concept of concentration of labor force participation in the 'permanent full time employment labor market' will be measured using the variable \textit{TRABAJO}. The variable \textit{TRABAJO} identifies all labor market participation, both the agricultural as the urban-nonagricultural labor markets. \textit{TRABAJO} is a composite indicator constructed by the variables \textit{FAMPERWK}, \textit{FAMSESWK}, \textit{FAMOCWK}, and \textit{FAMOTHWK} (which have been specified previously) these variables that identify the number of family members working outside of the farm for pay in permanent, seasonal, occasional, and other nonagricultural employment have been dummy coded with values 0 to 1 to identify households of producers with at least one member working in each job category with value \( =1 \) and no family
member working with value = 0. TRABAJO is a nominal, discrete variable with category 1 identifying FAMPERWK = 1, category 2 FAMSESWK = 1, category 3 FAMOCCWK = 1, and category 4 FAMOTHWK = 1.

Hypothesis 19.3: "Capitalist employees, in reference to both the agricultural and nonagricultural labor markets, present a higher employment in the permanent labor market in contrast to other producers (measured by the variable TRABAJO)."

In the fourth operationalization, the concept of 'concentration of labor force participation in the permanent full time employment labor market' will be measured using the variable TRABAJO. The variable TRABAJO was previously identified, category 4 indicates off-farm work performed in the urban-nonagricultural labor market.

Hypothesis 19.4: "Capitalist employees have a higher employment in urban-nonagricultural labor market in contrast to other producers (measured by the variable TRABAJO).

In the fifth operationalization, the concept of 'concentration of labor force participation in the permanent full time employment labor market' will be measured using the variable HRSWKD. The concept of the capitalist employee will be measured using the variable PRODUCER. Both HRSWKD and PRODUCER (which identifies each of the three basic types of producers, capitalist, simple commodity, and peasant)
have been previously identified. The variable \textit{HRSWKD} identifies hours of work performed by the producer during the last week before the interview (the variable was identified previously). \textit{PRODUCER} identifies, by degrees of commoditization, the three basic types of producers, the subtypes that participate in the labor markets are included in each category. The capitalist employee is a capitalist producer that also sells his/her labor power.

Hypothesis 19.5: "The capitalist producers worked a greater number of hours during the previous week of the interview in contrast to other producers (measured by the variables \textit{PRODUCER} and \textit{HRSWKD})."

In the sixth operationalization, the concept of 'concentration of labor force participation in the permanent full time employment labor market' will be measured using the variable \textit{JOBCAT2}. The indicator \textit{JOBCAT2} is a composite variable that identifies households according to number of members working as other type of employee. \textit{JOBCAT2} excludes members working as laborers which are identified in another variable, \textit{JOBCAT1}. The variable \textit{JOBCAT2} comes from question 29 of the questionnaire. \textit{JOBCAT2} is a discrete variable that has been dummy coded with values 0 to 1, to identify households of producers with at least one member in non-labor, other type of employment with a value = 1, and no member in that category with a value = 0.
Hypothesis 19.6: "Capitalist employees have a greater number of households with at least one member employed as nonlaborers in contrast to other producers (measured by the variables WORKER and JOBCAT2)."

In the seventh operationalization, the concept of 'concentration of labor force participation in the permanent, full time employment labor market will be measured using the variable JOBCAT1. The variable JOBCAT1 identifies the households of producers according to the number of members working as laborers. JOBCAT1 is a composite variable that comes from question 29 of the questionnaire. JOBCAT1 is a discrete variable that has been dummy coded with values 0 to 1 indicating households with at least one member working as a laborer or households without any member working as a laborer.

Hypothesis 19.7: "Capitalist employees have a greater number of households without any member working as laborers in contrast to other producers (measured by the variables WORKER and JOBCAT1)."

In the eighth operationalization, the concept of 'concentration of labor force participation in the permanent, full time employment labor market' will be measured using the variable LABORMKT. The variable LABORMKT is an indicator that identifies the laborer and nonlaborer, labor
Hypothesis 19.8: "Capitalist employees have a greater number of households with at least one member in the nonlaborer labor markets as opposed to the laborers labor market (measured by the variables WORKER and LABORMKT)."

The second labor market proposition states: "Simple commodity farm workers concentrate their labor force participation in the journeyman occasional, day-to-day employment labor market." This proposition will be tested as six hypotheses where the concept of 'concentrate their labor force participation in the journeyman occasional, day-to-day employment labor market' will be examined in terms of its six subconcepts. The subconcepts are, to present, a higher participation of employment in the occasional labor market in contrast to other producers, to present a higher frequency of employment in the occasional labor market, to have more family members employed in the occasional labor market than each of the other types of producers and that higher the degree of commoditization, smaller the number of families of producers that participate in the occasional labor market. Also, the subconcepts include, to present, a higher number of households with at least one member participating in the occasional labor market in contrast to capitalist employee type and in reference to both the
agricultural and nonagricultural labor markets to have the highest number of households with at least one member working in the occasional labor market. The operational measures for them will be presented before each hypothesis. The first hypothesis will measure the concept to concentrate their labor force participation in the 'journeyman, occasional, day-to-day employment labor market using the variable EMPLEO. The variable EMPLEO is a constructed indicator previously identified that represents the three categories of agricultural labor markets and is formed by the variables PERMW, SEASW, and OCCASW also previously identified.

Hypothesis 20.1: "Simple commodity farm workers present a higher participation of employment in the occasional labor market in contrast to other producers (measured by the variable EMPLEO)."

In the second operationalization, the concept to concentrate their labor force participation in the journeyman, day-to-day occasional labor market will be measured by the variable OCCASW. The variable OCCASW that has previously been identified indicates households with at least one member of the family of the producer in the occasional employment labor market or households with no member in that labor market.
Hypothesis 20.2: "Simple commodity farm workers present a higher frequency of employment in the occasional labor market (measured by the variable OCCASW)."

In the third operationalization, the concept of concentration of their labor force participation in the journeyman day-to-day occasional labor market will be measured using the variable FAMOCCWK. The variable FAMOCCWK has been identified previously and indicates the number of family members working outside the farm in agricultural day-to-day paid employment.

Hypothesis 20.3: "The simple commodity farm workers have more family members employed in the occasional labor market than each of the other types of producers (measured by the variable FAMOCCWK)." In the fourth operationalization, the concept of commoditization will be measured using the variable WORKER previously identified. The concept of 'concentration of labor force' participation in the journeyman occasional day-to-day labor market will be measured using the variable FAMOCCWK previously identified. FAMOCCWK distinguishes producer households by the number of members of the family in the occasional employment labor market.

Hypothesis 20.4: "Higher the degree of commoditization, smaller the number of members of families of producers that participated in the occasional labor market (measured by the variable WORKER and FAMOCCWK)."
The fifth hypothesis will complement the previous hypothesis by specifying in comparison to which type of producer does the simple commodity farm worker present a higher number of households with family members that are employed in the occasional labor market. In the fifth operationalization, the concept of the simple commodity farm worker and the other types of producers will be measured using the variable PRODUCER previously identified. The concept of the concentration of their labor force participation in the journeyman, day-to-day occasional labor market will be measured using the variable FAMOCCWK previously identified. FAMOCCWK has been dummy coded with values 0 and 1 identifying households with at least one member working in the occasional labor market and households without any member in the occasional labor market.

Hypothesis 20.5: "The simple commodity producers present a higher number of households with at least one member participating in the occasional labor market in contrast to the capitalist employee type (measured by the variables PRODUCER and FAMOCCWK)."

In the sixth operationalization, the concept of concentration of their labor force participation in the journeyman, day-to-day occasional labor market will be measured using the variable TRABAJO. The variable TRABAJO, previously identified, will indicate both the agricultural
and nonagricultural labor market and as one of its categories the occasional labor market. TRABAJO distinguishes the households of producers among the different labor market by those with at least one member in a job category.

Hypothesis 20.6: "Simple commodity farm workers in reference to both the agricultural labor markets have the highest number of households with at least one member working in the occasional labor market (measured by the variables WORKER and TRABAJO)."

The third labor market proposition states: "Semi-proletarian peasants concentrate their labor force participation in the seasonal employment labor market." This proposition will be tested as six hypotheses where the concept of 'to concentrate their labor force participation in the seasonal employment labor market' will be examined in terms of its six subconcepts. The subconcepts are to have a higher frequency of employment in the seasonal labor market, to have more households with higher number of family members employed in the seasonal labor market in contrast to other producers, to have households with family members employed in the seasonal labor market, and that at higher the degree of commoditization, smaller the number of members of families of producers that participate in the seasonal labor market. Also, the subconcepts are to present a higher number of households with at least one member participating
in the seasonal labor market in contrast to other producers and in reference to both the agricultural and nonagricultural labor markets to have a higher number of households with at least one family member working in the seasonal employment agricultural labor market. The operational measures for them will be presented before each hypothesis.

In the first operationalization, the concept to concentrate their labor force participation in seasonal employment labor market will be measured using the variable EMPLEO. The variable EMPLEO is a constructed indicator previously identified, that is, formed by three categories representing the agricultural labor markets.

Hypothesis 21.1: "Semi-proletarian peasant have a higher frequency of employment in the seasonal labor market (measured by the variables WORKER and EMPLEO)."

In the second operationalization, the concept of 'to concentrate their labor force participation in the seasonal labor market will be measured using the variable SEASW. The variable SEASW, previously identified, indicates households according to the number of members working in season employment.

Hypothesis 21.2: "Semi-proletarian peasants have more households with higher numbers of family members employed in the seasonal labor market in contrast to other producers (measured by the variables WORKER and SEASW)."
In the third operationalization, the concept of 'to concentrate their labor force participation in the seasonal labor market' will be measured using the variable \textit{SEASW}. The transformed variable \textit{SEASW} has been dummy coded with values 0 and 1 to distinguish households of producers with at least one of the household employed in seasonal work = 1 or households without any member in that job market = 0.

Hypothesis 21.3: "Semi-proletarian peasants have more households with family members employed in the seasonal labor market in contrast to other producers (measured by the variable \textit{WORKER} and the variable \textit{SEASW})."

In the fourth operationalization, the concept of degree of commoditization will be measured using the variable \textit{WORKER} previously identified. The concept of 'to concentrate their labor force participation in the seasonal labor market' will be measured using the variable \textit{FAMSESWK}. \textit{FAMSESWK} previously identified, indicates the households by the number of family members that work in the seasonal labor market.

Hypothesis 21.4: "Higher the degree of commoditization, smaller the number of members of families of producers that participated in the seasonal labor market (measured by the variables \textit{WORKER} and \textit{FAMSESWK})."

In the fifth operationalization will complement the previous hypothesis by specifying who are the producers that
have a smaller number of households with family members in the seasonal labor market than the semi-proletarian peasant producer. The hypothesis will measure the semi-proletarian peasant in comparison to the other producers by the independent variable PRODUCER previously identified. In the fifth operationalization, the concept of 'to concentrate their labor force participation in the seasonal labor market' will be measured using the variable FAMSESWK previously identified. FAMSESWK was dummy coded with values 0 and 1 identifying households with at least one member working in the seasonal labor market = 1, and households without any member = 0.

Hypothesis 21.5: "The semi-proletarian peasant presents a higher number of households with at least one member participating in the seasonal labor market in contrast to other producers. (measured by the variables PRODUCER and FAMSESWK)."

In the sixth operationalization will operationalize the concept of 'to concentrate their labor force' participation in the seasonal labor market in contrast with all other labor markets, both agricultural and nonagricultural will be measured using the variable TRABAJO. The variable TRABAJO, previously identified, will indicate as one of its categories the seasonal labor market. TRABAJO distinguishes the households of producers among the different labor markets by
those with at least one member in a job category. Hypothesis 21.6: "Semi-proletarian peasants in reference to both the agricultural and nonagricultural labor markets have the highest number of households with at least one family member working in the seasonal employment agricultural labor market (measured by the variables WORKER and TRABAJO)."

**Third section**

The theoretical propositions that address the simple commodity farm worker proletarianization will be tested as the specific hypotheses.

**The first proletarianization proposition states:** "The simple commodity farm worker is the only agrarian producer whose participation in the labor force can be predicted on its chances or odds of proletarianization that increase as education increases, landed property decreases, organic composition of capital decreases and the dependency ratio of the household increases." The concept of chances or odds of proletarianization identify the chances or odds of the simple commodity head of household to work in off-farm employment. **Proletarianization** is defined as the condition that affect the simple commodity producer when joining the labor force.

This proposition will be tested as four hypotheses where the concept of the simple producer is the only agrarian producer whose participation in the labor force can
be predicted on its chances or odds of proletarianization, that increase as education increases, landed property decreases, organic-composition of capital decreases and the 'dependency ratio of the household increases' will be examined in terms of its four subconcepts. The first subconcepts is the log of the odds of a simple commodity head of household of joining the labor force is directly related to the level of education, inversely related to the amount of land, inversely related to the level of technology, and directly related to the level of dependency ratio. The second subconcepts is the lag of the odds of a capitalist head of household and the log of the odds of a peasant head of household of joining the labor force will not be predicted by the model that predicts the proletarianization of the simple commodity head of household. The third concept is the simple commodity farm worker presents a higher participation in the labor market of laborers in contrast to other producers. The fourth subconcept is that the simple commodity farm workers heads of household present the highest participation in labor markets in comparison to the heads of household of capitalist employee and the semi-proletarian peasant types. The operational measures for them will be presented before each hypothesis.

The concept proletarianization will be measured using the variable WORK. The variable WORK identifies the
dichotomous variable with value 1 for participating, and value 0 for nonparticipating, in the labor force. WORK refers to the participation or nonparticipation of the head of household in the labor force. The variable WORK is a constructed indicator formed by the dummy coding of the variable OFFRMWK. The variable OFFRMWK, previously identified, measures all the combinations of off-farm work by the head of household, the dummy coding reduced the variable to a nominal variable with values 0 for those heads of households that do not work and 1 for those that work in one type or another of the labor market.

The concept of EDUCATION will be measured using the variable EDJEFE. EDJEFE has been previously identified and measures the number of years of formal education achieved by the head of household. The concept of Landed Property will be measured using the variable MZTODO. MZTODO has been previously identified and measures the total amount of land in manzanas in possession of the producer. The independent variable Organic Composition of Capital is operationalized by the variable TECH. The variable TECH identifies the level of technological mechanization of the farm. TECH is identical to the variable FUERZA, which was previously identified, and that measures the type of power used in farm production. The concept of the dependency ratio of the household, is measured by the variable PERDEP. The variable
PERDEP is an indicator that identifies the proportion of household members below age 12 over the total members of the household. PERDEP is formed by the addition of variables \textit{AGE06}, \textit{AGE711} and dividing them by the variable \textit{PERSONS} and multiplying by 100 to obtain a percentage score. The variable \textit{AGE06} identifies the households according to number of children six years old and less. \textit{AGE06} comes from question 4 of the questionnaire.\textsuperscript{79} \textit{AGE711} identifies the households according to number of children between seven and eleven years old. \textit{AGE711} comes from question 4 of the questionnaire.\textsuperscript{80} The variable \textit{PERSONS} has previously been identified. It measures the total number of persons in the household. The variable \textit{PERDEP} identifies the percentage of dependence in the household.\textsuperscript{81}

The dichotomous nature of the dependent variable \textit{WORK} has guided the choice of a logit model to explore and test the relationship of the variables of my model. The relationship between the independent variables \textit{EDJEFE}, \textit{MZTODO}, \textit{TECH}, and \textit{PERDEP} and the dependent variable \textit{WORK} will be studied through the Logistic Regression procedure. The model that predicts the conditional probability of a simple commodity head of household to join the labor force will be stated in terms of the chances or odds of that event to take place. Under the conditions that hierarchical model cannot be used to study the effects on a dichotomous dependent
variable of changes from the independent variables, logit analysis is the appropriate procedure and the relationships will be defined in terms of their logit. In consequence, the proletarianization model, that predicts that the chances or odds of a simple commodity head of household to join the labor force will increase as the level of education is higher, as the amount of land is smaller, as the level of technology is lower, and as the dependency ratio of the household is higher.

Hypothesis 22.1: "The log of the odds of a simple commodity head of household of joining the labor force is directly related to the level of education, inversely related to the amount of land, inversely related to the level of technology, and directly related to the level of dependency ratio (measured by the variables EDJEFE, MZTODD, TECH, PERDEP, and WORK)." The hypothesis states that the log of the odds of variable Y WORK increases as variable X1 EDJEFE increases, variable X2 MZTODD decreases, variable X3 TECH decreases and variable X4 PERDEP increases. The hypothesis proposes that the model that can best represent the factors that can predict the proletarianization of the simple commodity head of house is specified in the following equation: Log odds (Y) = (A) + B1(X1) - B2(X2) - B3(X3) + B4(X4). A = intercept and B1 = slopes beta (see Agresti and Finlay, 1986, p. 486).
Logit models are analogous to ordinary regression models in which the expected value of a continuous dependent variable is a linear function of the independent variables. The test of the fit of the model will be done by the use of a chi-square test. The interpretation of the probability significance associated to the slopes beta of the independent variables and to the fit of the model will be established on a preselected level of significance of 0.05 of the chi-square.

The causal diagram of the model is as follows:

For the direct effects of the independent variables:
- (EDJEFE) + (MZTODO) = (TECH) - (PERDEP) +

Ho: The logistic regression coefficients B are equal to zero: B1 = B2 = B3 = B4 = 0. Ha: At least one logistic regression coefficient is not equal to zero: B1 > 0, B2 < 0, B3 < 0, and B4 > 0.

In the second operationalization, the concept that the simple commodity producer is the only agrarian producer whose participation in the labor force can be predicted on its chances or odds of proletarianization will be measured using the variable WORK.

Hypothesis 22.2: "The log of the odds of a capitalist head of household and the log of the odds of a peasant head of household of joining the labor force will not be predic-
ted by the model that predicted the proletarianization of the simple commodity head of household (directly related to the level of education, inversely related to the amount of land, inversely related to the level of technology and directly related to the level of the dependency ratio (measured by the variables EDJEFE, MZTODQ, TECH, PERDEP, and WORK)."

The hypothesis states that the equation that predicts the proletarianization of the simple commodity heads of households: Log odds (WORK) = A + B1 (EDJEFE) - B2 (MZTODQ) - B3 (TECH) + B4 (PERDEP) will not be the best representation of the factors that predict the labor force participation of either the capitalist head of household or the peasant head of household. The interpretation will be based on the chi-square test of the model applied to both the capitalist producers and the peasant producers. Ho: B1 = 0/my prediction is that I will fail to reject Ho. Ha: B1 > 0, B2 < 0, B3 < 0, B4 > 0, at least one logit regression coefficient is not equal to zero, B1 ≠ 0.

In the third operationalization, the concept of proletarianization of the simple commodity farm worker will be measured using the variable JOBCAT1. The variable JOBCAT1 has been previously identified. It represents participation or nonparticipation in the labor markets of laborers. The variable is dummy coded with values 0 and 1.
identifying households of producers that work with at least one member of the families in the laborers labor market = 1 or no member in this particular market = 0. The relationship is conceptualized as indicating that proletarian participation in the work force is characterized by a specialization in the labor market of laborers.

Hypothesis 22.3: "The simple commodity farm worker presents a higher participation in the labor market or laborer in contrast to other producers (measured by the variables WORKER and JOBCATI)."

In the fourth operationalization, the concept of proletarianization of the simple commodity farm worker will be measured using the variable OFFRMWK. The variable OFFRMWK was previously identified. It represents the type of off-farm work of the head of the household. The variable OFFRMWK has been transformed into four categories that indicate the number of combinations of off-farm work performed by the head of household. OFFRMWK has value 0 for category representing no type of work of the head of household, value 1 indicating dedication to either permanent, seasonal, occasional, or other nonagricultural work, value 2, representing a combination of two types of work and value 3 representing a combination of three and more combinations of types of work. It is my contention that
proletarianization can be characterized by the participation in increasing types of labor markets.

Hypothesis 22.4: "The simple commodity farm workers heads of household present the highest participation in labor markets in comparison to the heads of households of the capitalist employee or the semi-proletarian peasant types (measured by the variable WORKER and OFFRMWK).

The second proletarianization proposition states: "Lower the amount of landed property disposable, higher the chances or odds of proletarianization of the simple commodity producer." The proposition will be tested by the hypothesis that will examine the concept of 'landed property' by its subconcept. The subconcept is number of manzanas of land under the possession of the producer or size of total land holdings. The concept will be measured using the variable MZTODO. The variable MZTODO has been previously identified and represents the total amount of land in the possession of the producer measured in manzanas.

In terms of the logit regression model, previously identified, the present proposition presents an answer to the following question: What are the adjusted (when EDJEFE, TECH and PERDEP are equivalent to zero) odds of a simple commodity producer head of household with X2 (MZTODO) of manzanas of joining the labor force? The hypothesis will predict that for every decrease of one unit X2 (MZTODO),
where will be a \((B_2)\) increase in the log odds of a simple commodity producer head of household of joining the work force.

Hypothesis 23.1: "The log odds of a simple commodity producer head of household of joining the labor force is inversely related to the number of manzanas of land under his/her possession (measured by the variables \textit{WORK} and \textit{MZTODO})." The hypothesis states that the best fit that represents the relationship between the independent variable \(X_2\) \textit{MZTODO} and the dependent variable \(Y\) \textit{WORK} is the following linear equation with a negative slope. When \(X_1\) \textit{EDJEFE} is zero, \(X_3\) \textit{TECH} is zero, \(X_4\) \textit{PERDEP} is zero and \(A = \) to the intercept and \(B = \) to the logit regression coefficient, the equation can be specified as: Log odds \((Y) = A - (B_2)X_2\).

The relationships found in the sample will be inferred to the population by a chi-square test. \(H_0: B_2 = 0\). \(H_a: B_2 < 0\).

The third proletarianization proposition states: "Higher the level of education achieved, higher the chances or odds of proletarianization of the simple commodity producer." The proposition will be tested by the hypothesis that will examine the concept of level of education achieved by it subconcept. The subconcept is number of years of education achieved by the head of household. The concept will be measured using variable \textit{EDJEFE}. The variable \textit{EDJEFE}
has been previously identified and represents the number of years of education achieved by the head of household. In terms of the logit regression model, previously identified, the present proposition presents an answer to the following question: What are the adjusted (when MZTODO, TECH, and PERDEP are equivalent to zero) odds of a simple commodity producer with XI (EDJEFE) years of education of joining the labor force? The hypothesis will predict that for every increase of one unit XI (EDJEFE) there will be a (B1) increase in the log odds of a simple commodity producer head of household of joining the labor force.

Hypothesis 24.1: "The log odd of a simple commodity producer head of household of joining the labor force is directly related to the number of years of education achieved (measured by the variables WORK and EDJEFE)." The hypothesis states that the best fit that presents the relationship between the independent variable XI EDJEFE and the dependent variable Y WORK is the following linear equation when X2 MZTODO is zero, X3 TECH is zero, X4 PERDEP is zero and A = to the intercept and B = to the logit regression coefficient, the equation can be specified as: Log odds (Y) = A + (B1)X1. The relationship found in the sample will be inferred to the population by a chi-square test. Ho: B1 = 0. Ha: B1 > 0.
The fourth proletarianization proposition states:
"Lower the degree of the organic composition of capital, higher the chances or odds of proletarianization." The proposition will be tested by the hypothesis that will examine the concept of 'organic composition of capital' by its subconcept. The subconcept is level of technology or mechanization and will be measured by using the variable \text{TECH}. The variable \text{TECH} has been previously identified and represents the level or degree of technology incorporated into the production process of the farms by the type of mechanization and power used by the producer. In terms of the logit regression model, previously identified, the present proposition presents an answer to the following question: What are the adjusted (when \text{MZTODO}, \text{EDJEFE}, and \text{PERDEP} are equivalent to zero) odds of a simple commodity producer with \text{X3 (TECH)} of joining the labor force? The hypothesis will predict that for every decrease of one unit of \text{X3 (TECH)} there will be a \text{(B3)} increase in the log odds of a simple commodity producer head of household of joining the labor force.

Hypothesis 25.1: "The log odds of a simple commodity producer head of household of joining the labor force is inversely related to the level of technological mechanization achieved in the farms (measured by the variables \text{WORK} and \text{TECH})." The hypothesis states that the best fit that
represents the relationship between the independent variable $X_3$ TECH and the dependent variable $Y$ WORK is the following linear equation with a negative slope. When $X_1$ EDJEFE is zero, $X_2$ MZTODO is zero, $X_4$ PERDEP is zero and $A =$ to the intercept and $B =$ to the logit regression coefficient, the equation can be specified as:

$$\log \text{odds } (Y) = A - (B_3)X_3.$$  

The relationship found in the sample will be inferred to the population by a chi-square test. $H_0$: $B_3 = 0$. $H_a$: $B_3 < 0$.

The fifth proletarianization proposition states:
"Higher the dependency ratio of the household, higher the chances or odds of proletarianization." The proposition will be tested by the hypothesis that will examine the concept of 'dependency ratio' by its subconcept. The subconcept is dependency ratio. The concept 'dependency ratio' will be measured using the variable PERDEP. The variable PERDEP has been previously identified and represents the percentage of dependents of the households. In terms of the logit regression model, previously identified, the present proposition presents an answer to the following question: What are the adjusted (when EDJEFE, MZTODO, and TECH are equivalent to zero) odds of a simple commodity producer with $X_4$ (PERDEP) of joining the labor force? The hypothesis will predict that for every increase of one unit of $X_4$ (PERDEP) there will be a $(B_4)$ increase in the log odds.
of a simple commodity head of household of joining the labor force. The proposition will be operationalized as follows:

Hypothesis 26.1: "The log odds of a simple commodity producer head of household joining the labor force is directly related to the dependency ratio of the household (measured by the variable WORK and PERDEP)." The hypothesis states that the best fit that represents the relationship between the independent variable X4 PERDEP and the dependent variable Y WORK is the following linear equation. When X1 EDJEFE is zero, X2 MZTODO is zero, X3 TECH is zero and A = to the intercept and B = to the logit regression coefficient, the equation can be specified as:

\[ \text{Log odds (Y)} = A + (B4)X4. \]

The relationship found in the sample will be inferred to the population by a chi-square test. Ho: \( B4 = 0 \). Ha: \( B4 > 0 \).

Specification of the interrelation among the independent variable of the causal model that predicts the odds of proletarianization of the simple commodity producer.

The full causal model which theorized direct and indirect effects of the independent variables X1 EDJEFE, X2 MZTODO, X3 TECH, and X4 PERDEP on the dependent variable Y WORK is illustrated by the following path diagram:
The model assumes that the relations among the variables in the model are linear, additive and causal. Each residual is assumed to be not correlated with the variables that precedes it in the model. The model is assumed to be a system of one-way causal flow, where there is no reciprocal causation between the variables. The independent variables are all measured on an interval scale and without error. The linear relations among the variables will be measured by the multiple regression (b) coefficients, their relation will identify that: A one standard deviation increase in the independent variable corresponds to a (b) standard deviation change in the dependent variable, controlling for the other independent variables in that particular regression equation and it is equal to the standardized regression coefficients or path coefficients.
The following theoretical proposition will be tested as specific hypotheses.

**The first proposition states:** "Lower concentration of landed property, higher levels of education."

The hypothesis will examine the concept of 'concentration of landed property' by the subconcept size of total land holdings. The concept 'level of education will be examined by the subconcept number of years of education achieved. The concept will be measured using the variables MZTODQ and variable EDJEFE, both previously identified.

Hypothesis 27.1: "As the number of manzanas of land in possession of the simple commodity producer deceases head of households number of years of education will be predicted to increase."

The model prediction equation is the following: $X_1(EDJEFE) = A - bx_2(MZTODQ)$, $A =$ intercept. $H_0: b = 0$.

$H_a: b < 0$, $b =$ standardized regression coefficient.

**The second proposition states:** "Higher the concentration of landed property will explain higher degrees of the organic composition of capital."

The hypothesis will examine the concept of 'concentration of landed property in terms of its subconcept size of total land holdings. The concept 'organic composition of capital' will be examined in terms of its subconcept level
Hypothesis 27.2: "As the number of manzanas of land in possession of the simple commodity producer increases the his/her level of technological mechanization will be predicted to increase." The model predication equation is the following: X3 (TECH) = A + bX2 (MZTODO), a = intercept and b = standardized regression coefficient. Ho: b = 0. Ha: b > 0.

The third proposition states: "Higher concentration of landed property will explain a lower dependency ratio." The hypothesis will examine the concept of 'concentration of landed property' in terms of its subconcept size of total land holdings. The concepts will be measured using the variables MZTODO and variable PERDEP, previously identified.

Hypothesis 27.3: "As the number of manzanas of land in possession of the simple commodity producer increases his/her household, percentage of dependents will be predicted to decrease." The model prediction equation is the following: X4 (PERDEP) = A - bX2 (MZTODO), A = intercept and b = standardized regression coefficient. Ho: b = 0. Ha: b < 0.

The fourth proposition states: "Higher level of education will explain higher degrees of the organic composition of capital." The hypothesis will examine the concept of level of education in terms of its subconcept
number of years of education achieved. The concepts will be measured using the variable \textit{EDJEFE} and variable (dependent) \textit{TECH}, previously identified.

Hypothesis 27.4: "As the number of years of education achieved by the simple commodity head of household producer increases his/her level of technological, mechanization will be predicted to increase." The model prediction equation is the following: \(X3 \ (TECH) = A + bX1 \ (EDJEFE)\), \(A = \) intercept, and \(b = \) standardized regression coefficient. \(Ho: \ b = 0.\) \(Ha: \ b > 0.\)

The fifth proposition states: "Higher level of education will explain a higher dependency ratio." The hypothesis will examine the concept of level of education in terms of its subconcept number of years of education achieved. The concept of dependency ratio in terms of its subconcept dependency ratio. The concepts will be measured by using the variable \textit{EDJEFE} and variable \textit{PERDEP}, previously identified.

Hypothesis 27.5: "As the number of years of education, achieved by the simple commodity head of household producer increases, his/her percentage of dependents of the household will be predicted to increase." The model prediction equation is the following: \(X4 \ (PREDEP) = A + bX1 \ (EDJEFE)\).
A = Intercept, and b = standardized regression coefficient.  
Ho: \( b = 0 \). Ha: \( b \neq 0 \).

**The sixth proposition states:** "Higher degrees of the organic composition of capital will explain a higher dependency ratio." The hypothesis will examine the concept of degrees of the organic composition of capital in terms of its subconcept level of technology. The concept dependency ratio will be examined in terms of its subscript dependency ratio. The concepts will be measured using the variable TECH and variable PERDEP, previously identified.

Hypothesis 27.6: "As the of technological mechanization of the simple commodity producer increases, his/her percentage of dependents of the household will be predicted to increase." The model prediction equation is the following: \( X_4 (\text{PERDEP}) = A + bX_3 (\text{TECH}) \). A = intercept, and b = standardized regression coefficient. Ho: \( b = 0 \); Ha: \( b > 0 \).

**Conclusion**

In the present chapter, I have been able to identify the three main topics that I shall review in the analysis and interpretation of findings of the next chapter. First, the typology of agrarian production systems by relation of reproduction in the Pacifico Sur Region of Costa Rica will be characterized by its distinguishing properties. The hypotheses that address 18 dimensions of both the farm systems and the social differentiation of the rural social
class situation are explained by the independent variable commoditization which reflects the typology itself. Second, the characterization of the rural producers that participate in the labor market will be identified in their labor market specialization. The contrast between the type of labor market specialization will contribute to identify the special case of the labor force participation of the simple commodity producer, as participation through proletarianization. The peasant producer will be able to also be characterized, through its differentiation from the other two types of rural labor force, the capitalist employee and simple commodity farm worker. The status of the peasant worker as semi-proletarian peasants will be established. The layout of the questions to be addressed, that have been formally stated through the hypotheses, will guide the construction of a theory of transitional class situations of the agrarian producers. Third, the causal model of the chances or odds of proletarianization of the simple commodity producer is the first step in the construction of a theory of the process of transformation through labor force participation of a transitional class situation, the one affecting the simple commodity producer. The causal model will be a contribution toward the conceptualization of the forces at work that are decomposing and recomposing the rural classes of farm producers. The framework of hypothe-
ses presented in this chapter will be followed step by step in the presentation, analysis and interpretation of the findings. The central concept evaluated through the tests of these hypotheses is commoditization. How effective is the notion of reproduction of relations of production through market mediation in distinguishing the rural producers into distinct and significant categories? The next chapter will seek to answer this question.
CHAPTER VI. PRESENTATION OF THE FINDINGS

Introduction

The review and analysis of the results of the test of the operationalized theoretical propositions will be undertaken in three stages. The first section will focus on the presentation and interpretation of the findings that make reference to the properties of the typology of agrarian production systems. Each theoretical proposition will be reviewed as for its results on the tests of the hypothesis that addressed its different dimensions and operationalizations. The same will apply for the second section that will refer to review and the analysis of the proposition that addressed the specialization of the different producer types into distinct labor markets and division of labor forms. The third section is devoted to test the proposition of the model that predicts the log of the odds or chances of proletarianization of the simple commodity producer. The model searches to identify the factors that have a direct effect on the odds that a simple commodity head of household has of joining the labor force. All three sections are interrelated and will address the research questions that have guided this dissertation.
First Section: The properties of the typology of agrarian production systems of the Pacífico Sur Region of Costa Rica.

The first section will focus on the presentation and analysis of the results of the test on the hypothesis that operationalized the 18 propositions of the typology of agrarian production systems. Each proposition will be presented separately and the findings of the test of hypothesis will be interpreted. The objective of this section is to identify the properties of the typology as an instrument to differentiate the producer types according to the specific dimensions that each theoretical proposition addresses. The review of the findings will lead, in each case, to the evaluation of the role of the concept of commoditization as the distinguishing factor that differentiates the different categories or types of producers and social class situations of the typology.

The first proposition stated: "Higher the degree of commoditization, higher the concentration of landed property." The proposition was confirmed by the tests of the two hypotheses. In the first operationalization (I.1), the concept of landed property was measured using the variable TAMAFINC which identified the size of the farm in manzanas (1 manzana = 1.7270 acres). The results of the test of the hypothesis (Table 1) show that the following questions were answered affirmatively and the proposition confirmed.
Table 1. Results of hypothesis testing of hypotheses 1.1 and 1.2

<table>
<thead>
<tr>
<th>Commoditization producer types</th>
<th>TAMAFINC (H.1.1) mean</th>
<th>MZTODO (H.1.2) mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capitalist entrepreneurs</td>
<td>62.7469</td>
<td>64.5490</td>
</tr>
<tr>
<td>Capitalist employees</td>
<td>88.7500</td>
<td>97.3240</td>
</tr>
<tr>
<td>Simple commodity farmers</td>
<td>26.7909A</td>
<td>26.8102A</td>
</tr>
<tr>
<td>Simple commodity farm worker</td>
<td>16.6416A</td>
<td>16.6387A</td>
</tr>
<tr>
<td>Peasant farmers</td>
<td>10.4000A</td>
<td>10.1941A</td>
</tr>
<tr>
<td>Semi-proletarian peasants</td>
<td>6.8230A</td>
<td>6.7655A</td>
</tr>
</tbody>
</table>

Source

<table>
<thead>
<tr>
<th></th>
<th>F</th>
<th>Sig.</th>
<th></th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>20.6786</td>
<td>.0000</td>
<td>21.7020</td>
<td>.0000</td>
<td></td>
</tr>
<tr>
<td>Linearity</td>
<td>71.2918</td>
<td>.0000</td>
<td>70.3778</td>
<td>.0000</td>
<td></td>
</tr>
</tbody>
</table>

\[ \text{ETA}^2 = .0961 \]

\[ \text{ETA}^2 = 0.1003 \]

The same alphabet means that the means did not differ significantly according to the Duncan's test (P > .05).
First question: Does the typology distinguish the different types of producers according to the size of their farms? The answer is yes. Second question: Is the best fit of the trend of the data a simple linear equation? The answer is yes.¹

In the second operationalization (1.2), the concept of landed property was measured using the variable MZTODO, which identified the total amount of land under the possession of the producer, in manzanas. The findings of the test of the hypothesis (1.2) show that the following questions were answered affirmatively and the proposition confirmed:

First question: Does the typology distinguish the different types of producers according to the total amount of land under the possession of the producer? The answer is yes.

Second question: Is the best fit of the trend of the data a simple linear equation? The answer is yes.²

The second proposition stated: "Higher the degree of commoditization, higher the degree of the organic composition of capital." The proposition was confirmed by the test of the two hypotheses. In the first operationalization (2.1), the concept of 'organic composition of capital' was measured by the variable FUERZA, which identifies the level of mechanization achieved in farm production. The results of the test of the hypothesis (Table 2) show that the
Table 2. Results of hypothesis testing of hypotheses 2.1 and 2.2

<table>
<thead>
<tr>
<th>Commodity production types</th>
<th>FUERZA (H.2.1) mean</th>
<th>EQUIPO (H.2.2) mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capitalist entrepreneurs</td>
<td>2.8455A^a</td>
<td>.2869AB</td>
</tr>
<tr>
<td>Capitalist employees</td>
<td>2.9211A</td>
<td>.3636A</td>
</tr>
<tr>
<td>Simple commodity farmers</td>
<td>2.3153</td>
<td>.1855C</td>
</tr>
<tr>
<td>Simple commodity farm workers</td>
<td>1.8439B</td>
<td>.1402CD</td>
</tr>
<tr>
<td>Peasant farmers</td>
<td>1.6471BC</td>
<td>.1842BC</td>
</tr>
<tr>
<td>Semi-proletarian peasants</td>
<td>1.3390C</td>
<td>.0278D</td>
</tr>
</tbody>
</table>

Source

<table>
<thead>
<tr>
<th>Source</th>
<th>F</th>
<th>Sig.</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>34.9611</td>
<td>.0000</td>
<td>7.9690</td>
<td>.0000</td>
</tr>
<tr>
<td>Linearity</td>
<td>164.1885</td>
<td>.0000</td>
<td>29.7589</td>
<td>.0000</td>
</tr>
</tbody>
</table>

\[ \text{ETA}^2 = .1501 \quad \text{ETA}^2 = .0405 \]

^a The same alphabet means that the means did not differ significantly according to the Duncan’s test (P > .05).
following questions were answered affirmatively and the proposition confirmed.

**First question:** Does the typology distinguish the different types of producers according to the level of mechanization of the farms? The answer is yes.

**Second question:** Is the best fit of the trend of the data a simple linear equation? The answer is yes.3

The typology as a whole did confirm that the producers that participate in the labor markets have a lower level of mechanization than those that do not participate in off-farm work. Using the contrast procedure of comparing groups, the group of producers that do not participate in the labor markets registered higher levels of mechanization than the producers that do participate. The contrast between these two groups of producers was significant at \( T = 2.593, P = .01 \) The results show that participation in the labor markets contributes to addition of resistance to reproduction through commodity relations, thus, reducing the level of commoditization of the producer type. The contrast was even stronger when the comparison did not take into account the capitalist producers \( T = 3.335, P = .001 \). The findings show that the effect of reproduction through labor market participation as resistance to commoditization is true for the simple commodity producer and the peasant producer, but it is not the case for the capitalist pro-
ducer. The results identify that, with regard to level of mechanization, the types of labor markets and division of labor process affecting the producers are differentiated. The capitalist producers that participate in off-farm work have a higher level of mechanization on their farms than the producers of their same type of agrarian production system that do not work. However, the simple commodity and peasant producers present an inverse situation. The producers of these types that do work present lower levels of mechanization in their farms. My interpretation of these findings lead me to support the proposition that the characterization of the labor markets in which these producers participate and specialize in are generating differential effects. Also, that the process of division of labor affecting the capitalist producer is significantly different from the division of labor process affecting the other types of producers.

In the second operationalization (2.2) the concept of organic composition of capital' was measured by the variable EQUIPO. The variable identifies if the farmer had problems in obtaining farm equipment. The findings of the test of the hypothesis (2.2) show that the following questions were answered affirmatively and the proposition confirmed:
First question: Does the typology distinguish the different types of producers according to the mean number of farmers for whom access to farm equipment is a problem? The answer is yes.

Second question: Is the best fit of the trend of the data a simple linear question? The answer is yes.4

The results support the proposition that mechanization and division of labor by specialization that affects the capitalist producer are positively correlated, and that mechanization and division of labor through routinization that characterizes the simple commodity and peasant producer type are negatively correlated. In fact, contrasting the simple commodity and peasant producers between those that participate in the labor market and those that do not, with regard to the average number of producers that identified getting equipment as a problem, both groups were significantly different. Using the contrast procedure applied to the simple commodity and peasant producer, those that did not participate in the job market presented a significantly higher mean number of producers for whom obtaining machinery is a problem (T = 2.292, P = .022. The results confirm that the producers that are affected by the routinization on division of labor present significantly lower levels of mechanization than those not affected by this type of division of labor. Presenting as a problem access to farm
Table 3. Results of hypothesis testing of hypotheses 3.1, 3.2, and 3.3

<table>
<thead>
<tr>
<th>Commodityization producer type</th>
<th>FMAJ (H.3.1) mean</th>
<th>SMAJ (H.3.2) mean</th>
<th>AGRITYPE (H.3.3) mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capitalist entrepreneurs</td>
<td>2.8252A</td>
<td>1.2683A</td>
<td>4.0935A</td>
</tr>
<tr>
<td>Capitalist employees</td>
<td>2.4934B</td>
<td>1.0921AB</td>
<td>3.5855B</td>
</tr>
<tr>
<td>Simple commodity farmers</td>
<td>2.8874A</td>
<td>.9054BD</td>
<td>3.7928AB</td>
</tr>
<tr>
<td>Simple commodity farm workers</td>
<td>2.9538A</td>
<td>.7283CD</td>
<td>3.6821B</td>
</tr>
<tr>
<td>Peasant farmers</td>
<td>2.2471BC</td>
<td>.5294C</td>
<td>2.7765C</td>
</tr>
<tr>
<td>Semi-proletarian peasants</td>
<td>2.0923C</td>
<td>.6610CD</td>
<td>2.7542C</td>
</tr>
</tbody>
</table>


Between groups: 7.6501 .0000 6.4975 .0000 10.7468 .0000 12.0843 .0005 29.5781 .0000 41.6538 .0000

\[ \text{ETA}^2 = .0372 \quad \text{ETA}^2 = .0318 \quad \text{ETA}^2 = .0515 \]

\(^a\)The same alphabet means that the means did not differ significantly according to the Duncan's test (P > .05).
equipment is a good indicator of degree of mechanization and the test of this hypothesis is consistent with the first operationalization of the proposition previously reviewed.

The third proposition stated: "Higher the degree of commoditization, higher the specialization of production for export markets." The proposition was confirmed by the test of the three hypotheses. In the first operationalization (3.1), the concept of 'specialization of production for export markets' was measured by the variable FMAJ. FMAJ identifies the first major crop or farm production activity by its degree of export market orientation. The results of the test of the hypothesis (Table 3) show that the following questions were answered affirmatively and the proposition confirmed:

First question: Does the typology distinguish the different types of producers according to the mean values of the export market orientation of their first major crop or production activity? The answer is yes.

Second question: Is the best fit of the trend of the data a simple linear equation? The answer is yes.5

In the second operationalization (3.2), the concept of the export market orientation of the specialization of the farms' was measured by the second major productive activity using the variable SMAJ. The findings of the test of the
hypothesis (3.2) show that the following questions were answered affirmatively and the proposition confirmed:

**First question:** Does the typology distinguish the different types of producers according to the mean value of the export market orientation of their second major crop or production activity? The answer is yes.

**Second question:** Is the best fit of the trend of the data a simple linear equation? The answer is yes.6

In the third operationalization (3.3), the concept of 'the export market orientation specialization of the farms' was measured by the variable AGRITYPE that identifies the first and second major activities of the farms. The findings of the test of the hypothesis (3.3) show that the following questions were answered affirmatively and the proposition confirmed:

**First question:** Does the typology distinguish the different types of producers according to the mean value of the export market orientation of both major farm productive activities? The answer is yes.

**Second question:** Is the best fit of the trend of the data a simple linear equation? The answer is yes.7

Commoditization almost doubled its explanatory power to account for export market specialization when it is measured by AGRITYPE as compared to FMAJ and SMSJ taken separately.
My interpretation of the results of export market specialization of the farm production by degrees of commoditization lead me to confirm that reproduction through labor market participation (even if distinct for its effects on capitalist and simple commodity producer) identifies with regard to this proposition that reproduction takes place as resistance to commoditization.

When the contrast of the four producer types that sell their products to the market (the two capitalists and the two simple commodity producers) is performed by dividing both groups by their labor market participation, the results confirm the role of off-farm work as reproduction through resistance to commoditization. The contrast test identified that the capitalist and simple commodity producers that did not work had significantly higher means of export market orientation specialization for both major farm activities than those that did participate in the labor markets, ($T = 2.156, P = 0.031$).

The fourth proposition stated: "Higher the degree of commoditization, higher the shared perception that the type of production is secure." The proposition was confirmed by the test of the two hypotheses. In the first operationalization (4.1), the concept 'shared perception that the type of production is secure' was measured using the variable $\text{SUREEXPO}$. The variable identifies the crops or farm
activities perceived by the producers to be the most secure according to their score of export market orientation specialization. The results of the test of the hypothesis (Table 4) show that the following questions were answered affirmatively and the proposition was confirmed:

**First question:** Does the typology distinguish the different types of production systems according to the mean scores of degree of safety of the export market oriented farm productive activities? The answer is yes.

**Second question:** Is the best fit of the trend of the data a simple linear equation? The answer is yes.

In the second operationalization (4.2), the concept that 'the shared perceived opinion the their crops or productive activities' are the most secure, was measured using the variable SURECROP. The results of the test of the hypothesis (4.2) show that the following question was answered affirmatively and that the proposition was confirmed:

**Question:** Is the likelihood that the crop or activity of the farm qualified as the most secure be statistically dependent on the degree of commoditization of the producer? The answer is yes.

The fifth proposition stated: "Higher the export specialization of production, higher the shared perception
Table 4. Results of hypothesis testing of hypotheses 4.1 and 4.2

<table>
<thead>
<tr>
<th>Commoditization producer type</th>
<th>SUREEXPO (H.4.1) mean</th>
<th>SURECROP (H.4.2)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capitalist entrepreneurs</td>
<td>1.6626A</td>
<td>112</td>
<td>134</td>
</tr>
<tr>
<td>Capitalist employees</td>
<td>1.3618AC</td>
<td>75</td>
<td>77</td>
</tr>
<tr>
<td>Simple commodity farmers</td>
<td>1.6126A</td>
<td>109</td>
<td>113</td>
</tr>
<tr>
<td>Simple commodity farm workers</td>
<td>1.6358A</td>
<td>86</td>
<td>87</td>
</tr>
<tr>
<td>Peasant farmers</td>
<td>.8471B</td>
<td>60</td>
<td>25</td>
</tr>
<tr>
<td>Semi-proletarian peasants</td>
<td>.9661BC</td>
<td>83</td>
<td>35</td>
</tr>
</tbody>
</table>

Source

\[
\chi^2 = 33.195
\]

<table>
<thead>
<tr>
<th>Source</th>
<th>F</th>
<th>Sig.</th>
<th>D.F. = 5, P = .001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>5.2947</td>
<td>.0001</td>
<td></td>
</tr>
<tr>
<td>Linearity</td>
<td>13.0945</td>
<td>.0003</td>
<td></td>
</tr>
</tbody>
</table>

*The same alphabet means that the means did not differ significantly according to the Duncan's test (P > .05).*
that the type of production is secure." The proposition was confirmed by the test of the three hypotheses.

The following three hypotheses were tested on the perception of the farmers as to the security or not of the first, second, and two major crops or production activities of the farm.

In the first operationalization (5.1), the concept of 'the export oriented specialization of the first major type of crop or activity,' and the concept of the greater the likelihood that the crop or activity was qualified as the most secure, were measured using the independent variable FMAJ and the dependent variable SURECROP. The results of the test of the hypothesis (Table 5) show that the following question was answered affirmatively and that the proposition was confirmed:

Question: Is the likelihood that the first major crop or activity be qualified as the most secure statistically dependent on the level of export oriented specialization of the first major crop or activity? The answer is yes.

In the second operationalization (5.2), the concept of 'the export oriented specialization of the second major type of crop or activity,' and the concept of greater the likelihood that the crop or activity was qualified as the most secure, were measured using the independent variable SMAJ and the dependent variable SURECROP. The results of
Table 5. Results of hypothesis testing of hypotheses 5.1, 5.2, and 5.3

<table>
<thead>
<tr>
<th>SURECROP by FMAJ (H.5.1)</th>
<th>Level of export orientation of first major production activity of the farm (FMAJ)</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>The most secure production</td>
<td>No</td>
<td>88</td>
<td>203</td>
<td>18</td>
<td>38</td>
<td>178</td>
<td>525</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>12</td>
<td>60</td>
<td>11</td>
<td>35</td>
<td>353</td>
<td>471</td>
</tr>
<tr>
<td>SURECROP Total</td>
<td></td>
<td>100</td>
<td>263</td>
<td>29</td>
<td>73</td>
<td>531</td>
<td>996</td>
</tr>
</tbody>
</table>

Chl-square $X^2 = 192.7231$, DF = 4, $P > .001$

<table>
<thead>
<tr>
<th>SURECROP by SMAJ (H.5.2)</th>
<th>Level of export orientation of second major production activity of the farm (FMAJ)</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>The most secure production</td>
<td>No</td>
<td>349</td>
<td>83</td>
<td>6</td>
<td>50</td>
<td>37</td>
<td>525</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>244</td>
<td>103</td>
<td>6</td>
<td>52</td>
<td>66</td>
<td>471</td>
</tr>
<tr>
<td>SURECROP Total</td>
<td></td>
<td>593</td>
<td>186</td>
<td>12</td>
<td>102</td>
<td>103</td>
<td>996</td>
</tr>
</tbody>
</table>

Chl-square $X^2 = 26.0965$, DF = 4, $P > .001$
Table 5 (continued)

<table>
<thead>
<tr>
<th>SURECROP by AGRITYPE (H.5.3)</th>
<th>The most secure production activity - SURECROP</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of Export</td>
<td>No</td>
<td>%</td>
<td>Yes</td>
<td>%</td>
<td>Total</td>
</tr>
<tr>
<td>0</td>
<td>87</td>
<td>87.9</td>
<td>12</td>
<td>12.1</td>
<td>99</td>
</tr>
<tr>
<td>1</td>
<td>123</td>
<td>93.9</td>
<td>8</td>
<td>6.1</td>
<td>131</td>
</tr>
<tr>
<td>2</td>
<td>37</td>
<td>84.1</td>
<td>7</td>
<td>15.9</td>
<td>44</td>
</tr>
<tr>
<td>3</td>
<td>30</td>
<td>61.2</td>
<td>19</td>
<td>38.8</td>
<td>49</td>
</tr>
<tr>
<td>4</td>
<td>141</td>
<td>38.4</td>
<td>226</td>
<td>61.6</td>
<td>367</td>
</tr>
<tr>
<td>AGRITYPE</td>
<td>No</td>
<td>%</td>
<td>Yes</td>
<td>%</td>
<td>Total</td>
</tr>
<tr>
<td>5</td>
<td>75</td>
<td>36.2</td>
<td>132</td>
<td>63.8</td>
<td>207</td>
</tr>
<tr>
<td>6</td>
<td>32</td>
<td>32.3</td>
<td>67</td>
<td>67.7</td>
<td>99</td>
</tr>
<tr>
<td>Total</td>
<td>525</td>
<td></td>
<td>471</td>
<td></td>
<td>996</td>
</tr>
</tbody>
</table>

Chi-square $X^2 = 226.092$, DF = 6, P > .0001
the test of the hypothesis (5.2) show that the following question was answered affirmatively and that the proposition was confirmed.

**Question:** Is the likelihood that the second major crop or activity be qualified as the most secure statistically dependent on the level of export oriented specialization of the second major crop or activity? The answer is yes.

In the third Operationalization (5.3), the concept of 'the export orientation specialization of the first and second major types of crops or activities of the farm, and the concept of the 'greater the likelihood that the crops or activities were qualified as the most secure,' were measured using the independent variable **AGRITYPE** and the dependent variable **SURECROP**. The results of the test of the hypothesis (5.3) show that the following question was answered affirmatively and that the proposition was confirmed.

**Question:** Is the likelihood that the two major crops, or activities, be qualified as the most secure statistically dependent on the level of export oriented specialization of the two major crops or activities of the farms? The answer is yes.

All three tests have confirmed that the higher the export market orientation of a farm production activity the
likelihood that it is perceived as the most secure crop or activity is true.

The effects of specializing in foreign currency cash crops and less risky types of production activities combined a double advantage for the producers that are reproduced in their class situation through increasingly market mediate relations of production. The principal benefit for producer reproduced through commoditization is that they can accumulate capital that will further enhance their productive capacity.

The sixth proposition. It will be recalled that the proposition stated "Higher the degree of commoditization, greater the production of the farms." The proposition was tested and confirmed in three out of the four hypotheses. In the first operationalization, 'the concept of farm production' was measured by the number of heads of cattle using the variable GANADO. Cattle livestock raising is the most prevalent form of farm productive activity in the region, only excluding 8.5 percent of all the producers distributed evenly in all categories. The results of the test of the hypothesis (Table 6) show that the following questions were answered affirmatively and that the proposition was confirmed.
Table 6. Results of hypothesis testing of hypotheses 6.1, 6.2, 6.3, and 6.4

<table>
<thead>
<tr>
<th>Comoditization producer type</th>
<th>GANADO (H.6.1) mean</th>
<th>MILKBOTT (H.6.2) mean</th>
<th>CHDUCTUR (H.6.3) mean</th>
<th>HORES (H.6.4) mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capitalist entrepreneurs</td>
<td>32.9444A</td>
<td>6.0309A</td>
<td>27.0725B</td>
<td>2.1733A</td>
</tr>
<tr>
<td>Capitalist employees</td>
<td>45.4599A</td>
<td>6.1321AB</td>
<td>28.7736B</td>
<td>2.0897A</td>
</tr>
<tr>
<td>Simple commodity farmers</td>
<td>12.9384B</td>
<td>4.3264AB</td>
<td>24.2240AB</td>
<td>1.5972B</td>
</tr>
<tr>
<td>Simple commodity farm workers</td>
<td>8.8618B</td>
<td>2.4836B</td>
<td>23.6721AB</td>
<td>1.0125C</td>
</tr>
<tr>
<td>Peasant farmers</td>
<td>4.1266B</td>
<td>3.4697AB</td>
<td>28.0909B</td>
<td>1.1364BC</td>
</tr>
<tr>
<td>Semi-proletarian peasants</td>
<td>2.6020B</td>
<td>1.9875B</td>
<td>19.6250A</td>
<td>.9512BC</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>F</th>
<th>Sig.</th>
<th>F</th>
<th>Sig.</th>
<th>F</th>
<th>Sig.</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>9.2412</td>
<td>.0000</td>
<td>2.0992</td>
<td>.0636</td>
<td>2.6136</td>
<td>.0236</td>
<td>8.2343</td>
<td>.0000</td>
</tr>
<tr>
<td>Linearity</td>
<td>32.8050</td>
<td>.0000</td>
<td>8.9742</td>
<td>.0028</td>
<td>6.0125</td>
<td>.0144</td>
<td>36.8176</td>
<td>.0000</td>
</tr>
</tbody>
</table>

\[ \text{ETA}^2 = .0486 \quad \text{ETA}^2 = .0137 \quad \text{ETA}^2 = .0171 \quad \text{ETA}^2 = .0720 \]

*The same alphabet means that the means did not differ significantly according to the Duncan's test (P > .05).*
First question: Does the typology distinguish the different types of producers according to the number of heads of cattle in their farms? The answer is yes.

Second question: Is the best fit of the trend of the data a simple linear equation? The answer is yes.  

In the second operationalization (6.2), 'the concept of farm production' was measured using the variable MILKBOTT, which identifies the number of bottles of milk produced in the farm, the week before the interview. The results of the test of the hypothesis (6.2) show that the following questions were answered, first negatively and second affirmatively, the test failed to confirm the proposition.

First question: Does the typology distinguish the different types of producers according to the average number of milk bottles produced in the farm? The answer is no.

Second question: Is the best fit of the trend of the data a simple linear equation? The answer is yes.  

The evaluation of the results lead to question if the typology constructed into six categories of producers distinguishes adequately the differences among the producer types on this productive activity. For the properties of asymmetry and transitivity to hold true, the typology would have to collapse both types of capitalist producers and both types of peasant producers. However, in a condensed typology, only distinguishing the three principal types of
farm systems (the capitalist, simple-commodity and peasant),
the differences of milk production does present a definite
trend in the data that can be inferred as a characteristic
of the population. The analysis of variance between the
means of the three groups identifies that the capitalist
produced an average of 6.0667 bottles of milk, the simple
commodity producers, 3.6127, and the peasants, 2.6575,
statistically significant differences with an F ratio of
4.2834, and a significance level of probability of $P = 0.0141$. The Duncan test, at a probability level of $P = 0.05$, revealed that the capitalist produced significantly
more milk in average than the simple commodity producers and
the peasant producers.

In the third operationalization (6.3), the concept of
'farm production' was measured by using the variable
CHDUCTUR, which identified the number of chickens, ducks,
turkeys, and other fowls produced on the farms. The results
of the test of the hypothesis (6.3) show that the following
questions were answered affirmatively and the proposition
was confirmed.

**First question:** Does the typology distinguish the
different types of producers according to the average number
of fowls produced on the farms? The answer is yes.

**Second question:** Is the best fit of the trend of the
data a simple linear equation? The answer is yes.
Analysis of the results reveal that the semi-proletarian peasant, with the smallest average number of fowls, presented significant differences with both capitalist producers, and the peasant farmer. The peasant farmer concentrated an average of higher than the capitalist entrepreneur, but slightly lower than the capitalist employee. As expected, the distribution of fowls was much more representative of all types of producers. However, it was distinguished by levels of commoditization. The semi-proletarian peasant and the peasant farmer were able to be adequately differentiated identifying the contrast of labor market participation in the lower status of producers.

The contrast procedure of comparison between groups means in number of fowls distinguished that the simple commodity and peasant producers that work have significantly lower averages than those that do not work, \(T = 2.165, P = .031\). These results support the concept that labor market participation represents reproduction through added resistance to commoditization, at least for the simple commodity and peasant producers.

In the fourth operationalization (6.4), the concept of 'farm production' was measured using the variable HORESSES, which identifies the number of horses present on the farm. The results of the test of the hypothesis (6.4) show
that the following questions were answered affirmatively and
that the proposition was confirmed.

**First question:** Does the typology distinguish the
different types of producers according to the mean numbers
of horses on the farm? The answer is yes.

**Second question** Is the best fit of the trend of the
data a simple linear equation? The answer is yes.\(^{12}\)

The seventh proposition stated: "Higher the degree of
commoditization, greater the access to institutional
services for production of the farms." The proposition was
confirmed by the test of the seven hypotheses. In the first
operationalization (7.1), the concept of 'institutional
services for production' measured access to technical
assistance by using the variable TEKAST. TEKAST identifies
if the producer received, or not, technical assistance that
year through any type of agency. The results of the test of
the hypothesis (Table 7) show that the following questions
were answered affirmatively and that the proposition was
confirmed.

**First question:** Does the typology distinguish the
different types of producers according to having or not
benefited from technical assistance? The answer is yes.

**Second question:** Is the best fit of the trend of the
data a simple linear equation? The answer is yes.\(^{13}\)
The producer types were significantly differentiated within
Table 7. Results of hypothesis testing of hypotheses 7.1, 7.2, 7.3, 7.4, 7.5, 7.6, and 7.7

<table>
<thead>
<tr>
<th>Commoditization producer type</th>
<th>TEKAST (H.7.1) mean</th>
<th>TEKVIST (H.7.2) mean</th>
<th>APPLYTEC (H.7.3) mean</th>
<th>CREDITO (H.7.4) mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capitalist entrepreneurs</td>
<td>0.3171A</td>
<td>0.0537A</td>
<td>0.2683A</td>
<td>0.5325</td>
</tr>
<tr>
<td>Capitalist employees</td>
<td>0.3158A</td>
<td>0.7500AC</td>
<td>0.2500AB</td>
<td>0.6184B</td>
</tr>
<tr>
<td>Simple commodity farmers</td>
<td>0.2477AB</td>
<td>0.7207AD</td>
<td>0.1937B</td>
<td>0.4730C</td>
</tr>
<tr>
<td>Simple commodity farm workers</td>
<td>0.1965B</td>
<td>0.3468BC</td>
<td>0.1098C</td>
<td>0.5318CB</td>
</tr>
<tr>
<td>Peasant farmers</td>
<td>0.0941C</td>
<td>0.3059BCD</td>
<td>0.0824C</td>
<td>0.0118A</td>
</tr>
<tr>
<td>Semi-proletarian peasants</td>
<td>0.0678C</td>
<td>0.0847B</td>
<td>0.0508C</td>
<td>0.0169A</td>
</tr>
</tbody>
</table>

Source F Sig. F Sig. F Sig. F Sig.
Between groups 9.2488 0.000 4.4622 0.005 8.9275 0.000 45.0658 0.000
Linearity 43.6649 0.000 20.4764 0.000 42.9804 0.000 142.9753 0.000

\[\text{ETA}^2 = 0.0446 \quad \text{ETA}^2 = 0.0220 \quad \text{ETA}^2 = 0.0431 \quad \text{ETA}^2 = 0.1854\]

\(^a\)The same alphabet means that the means did not differ significantly according to the Duncan's test (P > .05).
Table 7 (continued)

<table>
<thead>
<tr>
<th>Commoditization producer type</th>
<th>TERONE (H.7.5)b mean</th>
<th>TIMELY (H.7.6)b mean</th>
<th>ENOUGH (H.7.7)b mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capitalist entrepreneurs</td>
<td>20.0894</td>
<td>.3862</td>
<td>.3293</td>
</tr>
<tr>
<td>Capitalist employees</td>
<td>18.1118</td>
<td>.3816</td>
<td>.3947</td>
</tr>
<tr>
<td>Simple commodity farmers</td>
<td>14.7207</td>
<td>.2973</td>
<td>.2658</td>
</tr>
<tr>
<td>Simple commodity farm workers</td>
<td>14.8728</td>
<td>.3179</td>
<td>.3006</td>
</tr>
<tr>
<td>Peasant farmers</td>
<td>1.1294</td>
<td>.0118</td>
<td>.0000</td>
</tr>
<tr>
<td>Semi-proletarian peasants</td>
<td>.1017</td>
<td>.0085</td>
<td>.0085</td>
</tr>
</tbody>
</table>

Source

<table>
<thead>
<tr>
<th></th>
<th>F</th>
<th>Sig.</th>
<th>F</th>
<th>Sig.</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>7.6732</td>
<td>.0000</td>
<td>21.4040</td>
<td>.0000</td>
<td>20.1178</td>
<td>.0000</td>
</tr>
<tr>
<td>Linearity</td>
<td>32.4366</td>
<td>.0000</td>
<td>83.4076</td>
<td>.0000</td>
<td>69.4879</td>
<td>.0000</td>
</tr>
</tbody>
</table>

\[ \text{ETA}^2 = .0373 \]
\[ \text{ETA}^2 = .0976 \]
\[ \text{ETA}^2 = .0922 \]

^The Duncan test was not applied.
each group by participation or nonparticipation in the labor markets.

The labor market participation of the producers presented the results that were hypothesized for the effect of added resistance to commoditization. The average number of producers that received technical assistance was significantly higher within each category for the producers that did not work ($T = -1.960$, $P = .05$).

In order to measure technical assistance, not as a nominal parameter, but as a graduated one, the following hypothesis was tested, the intensity of this service by using the number of technical assistance visits received by the producers.

The second operationalization (7.2), 'the concept of institutional services for production' was measured using the variable TEKVIST which identifies the number of visits that the producer received from technical assistance agencies that year. The results of the test of the hypothesis (7.2) show that the following questions were answered affirmatively, and that the proposition was again confirmed.

First question: Does the typology distinguish the different types of producers according to the average number of technical assistance visits received in the farms? The answer is yes.
Second question: Is the best fit of the trend of the data a simple linear equation? The answer is yes.\(^\text{14}\)

In each category, the producers that participate in the labor market scored a lower mean number of technical assistance visits received, the distance was not statistically significant, \((T = 1.918, P = .055)\). However, the rank order hypothesized for the typology was not reversed in any category.

In the third operationalization (7.3), 'the concept of proposition' was measured using the variable \textit{APPLYTEC}. \textit{APPLYTEC} identifies whether or not the producer was able to apply or follow the technical assistance advice received that year. The proposition was confirmed by the test of the third hypothesis. The results of the test of the hypothesis (7.3) show that the following questions were answered affirmatively.

First question: Does the typology distinguish the different types of producers according to the application or not of the technical advice received that year? The answer is yes.

Second question: Is the best fit of the trend of the data a simple linear equation? The answer is yes.\(^\text{15}\)

The interpretation of the results confirm the hypothesized effect of labor market participation as resistance to commoditization. The typology was proven true in its
asymmetrical and transitivity properties. The contrast between the farmers, that work off the farm, and the household of producers, that do not participate in the labor markets, was confirmed as significant. The contrast test, with regards to application of technical assistance advice, identified the producers that do not work with a significantly higher mean value, in comparison to the producers that do (T = -2.707, P = .077).

In the fourth operationalization (7.4), the concept of 'access to the institutional services of credit was measured using the variable CREDITO, which identifies if the producer received or not credit. The results of the test of the hypothesis (7.4) show that the proposition was confirmed by the following questions being answered affirmatively.

First question: Does the typology distinguish the different types of producers according to having or not benefited from loans? The answer is yes.

Second question: Is the best fit of the trend of the data a simple linear equation? The answer is yes.16

The producers that participate in the labor market presented, in every type of production system, slightly higher access to credit than the producers that do not work.
The quality of the institutional service itself is also differentiated by degrees of commoditization. One of the dimensions of the quality of access to credit is the advantages related to the terms of the credit received.

In the fifth operationalization (7.5), the concept of 'access to the institutional services of credit for production' was measured using the variable TERONE, which identifies the number of months permitted for the repayment of the first credit received by the producers. The result of the test of the hypothesis (7.5) show that the proposition was confirmed by the affirmative answers to the following two questions:

**First question:** Does the typology distinguish the different producers according to the terms in months of the first credit received? The answer is yes.

**Second question:** Is the best fit of the trend of the data a simple linear equation? The answer is yes.

Because of the unequal distribution of loans to producers according to degree of commoditization, the quality of the service should also be identified by the other properties. For example, measuring the timeliness or opportunity of the credit received for its appropriate use to finance the production activities and the adequacy of the amount of the credit received to meet the needs for which they were intended.
In the sixth operationalization (7.6), the concept of access to the institutional services of credit for production was measured using the variable **TIMELY**, which identifies if the first loan was considered to be or not timely. The results of the test of the hypothesis (7.6) show that the proposition was confirmed by the affirmative answers to the following two questions:

**First question:** Does the typology distinguish the different types of producers according if they received or not loans that were considered to come when needed? The answer is yes.

**Second question:** Is the best fit of the trend of the data a simple linear equation? The answer is yes.\(^1\)

If both types of simple commodity producers were collapsed, the typology would be able to sustain its asymmetric and transitivity properties.

In the seventh operationalization (7.7), the concept 'access to institutional service of credit' for production was measured using the variable **ENOUGH** which identifies the quality of the loan. **ENOUGH** was used to distinguish the producers based on the consideration if the loan was or not sufficient for the purposes that the first credit was used for. The results of the test of the hypothesis (7.7) show that the proposition was confirmed by the two affirmative answers given to the following questions:
First question: Does the typology distinguish the different types of producers according to their perception that the first loan received was sufficient for the purpose it was used for? The answer is yes.

Second question: Is the best fit of the trend of the data a simple linear equation? The answer is yes.\textsuperscript{19}

In order to avoid repetition, I can state in summary that the properties of asymmetry and transitivity of the typology would only hold true in a collapsed three type model of production systems by degrees of commoditization.

The eighth proposition states: "Higher the degree of commoditization, higher the level of participation in the financial and banking institutions." The proposition was confirmed in the three hypotheses used to test the proposition. In the first operationalization (8.1) the concept of 'participation in financial and banking institutions' was measured using the variable $CUENBANK$, which identifies if the producer had or not a checking account in a bank. The results of the test of the hypothesis (Table 8) show that the following questions were answered affirmatively and the proposition was confirmed.

First question: Does the typology distinguish the different types of producers according to the mean number of holders of checking accounts in banks? The answer is yes.
Table 8. Results of hypothesis testing of hypotheses 8.1, 8.2, and 8.3

<table>
<thead>
<tr>
<th>Comoditization producer type</th>
<th>CUENBANK (H.8.1) mean</th>
<th>CUENSAV (H.8.2) mean</th>
<th>SAVCOOP (H.8.3) mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capitalist entrepreneurs</td>
<td>.1667AB®</td>
<td>.0732A</td>
<td>.1260A</td>
</tr>
<tr>
<td>Capitalist employees</td>
<td>.1974A</td>
<td>.1382</td>
<td>.0855A</td>
</tr>
<tr>
<td>Simple commodity farmers</td>
<td>.1171BC</td>
<td>.0315AB</td>
<td>.0766A</td>
</tr>
<tr>
<td>Simple commodity farm workers</td>
<td>.1272AC</td>
<td>.0587AB</td>
<td>.0808A</td>
</tr>
<tr>
<td>Peasant farmers</td>
<td>.0471C</td>
<td>.0706AB</td>
<td>.00001</td>
</tr>
<tr>
<td>Semi-proletarian peasants</td>
<td>.0508C</td>
<td>.0085B</td>
<td>.0085B</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>F</th>
<th>Sig.</th>
<th>F</th>
<th>Sig.</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>4.2922</td>
<td>.0007</td>
<td>5.0375</td>
<td>.0001</td>
<td>4.8024</td>
<td>.0002</td>
</tr>
<tr>
<td>Linearity</td>
<td>16.7024</td>
<td>.0000</td>
<td>7.9386</td>
<td>.0049</td>
<td>20.5317</td>
<td>.0000</td>
</tr>
</tbody>
</table>

The same alphabet means that the means did not differ significantly according to the Duncan's test ($P > .05$).
Second question: Is the best fit of the trend of the data a simple linear equation? The answer is yes.20

The rank order was inversed for every type of producers, with regards to added resistance to commoditization by participation in the labor markets. Producers that work have a higher frequency of checking accounts.

In the second operationalization (8.2), the concept of 'level of participation into the financial and banking institutions' was measured using the variable CUENSAV, which identifies if the producers had or not a savings account in a bank. The results of the test of the hypothesis (8.2) show that the proposition was confirmed and that the following questions were answered affirmatively.

First question: Does the typology distinguish the different types of producers according to the average number holding savings accounts in banks? The answer is yes.

Second question: Is the best fit of the trend of the data a simple linear equation? The answer is yes.21 Again, the rank order within each type of producers was inversed.

In the third operationalization (8.3), the concept of level of 'participation in the financial and banking institutions' was measured using the variable SAVCOOP which identifies if the producer had or not a savings account in a cooperative. The results of the test of the hypothesis
(8.3) show that the proposition was confirmed by the affirmative answers to the following questions.

**First question:** Does the typology distinguish the types of producers according to their participation in cooperatives with savings accounts? The answer is yes.

**Second question:** Is the best fit of the trend of the data a simple linear equation? The answer is yes.\(^{22}\)

The ninth proposition states: "Higher the degree of commoditization, higher the intensity of the occupation of labor in the farms." The proposition was confirmed by the test of the two hypotheses. In the first operationalization (9.1), the concept of 'Intensity of occupation of labor' was measured using the variable `HRSWKD`, which identifies the number of hours worked the week before the interview by the head of the household. The results of the test of the hypothesis (Table 9) show that the proposition was confirmed by the affirmative answers to the following questions.

**First question:** Does the typology distinguish the producer types according to the average numbers of hours worked during the previous week by the head of the household? The answer is yes.

**Second question:** Is the best fit of the trend of the data a simple linear equation? The answer is yes.\(^{23}\)

The rank order of the typology was reversed in each category in favor of the producers that work off the farm.
Table 9. Results of hypothesis testing of hypotheses 9.1 and 9.2

<table>
<thead>
<tr>
<th>Commoditization producer type</th>
<th>HRSWKD (H.3.1) mean</th>
<th>MANOBRA (H.9.2) mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capitalist entrepreneurs</td>
<td>24.4268A</td>
<td>.5481A</td>
</tr>
<tr>
<td>Capitalist employees</td>
<td>31.6184</td>
<td>.4755A</td>
</tr>
<tr>
<td>Simple commodity farmers</td>
<td>17.4910B</td>
<td>.1000B</td>
</tr>
<tr>
<td>Simple commodity farm workers</td>
<td>25.7399A</td>
<td>.0848B</td>
</tr>
<tr>
<td>Peasant farmers</td>
<td>13.9294B</td>
<td>.1733B</td>
</tr>
<tr>
<td>Semi-proletarian peasants</td>
<td>23.3814A</td>
<td>.0826B</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>F</th>
<th>Sig.</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>10.1344</td>
<td>.0000</td>
<td>52.9945</td>
<td>.0000</td>
</tr>
<tr>
<td>Linearity</td>
<td>6.0952</td>
<td>.0137</td>
<td>183.0246</td>
<td>.0000</td>
</tr>
</tbody>
</table>

\[ \text{ETA}^2 = .0487 \quad \text{ETA}^2 = .2190 \]

\(^a\)The same alphabet means that the means did not differ significantly according to the Duncan's test (P > .05).
The test of the hypothesis confirmed the proposition of corresponding degrees of commoditization to the intensity of the occupation of labor in the farms. However, it failed to confirm resistance to commoditization through off-farm work. The following operationalization used the indirect dimension of intensity of occupation of labor derived from the need to contract out of farm labor as an indicator that the in-farm labor supply has been exhausted.

In the second operationalization (9.2), the concept of 'intensity of the occupation of labor in the farms' was measured using the variable MANOBRA. MANOBRA identifies, as an indicator, if the producer had problems in contracting labor or not. The results of the test of the hypothesis (9.2) confirmed the proposition by the affirmative answers obtained from the following questions.

First question: Does the typology distinguish the producers according to the indicator of encountering, or not, problems in the supply for labor? The answer is yes.

Second question: Is the best fit of the trend of the data a simple linear equation? The answer is yes.

However, only both types of capitalist producers presented significantly higher mean scores, with regard to all and every other type of producer.

The two indicators of intensity of occupation of labor in the farms reveal different effects of the participation
In off-farm labor markets. While the test of the proposition through the variable **MANOBRA** is consistent with the assumption that off-farm work generates added resistance to commoditization, the test through the measurement of the variable **HRSWKD**, hours worked last week produced the opposite results. In fact, the contrast test of the two groups of producers distinguished according to their participation or not in off-farm work confirmed that producers that do not work off the farm have a higher perception score of problems in contracting labor than those that do work, \( T = 2.154, P = .031 \). However, the test with the indicator of number of hours worked presented the opposite results. Producers that participate in off-farm work scored significantly higher average number of hours worked last week than those that do not work \( T = 5.334, P = .0005 \). The contrast in the test of these two indicators of the concept of intensity of occupation of labor in the farms suggest that the indirect measurement, through the identification of problems in contracting labor for the farm production activities, is the most appropriate, since it does not overlap with off-farm work hours, which are also included in the first indicator that identifies hours worked last week.

The tenth proposition states: "Higher the degree of commoditization, higher the level of technological innova-
tions adopted as production practices of the farms." The proposition was confirmed by the test of the five hypotheses. In the first operationalization (10.1), the concept of 'technological innovations' was measured using the variable ABUNO which identifies the amount of fertilizer used in the first crop of the farm. The results of the test of the hypothesis (Table 10) show that the proposition was confirmed by the affirmative answers to the following questions.

**First question:** Does the typology distinguish the producers according to the amount of quintals of fertilizer used on the first crop? The answer is yes.

**Second question:** Is the best fit of the trend of the data a simple linear equation? The answer is yes. The revealing finding corresponds to the higher averages presented by the simple commodity producers, with regard to the capitalist entrepreneurs. The peasant producers presented a significant lower average amount of fertilizer, in sharp contrast to both the capitalist and simple commodity producers. The following indicator will be used to identify the proportion of producers in each category who applied, in their first crop, the technological innovation, without the effect of the differences in size of farm.

In the second operationalization (10.2), the concept of 'adoption of technological innovations' was identified
Table 10. Results of hypothesis testing of hypotheses 10.1, 10.2, 10.3, 10.4, and 10.5

<table>
<thead>
<tr>
<th>Commodityization producer type</th>
<th>ABUNO (H.0.1) mean</th>
<th>ABUNOZ (H.10.2) mean</th>
<th>HBUNO (H.10.3) mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capitalist entrepreneurs</td>
<td>6.4261A</td>
<td>.3537A</td>
<td>.3921A</td>
</tr>
<tr>
<td>Capitalist employees</td>
<td>9.2538A</td>
<td>.4145A</td>
<td>.4186A</td>
</tr>
<tr>
<td>Simple commodity farmers</td>
<td>7.0651A</td>
<td>.3243A</td>
<td>.2991A</td>
</tr>
<tr>
<td>Simple commodity farm workers</td>
<td>8.1429A</td>
<td>.3468A</td>
<td>.2937A</td>
</tr>
<tr>
<td>Peasant farmers</td>
<td>1.8333</td>
<td>.2000</td>
<td>.0694</td>
</tr>
<tr>
<td>Semi-proletarian peasants</td>
<td>2.3524</td>
<td>.1864</td>
<td>.0769</td>
</tr>
</tbody>
</table>

Source

<table>
<thead>
<tr>
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<th>F</th>
<th>Sig.</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>2.2632</td>
<td>.0464</td>
<td>4.7414</td>
<td>.0003</td>
<td>5.4840</td>
<td>.0001</td>
</tr>
<tr>
<td>Linearity</td>
<td>3.9508</td>
<td>.0471</td>
<td>15.2297</td>
<td>.0001</td>
<td>23.0080</td>
<td>.0000</td>
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\( \text{ETA}^2 = .0123 \) \( \text{ETA}^2 = .0234 \) \( \text{ETA}^2 = .0296 \)

*The same alphabet means that the means did not differ significantly according to the Duncan's test (P > .05).
Table 10 (continued)

<table>
<thead>
<tr>
<th>Commodity Type</th>
<th>SEMUNO</th>
<th></th>
<th>AGRITEK</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Capitalist entrepreneur</td>
<td>0.5921Aa</td>
<td>1.2819A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capitalist employees</td>
<td>0.7519A</td>
<td>1.4574A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Simple commodity farmers</td>
<td>0.6465A</td>
<td>1.2290A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Simple commodity farm workers</td>
<td>0.7764A</td>
<td>1.3625A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peasant farmers</td>
<td>0.1622</td>
<td>0.2917</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Semi-proletarian peasants</td>
<td>0.2617</td>
<td>0.4231</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>F</th>
<th>Sig.</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>7.5677</td>
<td>.0000</td>
<td>9.6279</td>
<td>.0000</td>
</tr>
<tr>
<td>Linearity</td>
<td>11.4400</td>
<td>.0007</td>
<td>25.9231</td>
<td>.0000</td>
</tr>
</tbody>
</table>

\[ \text{ETA}^2 = .0398 \] \[ \text{ETA}^2 = .0508 \]

^The same alphabet means that the means did not differ significantly according to the Duncan's test (P > .05).
operationalizes the proposition by the use, or not, of fertilizer in the first crop of the farms, independent of the amount used, which would be affected by the differentials in the size of the farms. The variable used to measure the technological innovation was the variable \textit{ABUNOZ}. The results of the test of the hypothesis (10.2) show the proposition was confirmed by the affirmative answers to the following questions.

\textbf{First question:} Does the typology distinguish the producers by the mean number of farmers that used fertilizer on their first crop? The answer is yes.

\textbf{Second question:} Is the best fit of the trend of the data a simple linear equation? The answer is yes.\textsuperscript{27}

The rank was again reversed for both the capitalist and simple commodity producers. Both capitalist producers and the simple commodity producers presented significantly higher means than both categories of peasant producers in the use of fertilizer.

The third hypothesis was tested through the use of the measurement of the variable \textit{HBUNO}. \textit{HBUNO} identifies a scale of use of herbicide and/or insecticides in the farms. The results of the test of the hypothesis (10.3) confirmed the proposition by the affirmative answers to the following questions.

\textbf{First question:} Does the typology distinguish the producers according to the mean scores of the scale of use
of herbicide and/or insecticides in the farms? The answer is yes.

Second question: Is the best fit of the trend of the data a simple linear equation? The answer is yes.28

Again, the peasant producers presented a significant lower adoption of these technological innovations in contrast to all the other farmers.

The fourth hypothesis (10.4) was tested and confirmed the proposition through the measurement of the variable SEMUNO, which identifies the scale of type of seed used in the first crop by the producers. The results of the test of the hypothesis (10.4) show that the following questions were answered affirmatively.

First question: Does the typology distinguish the producer types according to their mean scores on the scale of technological level of type of seed used? The answer is yes.

Second question: Is the best fit of the trend of the data a simple linear equation? The answer is yes.29 The inverse order of rank found, which situated the simple commodity producers in a higher position than the capitalist producers, contradicts the assumption of asymmetry and transitivity of the typology even when the producer types are collapsed into the three main producer categories. However, the difference among the simple commodity and
capitalist producers is so small that they are not statistically significant.

The ranking was also reversed with regard to the assumed added resistance to commoditization originated from participation in labor markets. In fact, the difference between the producers that worked and those that did not in each category gave those that did work a higher mean score on the scale of technological level of seeds used. The contrast test of the two groups, of producers that participated and those who did not in off-farm work, did not show that the producer that worked scored a significant higher means than the producer that did not work \( T = 1.899, P = .058 \). However, even if the level of significance did not reach the preestablished standard for acceptance of \( P = 0.05 \), the findings indicate that resistance to commoditization based on labor market participation did not detract from higher use of improved types of seeds, but on the contrary, may play as an incentive to achieve the highest yield possible on the farms. In fact, when the contrast test \( (T = 2.001, P = .046) \) was performed, only including the capitalist and simple commodity producers, it obtained results that show significant mean differences. The test results show that with regard to the simple commodity and capitalist producers, labor force participation in off farm work corresponds to higher scores on the scale of techno-
logical practices of seeds used in the farms. However, in order to arrive at a conclusive determination of the distinctions among producer, a multiple indicator of technological adoption of innovation should be applied to measure this concept.

The fifth hypothesis (10.5) was tested and confirmed the proposition through the measurement of the concept of the level of technological innovations adopted on the farms by using the variable AGRITEK. The variable AGRITEK, as it shall be recalled, identifies an indicator of the overall technological level of the farm constructed from a scale of the combined effects of the practices, with regard to use of fertilizer, herbicides, insecticides, and types of seeds used on the farms. The results of the test of the hypothesis (10.5) show that the following questions were answered affirmatively.

First question: Does the typology distinguish the types of producers according to the mean score values on the scale of technological level of farm adopted production practices? The answer is yes.

Second question: Is the best fit of the trend of the data a simple linear equation? The answer is yes.30

The highest level of adoption of technological innovation of farm production practices was obtained by the producer type of the capitalist employees.
Peasant producers are significantly differentiated from all other types of producers because of their extremely low levels of adoption of technological innovations in production practices of the farms.

The reversal of rank of the producers that engage in off farm work, that presented higher mean scale scores in each type of production category, suggest that resistance to commoditization did not impede the adoption of technological production practices. However, the contrast between producers with and without off farm work did not reveal a significant difference between the two groups of producers. The most important rank inversion was presented by the simple commodity farm worker, who registered the second highest score of level of technology in production practices.

The eleventh proposition states: "Higher the degree of commoditization, higher the degree of participation in formal organizations by the producers." In the three hypothesis that tested the proposition were able to confirm the thesis. The first hypothesis (Table 11) tested the concept of 'participation in formal organizations' by the variable GRUPOS. GRUPOS identifies a scale of knowledge in up to four organizations in the community. The level of cognitive participation of the groups in the community is the first dimension of participation tested. The results of
Table II. Results of hypothesis testing of hypotheses II.1, II.2, and II.3

<table>
<thead>
<tr>
<th>Comoditization producer type</th>
<th>GRUPOS (H. II.1) mean</th>
<th>PARTICIP (H. II.2) mean</th>
<th>ORGINDEX (H. II.3) mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capitalist entrepreneurs</td>
<td>1.1951A</td>
<td>.8577AB</td>
<td>2.0528AB</td>
</tr>
<tr>
<td>Capitalist employees</td>
<td>1.2961A</td>
<td>.9605A</td>
<td>2.2566A</td>
</tr>
<tr>
<td>Simple commodity farmers</td>
<td>.9820B</td>
<td>.7252BC</td>
<td>1.7072BC</td>
</tr>
<tr>
<td>Simple commodity farm workers</td>
<td>1.0694AB</td>
<td>.7168BC</td>
<td>1.4353C</td>
</tr>
<tr>
<td>Peasant farmers</td>
<td>.8471B</td>
<td>.5882C</td>
<td>1.4353C</td>
</tr>
<tr>
<td>Semi-proletarian peasants</td>
<td>.9068B</td>
<td>.5339C</td>
<td>1.4407C</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>F</th>
<th>Sig.</th>
<th>F</th>
<th>Sig.</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>3.6177</td>
<td>.0030</td>
<td>3.9889</td>
<td>.0014</td>
<td>4.1194</td>
<td>.0010</td>
</tr>
<tr>
<td>Linearity</td>
<td>11.9336</td>
<td>.0006</td>
<td>15.9495</td>
<td>.0001</td>
<td>15.2791</td>
<td>.0001</td>
</tr>
</tbody>
</table>

\[
\text{ETA}^2 = .0179 \quad \text{ETA}^2 = .0197 \quad \text{ETA}^2 = .0204
\]

\(^a\)The same alphabet means that the means did not differ significantly according to the Duncan's test (P > .05).
the test of the hypothesis (11.1) confirmed the proposition through the affirmative answers to the following questions:

**First question:** Does the typology distinguish the types of producers according to their mean score values on the scale of knowledge of existing groups in the community? The answer is yes.

**Second question:** Is the best fit of the trend of the data a simple linear equation? The answer is yes.  

In all three producer categories the types of producers that participate in off farm work presented higher average numbers of organizations they had knowledge of in comparison to those that did not participate in off farm work.

The second hypothesis (11.2) was tested and confirmed the proposition by the measurement of the number of organizations the producer held actual membership in. The hypothesis tested and measured the concept of 'participation in formal organizations' by using the variable `PARTICIP`. `PARTICIP` identifies a membership scale in up to four organizations in the community. The results of the test of the hypothesis (11.2) show that the following questions were answered affirmatively:

**First question:** Does the typology distinguish the producers according to the mean score of the number of organizations they have membership in? The answer is yes.
Second question: Is the best fit of the trend of the data a simple linear question? The answer is yes.33

In the third hypothesis (11.3), the concept of 'participation in formal organizations' was measured using the variable ORGINDEX. ORGINDEX combines the values of knowledge of groups and actual membership in organizations into a single scale. The results of the test of the hypothesis (11.3) show that the proposition was confirmed through the affirmative responses to the following questions.

First question: Does the typology distinguish the producers according to their mean score in the scale of added effects of participation in formal organization? The answer is yes.

Second question: Is the best fit of the trend of the data a simple linear equation? The answer is yes.34

The rank order of the producers that participate in off-farm work was inversed in all categories. The findings show that the capitalist employees are significantly differentiated, with higher mean scores in comparison to both types of peasant farmers and both types of simple commodity producers. Also, the capitalist entrepreneurs are significantly differentiated with higher average participation scores in organizations in comparison to both types of peasant producers.
The twelfth proposition stated: "Higher the degree of commoditization, higher the stability of residence of the producers in their rural communities." The proposition was tested by two hypotheses. The test of the first hypothesis confirmed the proposition and the test of the second hypothesis failed to verify the proposition. In the first hypothesis (Table 12), the concept of 'stability of residence' was measured using the variable YRESID. YRESID identifies the number of years the producer has lived in the community. The results of the test of the hypothesis (12.1) show that the proposition was confirmed by the affirmative answers to the following questions:

First question: Does the typology distinguish the producers according to the mean number of years of residence in their communities? The answer is yes.

Second question: Is the best fit of the trend of the data a simple linear equation? The answer is yes.35

The producers that participate in off-farm work of all categories, presented significantly lower mean numbers of years of residence in contrast to the group of producers that do not work off their farms (T = 2.883, P = .004). The assumption of added resistance to commoditization by participation in the labor markets was verified as hypothesized.
<table>
<thead>
<tr>
<th>Commoditization producer type</th>
<th>YRESID (H.12.1) mean</th>
<th>PREVRES (H.12.2) mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capitalist entrepreneurs</td>
<td>16.3740A^a</td>
<td>1.6341A</td>
</tr>
<tr>
<td>Capitalist employees</td>
<td>14.0724A</td>
<td>1.6053AB</td>
</tr>
<tr>
<td>Simple commodity farmers</td>
<td>14.5270A</td>
<td>1.5631AB</td>
</tr>
<tr>
<td>Simple commodity farm workers</td>
<td>11.7977B</td>
<td>1.5029AB</td>
</tr>
<tr>
<td>Peasant farmers</td>
<td>13.5176AB</td>
<td>1.5294AB</td>
</tr>
<tr>
<td>Semi-proletarian peasants</td>
<td>11.5593B</td>
<td>1.4407B</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>F</th>
<th>Sig.</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>4.2178</td>
<td>.0008</td>
<td>1.3583</td>
<td>.2376</td>
</tr>
<tr>
<td>Linearity</td>
<td>16.2452</td>
<td>.0001</td>
<td>6.3670</td>
<td>.0118</td>
</tr>
</tbody>
</table>

^\text{The same alphabet means that the means did not differ significantly according to the Duncan's test (P > .05).}
The test of the second hypothesis (12.2) failed to confirm the proposition by the operationalization of the concept of 'stability of residence' through the measurement of the variable PREVRES. PREVRES identifies if the place of previous residence of the producer was urban or rural. Stability of residence was assumed to be stronger for those producers with previous rural, rather than urban residence. The results of the test of the hypothesis (12.2) show that the proposition was not confirmed because of the negative answer to the first of the following questions.

First question: Does the typology distinguish that the producers by their mean scores of previous place of residence? The answer is no.

Second question: Is the best fit of the trend of the data a simple linear equation? The answer is yes. However, even if the hypothesized decreasing order of predominantly rural place of previous residence corresponded to degrees of commoditization, the trend itself was not significant and the hypothesis would have to be rejected.

The thirteenth proposition stated: "Higher the degree of commoditization, higher the level of education of producers." The proposition was confirmed through the tests of the four hypotheses. In the first hypothesis (13.1), the concept of 'level of education' was measured by using the variable HEDLITER. HEDLITER indicates if the head of
household is or not literate. The results of the test of the hypothesis (Table 13) show that the following questions were answered affirmatively and that the proposition was confirmed.

**First question:** Does the typology distinguish the producers by their mean literacy rate? The answer is yes.

**Second question:** Is the best fit of the trend of the data a simple linear equation? The answer is yes.\(^{36}\)

The test of the second hypothesis (13.2) confirmed the proposition. The concept of 'level of education' was operationalized through the use of the measurement of the variable \textit{HEDANY}, which identifies if the head of household had any formal education. The results of the test of the hypothesis (13.2) show that the following questions were answered affirmatively.

**First question:** Does the typology distinguish the producers according to their mean score of access to formal education? The answer is yes.

**Second question:** Is the best fit of the trend of the data a simple linear equation? The answer is yes.\(^{37}\)

The rank distribution followed the expected decreasing order of rates of access to formal education, with the exception of the peasant producers that inverse their status. The highest rate of access to formal education is held by the capitalist entrepreneurs.
Table 13. Results of hypothesis testing of hypotheses 13.1, 13.2, 13.3, and 13.4

<table>
<thead>
<tr>
<th>Producer type</th>
<th>HEDLITER (H.13.1)</th>
<th>HEDANY (H.13.2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capitalist entrepreneurs</td>
<td>0.8862A</td>
<td>0.9593A</td>
</tr>
<tr>
<td>Capitalist employees</td>
<td>0.8684A</td>
<td>0.9211AB</td>
</tr>
<tr>
<td>Simple commodity farmers</td>
<td>0.7658B</td>
<td>0.8604BC</td>
</tr>
<tr>
<td>Simple commodity farm workers</td>
<td>0.7514BC</td>
<td>0.8324CD</td>
</tr>
<tr>
<td>Peasant farmers</td>
<td>0.7529BC</td>
<td>0.7529DE</td>
</tr>
<tr>
<td>Semi-proletarian peasants</td>
<td>0.7542E</td>
<td></td>
</tr>
</tbody>
</table>

Source

<table>
<thead>
<tr>
<th>Source</th>
<th>F</th>
<th>Sig.</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>7.1465</td>
<td>0.000</td>
<td>9.7337</td>
<td>0.000</td>
</tr>
<tr>
<td>Linearity</td>
<td>32.5903</td>
<td>0.000</td>
<td>47.4121</td>
<td>0.000</td>
</tr>
</tbody>
</table>

\[ \text{ETA}^2 = 0.0419 \quad \text{ETA}^2 = 0.0276 \]

*The same alphabet means that the means did not differ significantly according to the Duncan's test (P > .05).*
<table>
<thead>
<tr>
<th>Commoditization producer type</th>
<th>EDJEFE</th>
<th>READWHAT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(H.1.3) mean</td>
<td>(H.13.4) mean</td>
</tr>
<tr>
<td>Capitalist entrepreneurs</td>
<td>3.7764Aa</td>
<td>2.5407AB</td>
</tr>
<tr>
<td>Capitalist employees</td>
<td>3.6053A</td>
<td>2.8553A</td>
</tr>
<tr>
<td>Simple commodity farmers</td>
<td>2.8649B</td>
<td>2.8613B</td>
</tr>
<tr>
<td>Simple commodity farm workers</td>
<td>2.8613B</td>
<td>1.6936C</td>
</tr>
<tr>
<td>Peasant farmers</td>
<td>2.7294B</td>
<td>1.5647C</td>
</tr>
<tr>
<td>Semi-proletarian peasants</td>
<td>2.5932B</td>
<td>2.0424BC</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>F</th>
<th>Sig.</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>8.6553</td>
<td>.0000</td>
<td>5.6299</td>
<td>.0000</td>
</tr>
<tr>
<td>Linearity</td>
<td>36.5480</td>
<td>.0000</td>
<td>14.2033</td>
<td>.0002</td>
</tr>
</tbody>
</table>

$\text{ETA}^2 = .0419 \quad \text{ETA}^2 = .0276$
The test of the third hypothesis (13.3) confirmed the proposition. The concept of 'level of education' was operationalized in this hypothesis by using the measurement of the variable $\text{EDJEF}E$, which identifies the number of years of formal education achieved by the head of household. The results of the test of the hypothesis (13.3) show that the following questions were answered affirmatively.

**First question:** Does the typology distinguish the producers according to the average number of years of formal education achieved by the heads of household of the different types or categories of farmers? The answer is yes.

**Second question:** Is the best fit of the trend of the data a simple linear equation? The answer is yes.$^{38}$

The highest status in the average number of years of formal education corresponded to the capitalist entrepreneurs, followed by the capitalist employees. The descending order from the most commoditized group down to the least commoditized group corresponded to the predicted by the hypothesis.

The fourth hypothesis (13.4) tested and confirmed the proposition. The concepts of 'level of education' was operationalized through the use of the measurement of the variable READWHAT. READWHAT identifies a scale of the number and type of printed media read by the head of household. The results of the test of the hypothesis (13.4)
show that the following questions were answered affirmatively.

First question: Does the typology distinguish the producers according to the mean scores on the scale of number and type of printed media read by the head of households? The answer is yes.

Second question: Is the best fit of the trend of the data a simple linear equation? The answer is yes.39

The producer type with the highest access to printed media (newspapers, magazines, and bulletins) is the capitalist employee with a significant higher mean than the simple commodity and peasant producers.

The fourteenth proposition stated: "Higher the degree of commoditization, higher the access to quality housing." The proposition was confirmed in the five hypotheses that were used to test it. The test of the first hypothesis (Table 14), the concept of 'access to quality housing,' was measured through the variable TIPOCASA. TIPOCASA identifies the quality of the type of dwelling of the household. The results of the test of the hypothesis (14.1) show that the proposition was confirmed by the affirmative answers to the following questions:

First question: Does the typology distinguish the producers according to the quality of their houses based on
Table 14. Results of hypothesis testing of hypotheses 14.1, 14.2, 14.3, 14.4, and 14.5

<table>
<thead>
<tr>
<th>Comoditization producer type</th>
<th>TIPOCASA (H.4.1) mean</th>
<th>STATEHSE (H.14.2) mean</th>
<th>LIGHTING (H.14.3) mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capitalist entrepreneurs</td>
<td>3.8780A</td>
<td>2.4472A</td>
<td>3.5772C</td>
</tr>
<tr>
<td>Capitalist employees</td>
<td>3.9474A</td>
<td>2.4539A</td>
<td>3.6382CB</td>
</tr>
<tr>
<td>Simple commodity farmers</td>
<td>3.9369A</td>
<td>2.3468A</td>
<td>3.9459A</td>
</tr>
<tr>
<td>Simple commodity farm workers</td>
<td>3.8439AC</td>
<td>2.2139B</td>
<td>3.8235AB</td>
</tr>
<tr>
<td>Peasant farmers</td>
<td>3.7412BC</td>
<td>2.4118A</td>
<td>3.8235CA</td>
</tr>
<tr>
<td>Semi-proletarian peasants</td>
<td>3.7203B</td>
<td>2.1695B</td>
<td>3.8390CA</td>
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</table>

<table>
<thead>
<tr>
<th>Source</th>
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<th>Sig.</th>
<th>F</th>
<th>Sig.</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>5.0529</td>
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<td>5.2828</td>
<td>.0001</td>
<td>2.9053</td>
<td>.0130</td>
</tr>
<tr>
<td>Linearity</td>
<td>13.8298</td>
<td>.0002</td>
<td>16.9810</td>
<td>.0000</td>
<td>6.9389</td>
<td>.0086</td>
</tr>
</tbody>
</table>

\ETA^2 = .0249 \quad \text{ETA}^2 = .0260 \quad \text{ETA}^2 = .0145

The same alphabet means that the means did not differ significantly according to the Duncan's test (P > .05).
Table 14 (continued)

<table>
<thead>
<tr>
<th>Commoditization producer type</th>
<th>ROOMS (H.14.1) mean</th>
<th>BEDRNS (H.14.5) mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capitalist entrepreneurs</td>
<td>5.2683A</td>
<td>2.8577A</td>
</tr>
<tr>
<td>Capitalist employees</td>
<td>5.2434A</td>
<td>2.8487A</td>
</tr>
<tr>
<td>Simple commodity farmers</td>
<td>5.3333A</td>
<td>2.7748AB</td>
</tr>
<tr>
<td>Simple commodity farm workers</td>
<td>4.6012B</td>
<td>2.5607BC</td>
</tr>
<tr>
<td>Peasant farmers</td>
<td>4.9529AB</td>
<td>2.3882</td>
</tr>
<tr>
<td>Semi-proletarian peasants</td>
<td>4.6271B</td>
<td>2.2966C</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>F</th>
<th>Sig.</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>5.1735</td>
<td>.0001</td>
<td>5.6023</td>
<td>.0000</td>
</tr>
<tr>
<td>Linearity</td>
<td>15.1055</td>
<td>.0001</td>
<td>25.5937</td>
<td>.0000</td>
</tr>
</tbody>
</table>

\[\text{ETA}^2 = .0255\]  \[\text{ETA}^2 = .0275\]
the type of dwellings they have access to? The answer is yes.

Second question: Is the best fit of the trend of the data a simple linear question? The answer is yes.⁴⁰

In the second hypothesis (14.2) the concept of 'access to quality housing' was tested by the use of the measurement of the variable STATEHSE, which identifies a scale of the state of the house as an indicator of quality of housing. The results of the test of the hypothesis (14.2) confirmed the proposition through the affirmative answers to the following questions.

First question: Does the typology distinguish the producers according to their mean scores on the scale of the conditions of their dwellings? The answer is yes.

Second question: Is the best fit of the trend of the data a simple linear equation? The answer is yes.⁴¹

Both types of capitalist producers, the simple commodity farmers and peasant farmers, presented significant higher mean scores of quality of housing in relation to the simple commodity farm worker and the semi-proletarian peasants.

In the third hypothesis (14.3), the concept of 'access to quality housing' was tested through the use of the measurement of the variable LIGHTING. LIGHTING identifies the type of lighting values on a scale that qualified the
different types of means of lighting from electrical to nonelectrical. The results of the test of the hypothesis (14.3) show that the proposition was confirmed by the affirmative answers to the following questions.

**First question:** Does the typology distinguish the producers according to their mean scores on the scale of quality of lighting to their dwellings? The answer is yes.

**Second question:** Is the best fit of the trend of the data a simple linear equation? The answer is yes.\(^{42}\) The rank order of the peasant and simple commodity producers was inversed.

The fourth hypothesis (14.4), the concept of 'access to quality housing' was tested through the use of the measurements of the variable ROOMS. ROOMS identifies the number of rooms in the dwelling of the households. The results of the test of the hypothesis (14.4) show that the proposition was confirmed by the affirmative answers to the following questions.

**First question:** Does the typology distinguish the producers according to the mean number of rooms? The answer is yes.

**Second question:** Is the best fit of the trend of the data a simple linear equation? The answer is yes.\(^{43}\)

The rank order was inversed for the simple commodity farmer, which occupied the first status in number of rooms
and between both types of peasant farmers and the simple commodity farm workers.

In the fifth hypothesis (14.5), the concept of 'access to quality housing,' was tested through the use of the measurement of the variable BEDRMS. BEDRMS identifies the number of bedrooms in the dwellings of the households of producers. The results of the test of the hypothesis (14.5) show that the proposition was confirmed by the affirmative answers to the following questions.

**First question:** Does the typology distinguish the producers according to the mean number of bedrooms in their houses? The answer is yes.

**Second question:** Is the best fit of the trend of the data a simple linear equation? The answer is yes.44

The average number of bedrooms for all the households of producers in the Pacifico Sur region was 2.6797 bedrooms per dwelling.

The fifteenth proposition stated: "Higher the degrees of commoditization, higher the access to household appliances." The three hypotheses used to test the proposition confirmed its validity (Table 15).

In the first hypothesis (15.1), the concept of 'access to household appliances,' was tested by the use of the measurement of the variable COCIREF. COCIREF identifies if the household had or not access to a kitchen and/or refrig-
Table 15. Results of hypothesis testing of hypotheses 15.1, 15.2, and 15.3

<table>
<thead>
<tr>
<th>Commoditization producer type</th>
<th>COCIREF (H.5.1) mean</th>
<th>RADTV (H.15.2) mean</th>
<th>COCICOM (H.15.3) mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capitalist entrepreneurs</td>
<td>.6138AB</td>
<td>1.9146A</td>
<td>1.5122AB</td>
</tr>
<tr>
<td>Capitalist employees</td>
<td>.7500A</td>
<td>1.7303AB</td>
<td>1.6908A</td>
</tr>
<tr>
<td>Simple commodity farmers</td>
<td>.5000B</td>
<td>1.5991B</td>
<td>1.3919B</td>
</tr>
<tr>
<td>Simple commodity farm workers</td>
<td>.4682B</td>
<td>1.5549B</td>
<td>1.4104B</td>
</tr>
<tr>
<td>Peasant farmers</td>
<td>.4588B</td>
<td>1.5647B</td>
<td>1.2824B</td>
</tr>
<tr>
<td>Semi-proletarian peasants</td>
<td>.5058B</td>
<td>1.5763B</td>
<td>1.3898B</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>F</th>
<th>Sig.</th>
<th>F</th>
<th>Sig.</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>3.0977</td>
<td>.0088</td>
<td>3.5405</td>
<td>.0035</td>
<td>2.2324</td>
<td>.0491</td>
</tr>
<tr>
<td>Linearity</td>
<td>6.7420</td>
<td>.0096</td>
<td>12.9303</td>
<td>.0003</td>
<td>4.7320</td>
<td>.0298</td>
</tr>
</tbody>
</table>

$\eta^2 = .0154$  $\eta^2 = .0176$  $\eta^2 = .0111$

The same alphabet means that the means did not differ significantly according to the Duncan's test (P > .05).
erator. The results of the test of the hypothesis (15.1) show that the proposition was confirmed through the affirmative answers to the following questions.

First question: Does the typology distinguish the producers according to their mean scores of access to kitchen and/or refrigerator appliances for their households? The answer is yes.

Second question: Is the best fit of the trend of the data a simple linear equation? The answer is yes.\(^{45}\)

In the second hypothesis (15.2), the concept of 'access to household appliances was tested by the use of the measurement of the variable RADTV, which identifies if the household had or not a radio and/or a television set. The results of the test of hypothesis (15.2) confirmed the proposition through the affirmative answers to the following questions.

First question: Does the typology distinguish the producers according to their mean scores of access to having a radio and/or a television set? The answer is yes.

Second question: Is the best fit of the trend of the data a simple linear equation? The answer is yes.\(^{46}\)

In the third hypothesis (15.3), the concept of 'access to household appliances' was tested by the use of the measurement of the variable COCICOM. COCICOM identifies on a scale the type of cooking fuel being used in the house-
holds of producers. As it can be recalled, the indicator is measured on a scale that qualified the types of cooking fuel from more modern as high, clean and processed to less modern, less clean and not processed, but acquired from nature as low. The results of the test of the hypothesis (Table 15.3) show that the proposition was confirmed through the affirmative answer to the following questions.

First question: Does the typology distinguish the different types of producers according to the mean scale scores that qualify the cooking fuel used by the households? The answer is yes.

Second question: Is the best trend of the data a simple linear equation? The answer is yes.47

The sixteenth proposition, as previously stated, established the following: "Higher the degree of commoditization, higher the access to health care services." The two hypotheses that tested the proposition failed to confirm it (Table 16). In the first hypothesis (16.1), the concept of 'access to health care services' was measured using the variable SIKATTN. SIKATTN identifies the number of family members that received medical care during that year. The results of the test of the hypothesis (16.1) show that the proposition was not confirmed, as evidenced by the negative answers to the following questions.
Table 16. Results of hypothesis testing of hypotheses 16.1 and 16.2

<table>
<thead>
<tr>
<th>Commodityization producer type</th>
<th>SIKATTN (H.3.1) mean</th>
<th>DIRINS (H.15.2) mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capitalist entrepreneurs</td>
<td>.5691A</td>
<td>.9350A</td>
</tr>
<tr>
<td>Capitalist employees</td>
<td>.7237A</td>
<td>1.0461AB</td>
</tr>
<tr>
<td>Simple commodity farmers</td>
<td>.4955A</td>
<td>1.0991AB</td>
</tr>
<tr>
<td>Simple commodity farm workers</td>
<td>.5058A</td>
<td>1.1561AB</td>
</tr>
<tr>
<td>Peasant farmers</td>
<td>.6235A</td>
<td>.7882A</td>
</tr>
<tr>
<td>Semi-proletarian peasants</td>
<td>.7288A</td>
<td>1.3220B</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>F</th>
<th>Sig.</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>1.4699</td>
<td>.1970</td>
<td>1.8542</td>
<td>.0998</td>
</tr>
<tr>
<td>Linearity</td>
<td>.3087</td>
<td>.5786</td>
<td>2.7262</td>
<td>.0990</td>
</tr>
</tbody>
</table>

\[ \eta^2 = .0074 \quad \text{ETA}^2 = .0093 \]

\(^a\)The same alphabet means that the means did not differ significantly according to the Duncan's test (P > .05).
First question: Does the typology distinguish the producers according to the mean number of family members that received medical care that year? The answer is no.

Second question: Is the best fit of the trends of the data a simple linear equation? The answer is no.

The findings did not confirm the proposition, concluding that the mean number of family members that received medical attention that year are not significantly different in each producer type. Access to health care services translates in the case of Costa Rica to access to the national social security system that provides health services and coverage to most of the households. The following hypothesis tested addressed this dimension of the proposition.

In the second hypothesis (16.2), the concept of 'access to health care services' was measured by use of the variable DIRINS. DIRINS identifies the number of family members with personal social security coverage in the households of producers. The hypothesis stated that the higher the degree of commoditization, lower the number of family members with personal social security coverage. The relationship was based on the assumption that personal social security coverage is an indicator of level of labor market participation and, thus, inversely related to commoditization. The results of the test of the hypothesis (16.2) show that the
The findings revealed that the proposition was not confirmed, the relationship between mean number of family members with personal social security coverage, and commoditization, did not present any statistically significant trend.

The seventeenth proposition stated: "Higher the degree of commoditization, lower the presence of female heads of households on the farms." In Hypothesis (17.1), the concept of the presence of female heads of households on the farms was tested through the measurement of the variable SEXHED. SEXHED identified if the head of household is male or female (Table 17). The results of the test of the hypothesis (17.1) show that the proposition was confirmed through the affirmative answers to the following questions.

First question: Does the typology distinguish the producers' households according to the gender of the head of households? The answer is yes.
Table 17. Results of hypothesis testing of hypotheses 17.1

<table>
<thead>
<tr>
<th>Commodity production type</th>
<th>SEXHED (H.17.1) mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capitalist entrepreneurs</td>
<td>1.9593A</td>
</tr>
<tr>
<td>Capitalist employees</td>
<td>1.9276AC</td>
</tr>
<tr>
<td>Simple commodity farmers</td>
<td>1.9685A</td>
</tr>
<tr>
<td>Simple commodity farm workers</td>
<td>1.9422A</td>
</tr>
<tr>
<td>Peasant farmers</td>
<td>1.8471B</td>
</tr>
<tr>
<td>Semi-proletarian peasants</td>
<td>1.8814BC</td>
</tr>
</tbody>
</table>

Source

<table>
<thead>
<tr>
<th>Source</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>4.6993</td>
<td>.0003</td>
</tr>
<tr>
<td>Linearity</td>
<td>11.6773</td>
<td>.0007</td>
</tr>
</tbody>
</table>

$\eta^2 = .0232$

*aThe same alphabet means that the means did not differ significantly according to the Duncan's test (P > .05).*
Second question: Is the best fit of the trend of the data a simple linear equation? The answer is yes.50

The highest rank with lower female and higher male average heads of households was occupied by the simple commodity farmers, followed by the capitalist entrepreneurs. The third status was held by the simple commodity farm workers followed by the capitalist employees. The fifth lowest rank with a higher proportion of female heads of households corresponded to the semi-proletarian peasants with an average score of gender composition of 1.8814. The lowest status with the highest proportion of female and lowest proportion of male heads of household was held by the peasant farmers.

The analysis of the findings shows that the simple commodity farmers and capitalist entrepreneurs presented significant higher mean scores of male headed households in relation to the peasant farmers. Further analysis identified that also the simple commodity farm workers and the capitalist employees scored significant higher means scores of male headed households in relation to the peasant farmers. In addition, both categories of simple commodity producers and the capitalist entrepreneurs registered significant higher average scores of male heads of household in comparison to the semi-proletarian peasant type.
The eighteenth proposition stated: "Higher the degree of commoditization, the higher the concentration of population incorporated and dependent of the farms" (Table 18). Two out of the four hypotheses tested confirmed the proposition. In the first hypothesis (18.1), the concept of ‘concentration of population’ incorporated of the farms was tested through the measurement of the variable FAMILY. FAMILY identifies the proportion of families in each type of production system. The results of the test of the hypothesis (18.1) show that the proposition was confirmed. The test of residuals identified that the capitalist entrepreneurs presented the highest significant concentration of families, with a score of 6.2, followed by the simple commodity farmers presented the lowest significant number of families with a test of residuals score of 6.3, followed by the semi-proletarian peasants, with lowest number of families and a score of 3.7. The residuals test scores of the capitalist employees and the simple commodity farm workers were not significant.

For the properties of asymmetry and transitivity to hold true, the typology would have to be collapsed to the three principal types of production systems by degrees of commoditization. The collapsed typology would present a significantly different number of families by producer type.
Table 18. Results of hypothesis testing of hypotheses 18.1, 18.2, 18.3, and 18.4

<table>
<thead>
<tr>
<th>Commoditization producer type</th>
<th>FAMILY (H.18.1) mean</th>
<th>PERSONS (H.18.2) mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capitalist entrepreneurs</td>
<td>246</td>
<td>6.3333A*</td>
</tr>
<tr>
<td>Capitalist employees</td>
<td>152</td>
<td>6.2368BA</td>
</tr>
<tr>
<td>Simple commodity farmers</td>
<td>222</td>
<td>6.4730A</td>
</tr>
<tr>
<td>Simple commodity farm workers</td>
<td>173</td>
<td>6.5665A</td>
</tr>
<tr>
<td>Peasant farmers</td>
<td>85</td>
<td>5.5059B</td>
</tr>
<tr>
<td>Semi-proletarian peasants</td>
<td>118</td>
<td>6.1186BA</td>
</tr>
</tbody>
</table>

Source

<table>
<thead>
<tr>
<th>Between groups</th>
<th>Chi square $X^2 = 112.325$</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linearity</td>
<td>1.9914</td>
<td>1.2121</td>
<td>.0775</td>
</tr>
<tr>
<td>Sig. = $P &lt; .001$</td>
<td>ETA$^2 = .0100$</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*The same alphabet means that the means did not differ significantly according to the Duncan's test ($P > .05$).
### Table 18 (continued)

<table>
<thead>
<tr>
<th>Comoditization producer type</th>
<th>CHTOT (H.8.3) mean</th>
<th>CONTHED (H.18.4) mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capitalist entrepreneurs</td>
<td>3.7276AB^a</td>
<td>.8699AC</td>
</tr>
<tr>
<td>Capitalist employees</td>
<td>3.6053AB</td>
<td>.9079C</td>
</tr>
<tr>
<td>Simple commodity farmers</td>
<td>4.1712A</td>
<td>.8153A</td>
</tr>
<tr>
<td>Simple commodity farm workers</td>
<td>4.0058A</td>
<td>.8555AC</td>
</tr>
<tr>
<td>Peasant farmers</td>
<td>3.1176B</td>
<td>.8118AC</td>
</tr>
<tr>
<td>Semi-proletarian peasants</td>
<td>3.8983AB</td>
<td>.7034B</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>F</th>
<th>Sig.</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>2.2136</td>
<td>.0509</td>
<td>4.9947</td>
<td>.0002</td>
</tr>
<tr>
<td>Linearity</td>
<td>.0161</td>
<td>.8990</td>
<td>15.5990</td>
<td>.0001</td>
</tr>
</tbody>
</table>

\[ \text{ETA}^2 = .0111 \quad \text{ETA}^2 = .0246 \]
Further analysis of the findings identified through the application of the Z test statistic (P < .000003) that the producer types, with significantly lower proportion of numbers of families were the peasant farmers and the semi-proletarian peasants. The capitalist entrepreneurs scored a Z test statistic (P < .000003 showing a significant higher proportion of families. The simple commodity farmers also presented a statistically significant higher proportion of families with a Z test statistic (P < .000003).

In the second hypothesis (18.2), the concept of 'the concentration of population incorporated and dependent of the farms' was measured using the variable PERSONS, which identified the number of persons in the families of producers. The results of the test of the hypothesis (18.2) did not confirm the proposition. The following research questions received negative answers.

First question: Does the typology distinguish the producers according to the mean number of family members? The answer is no.

Second question: Is the best fit of the trend of the data a simple linear equation? The answer is no.52

Further analysis of the findings show that both types of simple commodity producers and the capitalist entrepreneurs registered significantly higher mean number of family members in comparison to the peasant farmers.
The population concentration by degrees of commoditization follows the same distribution as reviewed previously, with regard to number of families in the region.

In the third hypothesis (18.3) tested, the concept of the 'concentration of the population incorporated and dependency of the farms' was measured using the variable CHTOT. CHTOT identifies the households according to the total number of children. The results of the test of the hypothesis (18.3) failed to confirm the proposition through the negative answers to the following questions.

**First question:** Does the typology distinguish the producers according to the average number of children in their households? The answer is no.

**Second question:** Is the best fit of the trend of the data a simple linear equation? The answer is no. The distribution of average number of children identifies a bell shape slope raised in the middle with higher scores registered for the simple commodity producer and lower scores for both the capitalist at one end and the peasant producers at the other extreme.

The simple commodity farmers registered the highest mean number of children, followed by the simple commodity farm workers. The overall average of the sample is 3,8243 children per household of producers.
Further analysis of the findings identified that both categories of simple commodity producers presented significantly higher mean number of children, in comparison to the peasant farmers.

In the test of the fourth hypothesis (18.4), the concept of 'concentration of the population incorporated and dependent of the farms was measured using the variable CONTHED, which identifies if the head of household contributed or not to the family income. The results of the test of the hypothesis (18.4) show that the proposition was confirmed by the affirmative answers to the following research question.

First question: Does the typology distinguish the producers according to the mean scores of heads of households contribution or not to family income? The answer is yes.

Second question: Is the best fit of the trend of the data a simple linear equation? The answer is yes.

The first rank identifying the production system with the highest mean score of heads of households that contribute to the family income corresponded to the capitalist employees, in both the capitalist and simple commodity producer types, the rank order was inversed. The overall score for the producers of the region was a mean of 0.8365 heads of households contributing to the family income.
Further analysis shows that both types of capitalist producers and both types of the simple commodity producers presented significantly higher mean scores of heads of households that contribute to family income, in comparison to the semi-proletarian peasant category. Also, the capitalist employees category presented a significantly higher mean score in comparison to the simple commodity farmers.

Second Section: Division of labor through labor market specialization of the types of producers

The first labor market proposition, as it can be recalled, stated: "Capitalist employees concentrate their labor force participation in the permanent, full time employment labor market." The proposition was operationalized and tested through the specification of eight hypotheses, of which seven confirmed the proposition (Table 19). In the first hypothesis (19.1), the concept of permanent, full time labor market was measured using the variable EMPLEO, which identifies the three types of labor markets, permanent, seasonal, and occasional. The results of the test of the hypothesis (19.1) show that the proposition was confirmed. The capitalist employees presented a higher observed frequency of employment in the permanent labor market in comparison to the seasonal or occasional labor markets.55

<table>
<thead>
<tr>
<th>EMPLEO by WORKER 3 (H.19.1)</th>
<th>Permanent labor market</th>
<th>Seasonal labor market</th>
<th>Occasional labor market</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capitalist employee households</td>
<td>57</td>
<td>23</td>
<td>24</td>
<td>104</td>
</tr>
<tr>
<td>Chi-square ( X^2 ) = 22.2407, D.F = 2, P &lt; .001</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PERM by WORKER (H.19.2)</th>
<th>Households of producers</th>
<th>Capitalist employees = 3</th>
<th>Simple farm workers = 2</th>
<th>Semi-proletarian peasants = 7</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permanent labor market = 1</td>
<td></td>
<td>68</td>
<td>65</td>
<td>61</td>
<td>194</td>
</tr>
<tr>
<td>Other labor markets = 0</td>
<td></td>
<td>84</td>
<td>108</td>
<td>57</td>
<td>249</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>152</td>
<td>173</td>
<td>118</td>
<td>443</td>
</tr>
</tbody>
</table>

Computed chi-square \( X^2 \) = 5.7613, D.F = 2, P = .0559
Table 19 (continued)

<table>
<thead>
<tr>
<th>TRABAJO by WORKER (H.19.3) &amp; (H.19.4)</th>
<th>Household of producers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Capitalist employees = 3</td>
</tr>
<tr>
<td>Agricultural permanent labor market = 1</td>
<td>25</td>
</tr>
<tr>
<td>Agricultural seasonal labor market = 2</td>
<td>34</td>
</tr>
<tr>
<td>Agricultural occasional labor market = 3</td>
<td>24</td>
</tr>
<tr>
<td>Urban-nonagricultural</td>
<td>23</td>
</tr>
<tr>
<td>Total</td>
<td>106</td>
</tr>
</tbody>
</table>

Computed chi-square $X^2 = 18.12280$, D.F = 6, $P = .0059$

<table>
<thead>
<tr>
<th>HRSWKO by PRODUCER (H.19.5)</th>
<th>HRSWKO mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1: Capitalist producer type</td>
<td>27.1734A^a</td>
</tr>
<tr>
<td>Group 2: Simple commodity producer type</td>
<td>21.1038B</td>
</tr>
<tr>
<td>Group 3: Peasant producer type</td>
<td>19.4236B</td>
</tr>
</tbody>
</table>

$F$ ratio = 10.0430

$P > .00005$
Table 19 (continued)

<table>
<thead>
<tr>
<th>JOBCAT 2 by WORKER (H.19.6)</th>
<th>Capitalist</th>
<th>Simple commodity</th>
<th>Semi-proletarian</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does not participate in the non-labor job market = 0</td>
<td>61</td>
<td>93</td>
<td>58</td>
</tr>
<tr>
<td>Participates in the non-labor job market = 0</td>
<td>91</td>
<td>80</td>
<td>60</td>
</tr>
<tr>
<td>Total</td>
<td>152</td>
<td>173</td>
<td>118</td>
</tr>
</tbody>
</table>

Computed chi-square $X^2 = 6.12821$, D.F. = 2, P = .0467

<table>
<thead>
<tr>
<th>JOBCAT 1 by WORKER (H.19.7)</th>
<th>Capitalist</th>
<th>Simple commodity</th>
<th>Semi-proletarian</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of households without any employees that participates in the laborer job market = 0</td>
<td>63</td>
<td>45</td>
<td>48</td>
</tr>
<tr>
<td>Number of households with at least one member that participates in the laborer job market = 1</td>
<td>89</td>
<td>129</td>
<td>70</td>
</tr>
<tr>
<td>Total</td>
<td>152</td>
<td>173</td>
<td>118</td>
</tr>
</tbody>
</table>

Computed chi-square $X^2 = 10.55468$, D.F. = 2, P = .0051
Table 19 (continued)

<table>
<thead>
<tr>
<th>LABORMKT by WORKER</th>
<th>Capitalist employees = 3</th>
<th>Simple commodity farm workers = 2</th>
<th>Semi-proletarian peasants = 1</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of households with at least one member participating in the labor market of laborers = 1</td>
<td>50</td>
<td>85</td>
<td>47</td>
<td>182</td>
</tr>
<tr>
<td>Number of households with at least one member participating in the labor market of non-laborer = 2</td>
<td>91</td>
<td>80</td>
<td>60</td>
<td>231</td>
</tr>
<tr>
<td>Total</td>
<td>141</td>
<td>165</td>
<td>107</td>
<td>413</td>
</tr>
</tbody>
</table>

Computed chi-square $^2 = 7.95131$, D.F. = 2, $P = .0188$
The independent variable \textit{WORKER} and the dependent variable \textit{EMPLEO} are statistically dependent.

In the second hypothesis (19.2) measured the concept of permanent labor market was measured using the variable \textit{PERMW}. \textit{PERMW} identifies the households of producers according to the number of family members that participate in the permanent, full time labor market as employees. The results of the test of the hypothesis (19.2) show that the proposition was not confirmed. The capitalist employees did not present among all types of producers the highest significant participation of employment in the permanent labor market.\textsuperscript{56}

Even if the hypothesized properties were observed, their differences were not accepted as statistically significant. The independent variable \textit{WORKER} and the dependent variable \textit{PERMW} are statistically independent.

In the third hypothesis tested (19.3), the concept of permanent labor market was measured using the variable \textit{TRABAJO}. \textit{TRABAJO} identified both the agricultural and the urban-nonagricultural labor market participation of the households of producers. The results of the test of the hypotheses (19.3 and 19.4) show that the proposition was confirmed. The capitalist employees among all types of producers presented the highest participation of employment in the permanent labor market.\textsuperscript{57}
The hypothesis, that the observed frequency of number of households of capitalist employees that work in the permanent labor market, is higher in comparison to the simple commodity farm workers and the semi-proletarian peasants, is accepted.

In the fourth hypothesis (19.4), the concept of 'permanent labor market' was measured using the variable TRABAJO. TRABAJO identifies in its 4th category the urban-nonagricultural labor market assumed to be predominantly characterized by permanent employment. The test of the hypotheses (19.3 and 19.4) show that the proposition was confirmed. The capitalist employees presented, among all other types of producers, the highest participation of employment in the permanent labor market, characterized by the urban-nonagricultural labor market.58

The hypothesis, that the observed frequency of cases of capitalist employee households that concentrated in category 4 of the variable TRABAJO which identifies the urban-nonagricultural labor market is higher in comparison to both the simple commodity farm workers type and the semi-proletarian peasant households type, is accepted.

In the fifth hypothesis (19.5), the concept of permanent labor market was measured using the variable HRSWKD which identified the hours of work performed by the head of household the previous week of the interview. The indepen-
dent variable **PRODUCER** identifies the degrees of commoditization of the producers that worked the previous week in each type of production system or type. The results of the test of the hypothesis (19.5) show that the proposition was confirmed. The capitalist producer worked a significantly higher number of hours during the previous week of the interview than both the simple commodity producer and the peasant producer. The following affirmative answers to the research question formulated verified the proposition that the capitalist producers that work specialize in the permanent labor market.

**First question:** Are the producer types by degrees of commoditization distinguished according to the mean number of hours worked the previous week? The answer is yes.

**Second question:** Is the mean number of hours worked by the capitalist producers that work significantly higher than the mean number of hours worked by either the simple commodity or peasant producers that work? The answer is yes. The proposition was confirmed under the assumption that the higher number of hours worked the previous week is an indicator of the greater likelihood of permanent, full time employment. The overall average for the producers of the region was 23.1867 hours worked the previous week of the interview. The properties of asymmetry and transitivity of
the typology by the three levels of commoditization were confirmed to hold true.

In the sixth hypothesis (19.6), the concept of permanent labor market was measured using the variable JOBCAT2, which identified the labor market of nonlaborers. The assumption that sustains the operationalization of the concept of permanent employment though the indicator of the nonlaborer labor market is that this labor market is excluding the principal categories of part-time rural employment of the seasonal and occasional jobs. The results of the test of the hypothesis (19.6) show that the proposition was confirmed. Capitalist employees among all other types of producers have a higher number of households with at least one member employed in the nonlabor type of employment.

The hypothesis, that the observed frequency of cases of capitalist employees, is higher in their participation in the nonlaborer job market, in relation to the simple commodity farm workers and semi-proletarian peasant, is accepted.

In the seventh hypothesis (19.7), the concept of permanent labor was measured using the variable JOBCAT1. JOBCAT1 identifies the households of producers according to those with at least one family member in the job market of laborers, or households without any member in the laborers'
job market. The results of the test of the hypothesis (19.7) show that the proposition was confirmed. Capitalist employees, among all other type of producers, have the highest number of households without any member working as a laborer.62

The hypothesis that the capitalist employees present a higher number of households without any member employed in the laborer job market, in relation to both other types of producer categories, is accepted.

The analysis of the findings further identify, through the test of residuals, that the simple commodity farm workers are over proletarianized. The test identified the simple commodity farm workers with a statistically significant under-representation of number of households without any member in the laborer job market, scoring 2.04 points in the residuals test.

In the eighth hypothesis (19.8), the concept of 'permanent labor market' was measured using the variable LABORMKT. LABORMKT identifies the laborer and nonlaborer job markets, distinguishing the permanent type of employment as characteristic of the nonlaborer job market. The results of the test of the hypothesis (19.8) show that the proposition was confirmed. The capitalist employees, among all other types of producers, presented a higher number of
households with at least one member in the nonlaborer job market.\textsuperscript{63}

The hypothesis, that the number of households of the capitalist employee type that have at least one member participating in the nonlaborer job market, is higher in comparison to both the simple commodity farm worker type and the semi-proletarian peasant type, is accepted.

Further analysis of the findings identify that the simple commodity farm workers presented a significantly higher number of households with at least one member participating in the laborer job market. From the total of households with members that are employed as laborers, 46.7 percent corresponded to the simple commodity farm workers' production system, while 27.5 percent were from the capitalist employee type, and only 25.8 percent were households of the semi-proletarian peasant type. The evaluation of the labor market orientation and specialization of the simple commodity producers that participate in off-farm work will be addressed in the review of the tests of the following proposition.

The second labor market proposition stated: "Simple commodity farm workers concentrate their labor force participation in the journeyman, occasional, day-to-day employment labor market." The proposition was confirmed by the tests of the six hypotheses. In the first hypothesis
(20.1), the concept of participation in the journeyman labor market was measured using the variable EMPLEO. EMPLEO identifies the agricultural labor markets distinguishing the day-to-day employment labor market. The results of the test of the hypothesis (Table 20) show that the proposition is confirmed. The simple commodity farm workers among all types of producers presented a higher observed frequency of employment in the occasional labor market.64

The hypothesis, that the number of households with at least one member employed in the journeyman labor market, is higher in comparison to both the capitalist employees type and the semi-proletarian peasant type, is accepted.

In the second hypothesis (20.2), the concept of 'the occasional labor market' was measured using the variable OCCASW. OCCASW identifies the number of households of producers with at least one member employed in the occasional, journeyman, day-to-day labor, market. The results of the goodness to fit test of the hypothesis (20.2) show that the proposition was confirmed. The simple commodity farm workers, among all types of producers, presented the highest significant participation of employment in the occasional labor market.65

The hypothesis, that the simple commodity farm workers presented a higher participation in the occasional labor
Table 20. Results of hypothesis testing of hypotheses 20.1, 20.2, 20.3, 20.4, 20.5, and 20.6

**EMPLEO by WORKER (H.20.1)**

<table>
<thead>
<tr>
<th>Households of producers</th>
<th>Capitalist employees = 3</th>
<th>Simple commodity farm workers = 2</th>
<th>Semi-proletarian peasants = 1</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employed in the occasional, day</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>labor market = 1</td>
<td>24</td>
<td>45</td>
<td>21</td>
<td>90</td>
</tr>
<tr>
<td>Employed in all other rural labor</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>markets = 2</td>
<td>88</td>
<td>82</td>
<td>81</td>
<td>243</td>
</tr>
<tr>
<td>Total</td>
<td>104</td>
<td>127</td>
<td>102</td>
<td>333</td>
</tr>
</tbody>
</table>

Computed chi-square $X^2 = 9.233153942$  \(\text{D.F} = 2\)  \(P = .01\)

**WORKER by OCCASW (20.2)**

<table>
<thead>
<tr>
<th>Households of producers</th>
<th>Capitalist employees = 3</th>
<th>Simple commodity farm workers = 2</th>
<th>Semi-proletarian peasants = 1</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participating in the occasional</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>the occasional</td>
<td>24</td>
<td>45</td>
<td>21</td>
<td>90</td>
</tr>
</tbody>
</table>

Computed chi-square $X^2 = 11.4000$  \(\text{D.F} = 2\)  \(P < .01\)
Table 20 (continued)

**FAMOCWK by WORKER (20.3)**

<table>
<thead>
<tr>
<th>Households according to number of members employed = 3</th>
<th>Households of producers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capitalist</td>
<td>Simple commodity farm workers</td>
</tr>
<tr>
<td>With no member = 0</td>
<td>124</td>
</tr>
<tr>
<td>With 1 member = 1</td>
<td>17</td>
</tr>
<tr>
<td>With 2 or more members = 2</td>
<td>11</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>152</strong></td>
</tr>
</tbody>
</table>

Computed chi-square $X^2 = 19.33247$, D.F = 4, $P = .0007$

**FAMOCWK by WORKER (H.20.4)**

<table>
<thead>
<tr>
<th>Capitalist type households</th>
<th>Worker type households</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capitalist employees = 3</td>
<td>Simple commodity farm workers = 2</td>
</tr>
<tr>
<td>\textbf{Simple commodity farm workers = 2}</td>
<td>\textbf{Semi-proletarian peasants = 1}</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Between groups</th>
<th>$F$</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linearity</td>
<td>8.3505</td>
<td>.0040</td>
</tr>
<tr>
<td>Dev. from linearity</td>
<td>5.3186</td>
<td>.0216</td>
</tr>
</tbody>
</table>

$\text{ETA}^2 = .0301$
Table 20 (continued)

### FAMOCCWK by PRODUCER (H.20.5)

<table>
<thead>
<tr>
<th>Group</th>
<th>FAMOCCWK Mean</th>
<th>F RATIO:</th>
<th>P &gt; (.00005)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1 = Capitalist producer type</td>
<td>0.0704A(^a)</td>
<td>12.6516</td>
<td></td>
</tr>
<tr>
<td>Group 2 = Simple commodity producer type</td>
<td>0.1772B</td>
<td></td>
<td>0.00005</td>
</tr>
<tr>
<td>Group 3 = Peasant producer type</td>
<td>0.1872B</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### TRABAJO by WORKER (H.20.6)

<table>
<thead>
<tr>
<th>Labor markets</th>
<th>Capitalist employees = 3</th>
<th>Simple commodity farm workers = 2</th>
<th>Semi-proletarian peasants = 1</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural permanent</td>
<td>25</td>
<td>23</td>
<td>15</td>
<td>63</td>
</tr>
<tr>
<td>Seasonal (agricultural)</td>
<td>34</td>
<td>30</td>
<td>38</td>
<td>102</td>
</tr>
<tr>
<td>Occasional (agricultural)</td>
<td>24</td>
<td>61</td>
<td>36</td>
<td>121</td>
</tr>
<tr>
<td>Urban-nonagricultural</td>
<td>23</td>
<td>20</td>
<td>14</td>
<td>57</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>106</strong></td>
<td><strong>134</strong></td>
<td><strong>103</strong></td>
<td><strong>343</strong></td>
</tr>
</tbody>
</table>

Computed chi-square $X^2 = 18.12280$  D.F. = 6  P = 0.0059

\(^a\)The same alphabet means that the means did not differ significantly according to the Tukey's test (P > 0.05).
market than either the capitalist employees or the semi-proletarian peasants, was confirmed.

In the third hypothesis (20.3), the concept of 'participation in occasional labor market' was measured using the variable FAMOCWK. FAMOCWK identifies the number of family members that are working outside the farm in agricultural day-to-day employment for pay. The results of the test of the hypothesis (20.3) show that the proposition was confirmed. The simple commodity farm workers have indeed more family members employed in the occasional labor market than either of the other types of producers.66

The hypothesis, that the simple commodity farm workers present a higher number of households with greater number of family members employed in the occasional labor market, in comparison to both the capitalist employees and the semi-proletarian peasant households, was confirmed.

Further analysis of the findings identify through the application of the significance test of residuals that the simple commodity farm workers are over-represented in the category of households with one family member in the occasional labor force, scoring a significance score of 2.23 points. Also, the residual test identified that in the same category the households of capitalist employees are significantly under-represented, scoring 2.35 points in the test.
In the fourth hypothesis (20.4), the concept of participation in the occasional labor market was again measured using the variable FAMOCCWK. FAMOCCWK, as previously stated, identifies the number of family members in the occasional agricultural labor market. The results of the test of the hypothesis (20.4) show that the proposition was confirmed through the affirmative answers to the following questions.

**First question:** Does the typology by degrees of commoditization distinguish the producer households that participation in off-farm work according to the number of family members employed in the occasional labor market? The answer is yes.

**Second question:** Is the best fit of the trend of the data a simple linear equation? The answer is yes.67

The simple commodity farm workers presented the highest mean number of family members employed in the occasional labor force. Analysis of the findings shows that the simple commodity producers participation in off-farm work presented a significantly higher mean number of family members employed in the occasional labor market with relation to the capitalist employee type. Also, the semi-proletarian peasant households registered a significant higher number of family members employed in the journeyman labor force in comparison to the capitalist employees. However, the mean
number of family members in the day-to-day labor market did not significantly distinguish the simple commodity farm workers from the semi-proletarian peasants.

In the fifth hypothesis (20.5), the concept of 'participation in the occasional labor market' operationalized the proposition was measured using the variable FAMOCWCK. FAMOCWCK was transformed to identify households with at least one member employed in the occasional labor market or households without any member in the journeyman work force. As it can be recalled, the test of this hypothesis searched to identify if the simple commodity producers that participation in off-farm work presented a higher average number of households with at least one family member employed in the occasional labor market in relation to the capitalist producers in the same condition. The results of the test of the hypothesis (20.5) show that the proposition was indeed confirmed. The simple commodity producers presented a significantly higher number of households with at least one member participating in the occasional labor market in comparison to the capitalist employee type.

The hypothesis, that the mean score of households with at least one member working in day-to-day off-farm employment is significantly higher in the case of the simple commodity producers in comparison to the capitalist employee type, is accepted. The results of the Tukey test (20.5)
however, also identified that the differences among the labor force participation of households into the occasional labor market does not significantly differentiate the simple commodity and peasant producer. In fact, the rank order, by degrees of commoditization, was not reversed, having the peasant producers occupy the highest level of participation in the occasional labor force.69

In the sixth hypothesis (20.6), the concept of participation in the occasional labor market was measured and tested through the use of the variable TRABAJO. TRABAJO identifies the distribution of households with at least one family member working in out of farm employment by four labor markets, the agricultural permanent, seasonal and occasional labor markets, and the urban-nonagricultural labor markets. The results of the test of the hypothesis (20.6) show that the proposition was confirmed. The simple commodity farm workers, among all other types of producers, do indeed have the highest significant number of households with at least one member working in the occasional labor market.70

The hypothesis was confirmed, the simple commodity farm workers presented the highest number of households with members working in the occasional labor market.

The third labor market proposition stated that: "Semi-proletarian peasants concentrate their labor force partici-
Five out of the six hypotheses tested confirmed the proposition. In the first hypothesis (21.1), the concept of concentration of participation in the seasonal labor market was measured using the variable EMPLEO, which identifies the three types of agricultural labor markets. The results of the test of the hypotheses (21.1) show that the proposition was not confirmed.

The semi-proletarian peasants presented the highest concentration of households, with at least one member in the seasonal labor market, representing 37.8 percent of the total number of households participating in seasonal work. Also, the semi-proletarian peasants concentrated 30.4 percent of their off-farm work participation in the seasonal labor force. However, the proposition is not confirmed because the significance level of probability was above P = 0.05. The characteristics of the population of semi-proletarian peasants, based on the results of the sample distribution, cannot be determined.

The test of the second hypothesis (21.2) confirmed the proposition. The concept of concentration of participation in the seasonal labor market was measured through the use of the variable SEASW. SEASW identifies the households of producers according to the number of members of the family working in seasonal employment. The results of the test of

<table>
<thead>
<tr>
<th>EMPLEO by WORKER (H.21.1)</th>
<th>Households of producers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Capitalist employees = 3</td>
</tr>
<tr>
<td>Permanent</td>
<td>57</td>
</tr>
<tr>
<td>Seasonal</td>
<td>23</td>
</tr>
<tr>
<td>Occasional</td>
<td>24</td>
</tr>
<tr>
<td>Total</td>
<td>104</td>
</tr>
</tbody>
</table>

Computed chi-square $X^2 = 9.27123$, D.F. = 4, $P = .0547$

<table>
<thead>
<tr>
<th>SEASW by WORKER (H.21.2)</th>
<th>Households of producers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Capitalist employees = 3</td>
</tr>
<tr>
<td>Without any = 0</td>
<td>125</td>
</tr>
<tr>
<td>With one member = 1</td>
<td>21</td>
</tr>
<tr>
<td>With two or more members</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Total</td>
</tr>
</tbody>
</table>

Computed chi-square $X^2 = 8.91468$, D.F. = 2, $P = .0116$
Table 21 (continued)

<table>
<thead>
<tr>
<th>FAMSESWK by WORKER (H.21.4)</th>
<th>FAMSESWK by PRODUCER (H. 21.5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household of producers</td>
<td>Households of producers</td>
</tr>
<tr>
<td></td>
<td>FAMSESWK</td>
</tr>
<tr>
<td></td>
<td>mean</td>
</tr>
<tr>
<td>Capitalist employees = 3</td>
<td>.5592</td>
</tr>
<tr>
<td>Simple commodity farm worker = 2</td>
<td>.7514</td>
</tr>
<tr>
<td>Semi-proletarian peasants = 1</td>
<td>.9322</td>
</tr>
</tbody>
</table>

| Between groups             | 4.0797 | .0176 |
| Linearity                  | 8.1563 | .0045 |
| Deviation from linearity   | .0030  | .9562 |

$\eta^2 = .0182$

| Group 1 = Capitalist producer type | .14578a | F Ratio = 13.8608 |
| Group 2 = Simple commodity producer type | .19498 | P > .00005 |
| Group 3 = Peasant producer type    | .3251A  |                |
Table 21 (continued)

<table>
<thead>
<tr>
<th>TRABAJO by WORKER (H.21.6)</th>
<th>Households of producers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Capitalist employees = 3</td>
</tr>
<tr>
<td>Agricultural permanent = 1</td>
<td>25</td>
</tr>
<tr>
<td>Agricultural seasonal = 2</td>
<td>34</td>
</tr>
<tr>
<td>Agricultural occasional = 3</td>
<td>24</td>
</tr>
<tr>
<td>Urban-non-agricultural = 4</td>
<td>23</td>
</tr>
<tr>
<td>Total</td>
<td>106</td>
</tr>
</tbody>
</table>

Computed chi-square $X^2 = 18.12280$  
D.F. = 6  
P = .0059

The same alphabet means that the means did not differ significantly according to the Tukey’s test (P > .05).
the hypothesis (21.2) show that indeed the semi-proletarian peasants have more households with higher number of family members employed in the seasonal labor market in comparison to the capitalist employees and the simple commodity farm workers. While the simple commodity farm workers and capitalist employee types registered each 31.4 percent of the households with one family member employed in seasonal work, the semi-proletarian peasant households concentrated 36.4 percent of this household labor force. Also, the concentration of semi-proletarian peasant households increased in relation to the category of number of households with two or more family members employed in seasonal work, representing 43.33 percent of this category. The simple commodity farm worker households registered 36.66 percent and the capitalist employee type households registered 20 percent of the households with two or more family members participating in the seasonal labor market.

In the third hypothesis (21.3), the concept of concentration of participation is the seasonal labor market was measured using the transformed indicator SEASW. SEASW identifies households with at least one member employed in the seasonal labor market. The results of the test of the hypothesis (21.3) confirmed that the semi-proletarian peasants have more households with at least one family member employed in the seasonal labor market than the
producers of the capitalist employee type or the simple commodity farm worker type.\textsuperscript{73}

The test of residuals identified that the high observe frequency of semi-proletarian households in the seasonal labor market contributed significantly towards a high chi-square. The residual test scored for the semi-proletarian peasant households with at least one member employed in the seasonal labor market a significant 2.26 points, the only significant observed frequency of the total distribution.

In the fourth hypothesis (21.4) tested, the concept of the participation in the seasonal labor market was measured using the variable FAMSESWK. FAMSESWK identifies the number of family members that work in the seasonal labor market. The result of the test of the hypothesis (21.4) show that higher the degree of commoditization, smaller the number of family members of households of producers that participate in the seasonal labor market. The proposition was confirmed by the affirmative answers to the following questions.

First question: Does the typology by degrees of commoditization distinguish the producer types that participate in off-farm work according to the number of family members that are employed in the seasonal labor market? The answer is yes.
Second question: Is the best fit of the trend of the data a simple linear equation with a negative slope? The answer is yes.

The highest score of mean number of family members participating in the seasonal labor force corresponded to the semi-proletarian peasants, the producers with the lowest level of commoditization.

The test confirmed that the semi-proletarian peasant specialize in the seasonal labor market, and also identified that participation in this type of labor market is inversely related to degrees of commoditization. The characterization of the seasonal labor market as pertaining to the lowest status rural households and identified to the peasant household off-farm work alternative will be confirmed by the test of the following hypothesis.

The test of the fifth hypothesis (21.5) confirmed the proposition. The concept of participation in the seasonal labor market was measured using the variable FAMSESWK. The transformed variable FAMSESWK identifies the number of households with at least one member that participated in seasonal off-farm work within the context of all the households of each of the three producer types, the capitalist, simple commodity and peasant households. The results of the test of the hypothesis (21.5) confirmed that the peasant producers presented a significantly higher number of
households with at least one member participating in the seasonal labor market in relation to both the capitalist producers and the simple commodity farm producers.

The peasants scored the highest mean number of households participating in the seasonal labor market, followed by the simple commodity farm producers. The lowest mean number of households in the seasonal labor market was represented by the capitalist producers. The peasant producer category registered significantly higher mean scores of households with at least one family member employed in the seasonal labor market in comparison to both the capitalist producer type and the simple commodity producer type.

In the sixth hypothesis, the concept of participation in the seasonal labor market was measured using the variable TRABAJO. TRABAJO identifies the seasonal labor market in contrast to the other agricultural and nonagricultural labor markets. The results of the test of the hypotheses (20.6-21.6) show that the proposition was confirmed. The semi-proletarian peasants indeed present among all other types of producers the highest number of households with at least one family member working in the seasonal employment labor market.\textsuperscript{75}
The specialization of the peasant producer that participates in off-farm work to the seasonal labor market is confirmed.

**Third Section: The theoretical propositions predicting proletarianization of the simple commodity producer**

The first proletarianization proposition stated: "The simple commodity farm worker is the only agrarian producer whose participation in the labor force can be predicted on its chances or odds of proletarianization, which increases as level of education increases, landed property decreases, level of technology decreases, and the dependency ratio increases." The proposition was confirmed by the test of the four hypotheses. The first hypothesis (Table 22) tested the concept of proletarianization by using the logistic regression model that predicted the odds or chances of the simple commodity head of household to join the labor force. In the hypothesis, the concept of proletarianization was measured using the relationship between the independent variables **EDJEFE**, **MZTODO**, **TECH**, and **PERDEP** and the dependent variable **WORK**. The results of the test of the hypothesis (22.1) show that the proposition was confirmed. It was proven true that the log of the odds of a simple commodity head of household of joining the labor force (**WORK**) is directly related to the level of education (**EDJEFE**), inversely related to the amount of land (**MZTODO**), inversely
Table 22. Results of hypothesis testing of hypotheses 22.1, 22.2, 22.3, and 22.4

Hypothesis 22.1
Test of the model predicting the log odds of the simple commodity heads of household producers to become proletarianized

<table>
<thead>
<tr>
<th>Variables</th>
<th>Beta</th>
<th>Chi-square</th>
<th>Probability</th>
<th>Beta</th>
<th>Chi-square</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERCEPT</td>
<td>-0.70183312</td>
<td>37.57</td>
<td>.0000</td>
<td>0.2550472</td>
<td>5.23</td>
<td>.0222</td>
</tr>
<tr>
<td>EDJFE</td>
<td>-0.51274299</td>
<td>8.39</td>
<td>.0038</td>
<td>-0.27817587</td>
<td>4.89</td>
<td>.0270</td>
</tr>
<tr>
<td>MZTODO</td>
<td>0.06958718</td>
<td>0.39</td>
<td>.5310</td>
<td>0.00058283</td>
<td>0.51</td>
<td>0.2576</td>
</tr>
</tbody>
</table>

Model chi-square = 26.84 with 4 D.F., P = .0000

Hypothesis 22.2
Test of the model predicting the log odd of the simple commodity producers labor force participation, applied to the heads of households of the capitalist and peasant agrarian production systems

<table>
<thead>
<tr>
<th>Variables</th>
<th>Work (H.22.21)</th>
<th>Work (H.22.2.2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERCEPT</td>
<td>-0.62610481</td>
<td>0.90692255</td>
</tr>
<tr>
<td>EDJFE</td>
<td>-0.06384176</td>
<td>-0.10754170</td>
</tr>
<tr>
<td>MZTODO</td>
<td>0.00058283</td>
<td>-0.01857451</td>
</tr>
<tr>
<td>TECH</td>
<td>-0.02067090</td>
<td>-0.24349236</td>
</tr>
<tr>
<td>PERDEP</td>
<td>-0.00105981</td>
<td>0.00496772</td>
</tr>
</tbody>
</table>

Model chi-square = 1.87
D.F. = 4
Probability = 0.7596
Table 22 (continued)

<table>
<thead>
<tr>
<th>JOBCAT</th>
<th>Households of Producers</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonlaborers job market</td>
<td>Capitalist employees = 3</td>
<td>Simple commodity farm workers = 2</td>
<td>Semi-proletarian peasants = 1</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>JOBCAT = 0</td>
<td>63</td>
<td>45</td>
<td>48</td>
<td>156</td>
<td></td>
</tr>
<tr>
<td>Laborers job market</td>
<td>89</td>
<td>128</td>
<td>70</td>
<td>287</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>152</td>
<td>173</td>
<td>118</td>
<td>443</td>
<td></td>
</tr>
</tbody>
</table>

Computed chi-square $X^2 = 10.55468$  
D.F = 2  
P = .0051
Table 22 (continued)

<table>
<thead>
<tr>
<th>Heads of households</th>
<th>Capitalist</th>
<th>Simple commodity farm workers</th>
<th>Semi-proletarian Peasants</th>
</tr>
</thead>
<tbody>
<tr>
<td>without off-farm work participation = 0</td>
<td>37</td>
<td>36</td>
<td>8</td>
</tr>
<tr>
<td>Participation in one off-farm work labor market = 1</td>
<td>70</td>
<td>65</td>
<td>60</td>
</tr>
<tr>
<td>Participation in two off-farm work labor markets = 2</td>
<td>27</td>
<td>50</td>
<td>37</td>
</tr>
<tr>
<td>Participation in 3 or more off-farm work labor markets = 3</td>
<td>18</td>
<td>22</td>
<td>13</td>
</tr>
<tr>
<td>Total</td>
<td>152</td>
<td>173</td>
<td>118</td>
</tr>
</tbody>
</table>

Computed chi-square $X^2 = 21.30097$  
D.F. = 6  
P < .01
related to the level of technology (TECH) and directly related to the level of dependency ratio (PERDEP).\textsuperscript{76}

The model predicting the log odds of proletarianization of the simple commodity producer. The causal diagram of the model is as follows:

For the

\textbf{direct effects}\n\begin{align*}
X_1 \text{ (EDJEFE)} & : +0.25504072 \\
X_2 \text{ (MZTODO)} & : -0.51274299 \\
X_3 \text{ (TECH)} & : -0.27817587 \\
X_4 \text{ (PERDEP)} & : +0.06958718
\end{align*}

\textbf{variables}

The direct effects of the independent variables can be represented by the following equation: \[ \log \text{odds (Y = WORK)} = -0.70183312 \text{ (intercept)} + 0.25504072 \text{ (X1 = EDJEFE)} - 0.51274299 \text{ (X2 = MZTODO)} - 0.27817587 \text{ (X3 = TECH)} + 0.06958718 \text{ (X4 = PERDEP)}. \]

The model can be evaluated by the significance levels of the chi-square test of each independent variable. With the exception of \textbf{PERDEP}, which identifies the dependency ratio of the households all other variables scored probability levels that were statistically significant of \( P < 0.05 \). The finding suggests that the model, if simplified, could exclude the independent variable \textbf{PERDEP} as a contributing factor that predicts the participation of the simple commodity producers in the labor markets and thus their
proletarianization. However, further research should be conducted to identify if, with regard to the off-farm work participation exclusively in the occasional labor force, the dependency ratio of simple commodity producers does indeed contribute or not, to predict their proletarianization. For now, the test of the model indicates that these four independent variables are adequate predictors of the log of the odds of a simple commodity producer to join the labor markets, the model can be stated to fit.

The findings of the test of the model identify the chances or odds of a simple commodity producer of joining the labor force and becoming a proletariat. The odds can be calculated by the following equation once the values of the independent variables have been specified:

For probability = P, the odds can be represented as:

\[
P \frac{Y \text{(WORK)}}{1-P} = \log \left(-0.70183312\right) + \log \left(0.25504072\right) (x_1 = EDJEFE) - \log \left(0.51274299\right) (x_2 = HZTODO) - \log \left(0.27817578\right) (x_3 = TECH) + \log \left(0.06958718\right) (x_4 = PERDEP).
\]

The equation can also be expressed by \(E\), that represents the antilog of a number when the natural logs are used.

\[
P \frac{Y \text{(work)}}{1-P} = \frac{E^{-2.017183312} + E^{0.25504072} (X_1 = EDJEFE) - E^{0.51274299} (X_2 = HZTODO) - E^{0.27817587} (X_4 = PERDEP}.\]
The values of the equation are:

\[
P \frac{Y(\text{WORK})}{1-P} = -0.70183312 + 1.290514170 (X_1 = \text{EDJEFE}) - 1.669865343 (X_2 = \text{MZTODO}) - 1.320718452 (X_3 = \text{TECH}) + 1.072065520 (X_4 = \text{PERDEP}),\]

the odds will vary with every one unit change of each of the independent variables \(X_1, X_2, X_3,\) and \(X_4,\) expressed in standard scores.

In the second hypothesis (22.2) tested, the concept of proletarianization was measured using the variable \text{WORK}. \text{WORK} identifies the head of household that joined the off-farm labor force in both the capitalist and peasant producer types. As hypothesized, the model that predicts the labor force participation of the simple commodity producer did not fit either the capitalist or the peasant production types in reference to their off-farm work participation. The results of the test of the hypotheses (22.2.1 and 22.2.2) show that the log of the odds of a capitalist head of household and the log of the odds of a peasant head of household of joining the labor force will not be predicted by the model that predicted the proletarianization of the simple commodity head of household. The test of the model did not fit when applied to the capitalist heads of households. When the model was applied to the peasant heads of households, even if the test of goodness of fit was significant the relationships hypothesized for the independent variables were not confirmed.
Instead of education of the head of household being directly related to off-farm work employment as the model specified (and was confirmed for the simple commodity producer), the peasant head of household is inversely related to joining in the labor force. The effects of level of education are opposite for both types of producers.

In the third hypothesis (22.3) tested, the concept of proletarianization was measured using the variable JOBCAT1. JOBCAT1 identifies households of producers that participate in off-farm work either as involved or not in the labor markets of laborers. The rationale of identifying proletarianization by the indicator of participation or not in the laborers job market rest on the following proposition: That significant lower labor force participation in the non-laborers job markets and significant higher participation in the laborer job market both characterize the process of proletarianization as a division of labor specialization into the job category of laborer. The results of the test of the hypothesis (22.3) show that the proposition was confirmed. Indeed the simple commodity farm worker presented a higher participation in the labor market of laborer in comparison to the capitalist employees or the semi-proletarian peasants. Also, the simple commodity farm worker presented a significantly lower participation in the
nonlaborer job market than both the capitalist employee and the semi-proletarian peasants. The test of residuals contributed to further the analysis of the findings by identifying that the simple commodity farm worker category presented the lowest concentration of households participating in the nonlaborer job market contributing significantly to the results of the probability level of chi-square test of the model. The test of residual registered for the simple commodity farm workers, a score of 2.04 points, identifying a significantly under-representation in the nonlaborer job market.

The test of the following hypothesis operationalized the proposition addressing another dimension of proletarianization. The intensity of the off-farm work employment of the simple commodity producer identifies the notion of proletarianization as a transformation into the social class fraction of the rural proletarian through the added effects of participation in multiple laborers job markets.

In the fourth hypothesis (22.4) tested, the concept of proletarianization was measured through the use of the variable OFFRMWK. OFFRMWK identified the participation of the head of household into four categories of off-farm work and its combinations. It is assumed that proletarianization can also be characterized by the participation in increasing types of labor markets. The results of the test of the
hypothesis (22.4) show that the proposition was confirmed. The simple commodity farm workers' households presented the highest participation of its heads of households in increasing number of labor markets in comparison to the households of the capitalists' employees or the semi-proletarian peasants.80

The findings identify the simple commodity farm workers in first rank with the highest number of heads of households that combine two types of off-farm employments and first place in the category of heads of households that combine three or more types of off-farm labor market participation. The simple commodity farm worker concentrated 43.8 percent of the households in which the head of household participated in two types of off-farm work and 41.5 percent of the households where the heads of households participated in three or more types of our of farm employment.

The four hypotheses tested have confirmed the proposition that proletarianization as defined is a characteristic of the labor force participation of the simple commodity producer. The following four theoretical propositions address the relationship between the independent variables and the dependent variable of the model that predicts the log odds of proletarianization.

The second proletarianization proposition stated that: "Lower the amount of landed property disposable, higher the
chances or odds of proletarianization."

The proposition confirmed by the test of hypothesis (23.1) that measured the concept of 'landed property' by using the variable \texttt{MZTODO}. \texttt{MZTODO} identifies the total amount of land in the possession of the simple commodity producer measured in manzanas. The results of the logit repression model previously identified the following: That the log odds of a simple commodity producer head of household of joining the labor force is inversely related to the number of manzanas of land under his/her possession.\textsuperscript{81}

The results show that the best fit that represents the relationship between the independent variable \texttt{X2 MZTODO} and the dependent variable \texttt{Y WORK} is the following linear equation with a negative slope: 

$$\text{log odds (Y)} = -0.70183312 - 0.51274299(\texttt{X2}),$$

when \texttt{X1 (EDJEFE)}, \texttt{X3 (TECH)}, and \texttt{X4 (PERDEP)} are zero. The findings identify that for every one unit (manzana) decrease there will be a 0.51274299 increase in the log odds of a simple commodity producer head of household of joining the work force. The proposition was confirmed.

The third proletarianization proposition stated that: "Higher the level of education achieved, higher the chances or odds of proletarianization." The proposition was confirmed by the test of hypothesis (24.1) that measured the concept of level of education by the variable \texttt{EDJEFE}.\textsuperscript{81}
EDJEFE identifies the number of years of education achieved by the head of household. The results of the logit regression model, previously identified, show the following: That the log odds of a simple commodity producer head of household of joining the labor force is directly related to the number of years of education achieved.82

The results show that the best fit that represents the relationship between the independent variable $X_1$ EDJEFE and the dependent variable $y$ WORK is the following linear equation: \[ \log \text{odds (Y)} = -0.70183312 + 0.25504072 \times (X_1), \]
when $X_2$ (MZOLOQ), $X_3$ (TECH), and $X_4$ (PERDEP) are zero. The findings identify that for every one unit (year of education) increase there will be a 0.25504072 increase in the log odds of a simple commodity producer head of household of joining the work force. The proposition was confirmed (see Table 22).

The fourth proletarianization proposition stated that: "Lower the degree of the organic composition of capital, higher the chances or odds of proletarianization." The proposition was confirmed by using the test of hypothesis (25.1) that measured the concept of 'organic composition of capital' by the measurement of the variable TECH. TECH identified the level or degree of power technology incorporated into the production process of the farm. The variable TECH identified the type of mechanization and power
used by the producer. The results of the logit regression model previously identified show the following: That the log odds of a simple commodity producer head of household of joining the labor force is inversely related to the level of technological mechanization achieved in the farms.83

The results show that the best fit that represents the relationship between the independent variable X3 TECH and the dependent variable Y WORK is the following linear equation with a negative slope, log odds (Y) = -0.70183312 - 0.27817587 (X3), when X2 (EDJEFE), X3 (MZTODO), and X4(PERDEP) are zero. The findings identify that for every one unit (level of mechanization) decrease there will be a 0.27817587 increase in the log odds of a simple commodity producer head of household of joining the labor force. The proposition was confirmed (see Table 22).

The fifth proletarianization proposition stated that: "Higher the dependency ratio of the household, higher the chances or odds of proletarianization." The proposition was not confirmed by the test of hypothesis (26.1) that measured the concept of 'dependency ratio' through the use of variable PERDEP. PERDEP identifies the percentage of dependents of the households. The results of the logit regression model previously identified show that the test failed to verify the following statement: The log odds of a simple commodity producer head of household of joining the
labor force is directly related to the dependency ratio of the household.84

The proposition is not confirmed. The findings suggest that the dependency ratio of the household does not contribute significantly to predict the log odds of a simple commodity head of household of joining the labor force. The analyses of the findings identify that the theoretical assumptions and the methodological operationalization of the role of the dependency ratio in the process of proletarianization need to be studied further and reevaluated with regard to the simple commodity producer (see Table 22).

Propositions on the relationships among the independent variables of the model

The indirect effects of the independent variables of the logit regression model that predicts the log odds of proletarianization of the simple commodity heads of households are identified by the relationships among the independent variables to one another. The relationship among these variables are identified by the significance of their path coefficients. The standardized regression coefficient or path coefficients that presented a significant difference from zero at a probability level of at least $P = 0.05$ were the following: The causal model illustrating the partial effects of the independent variables, and their joint effects.
The four propositions that conceptualized the relationships among the independent variable failed to be confirmed because the assumption that the model does not suffer of multi-collinearity was not satisfied. Even if the propositions scored significant standardized regression coefficients as hypothesized, the results cannot be accepted. As it can be recalled, the model assumed that the relations among the variables in the model are linear, additive, and causal. Also, that each residual is assumed not to be correlated with the variable that precedes it in the model. The model was assumed to be a system of one-way causal flow, where there is no reciprocal causation between the variables. However, the Pearson correlation coefficients of the independent variables in relation to each
other identified a statistical significance of correlation. The Pearson correlation coefficient of the organic composition of capital (TECH) and the dependency ratio (PERDEP) is $r = -0.0909$ statistically significant with a one tail test probability level of $P = 0.002$. The Pearson correlation coefficient of the organic composition of capital and the level of education of the head of household (EDJEFE) is $r = 0.2290$ statistically significant with a one tail test probability level of $P < 0.0005$ and the Pearson correlated coefficient of the organic composition of capital (TECH) and landed property (MZTOD0) is $r = 0.3791$ statistically significant at a one tail test probability level of $P < 0.0005$. The correlations are also very high for the other variables. The dependency ratio (PERDEP) correlated with level of education of the head of household (EDJEFE) presented a Pearson coefficient of $r = 0.0725$ statistically significant with a one tail test probability level of $P = 0.011$. In relation to landed property (MZTOD0) the Pearson correlation coefficient of the dependency ratio (PERDEP) was $r = 0.1015$ statistically significant with a one tail test probability level of $P < 0.001$. The variable level of education of the head of household (EDJEFE) also presented a high Pearson correlation coefficient with landed property (MZTOD0) of $r = 0.2520$, statistically significant with a one tail test probability level of $P < 0.0005$. In conclusion,
the findings show that each independent variable of the model is significantly correlated with each other variable. The results suggest that the intervening effect of commoditization with which each variable is highly correlated can explain the high correlation among each other. The findings are contrary to the assumptions, and thus, the results of the path coefficients and significance of the model cannot be accepted, based on the effects of evident multicollinearity. It is important to point out that although multicollinearity hinder the assessment of the partial effects, it does not hinder their joint effects on predicting the log odd of joining the off-farm work force or proletarianization of the simple commodity head of household. It must be pointed out that the hypothesized negative relationship between landed property and education was not confirmed, and that level of education and level of technology presented a positive relationship that was not hypothesized.

Conclusion

The presentation and interpretation of the findings focused on the three fields of testing of the theoretical propositions. First, the typology was reviewed and its propositions tested. Second, the specialization of the producer types into different labor markets was accomplished, achieving the goal of establishing the patterns of
division of labor affecting the off-farm work participation characteristics of each production system. Third, the model predicting the log of the odds of proletarianization of the simple commodity producer identified the findings of the conceptual relation that were hypothesized to apply specifically to this producer type.

The following and last chapter will discuss the conclusions of this research effort. The objective of the last chapter will be to identify certain of the suggested contributions of the findings to the theoretical, methodological, and applied fields of sociology.
CHAPTER VII. DISCUSSION AND CONCLUSION OF THE FINDINGS

Introduction

The last chapter is devoted to the reflections and commentaries raised by the findings of the research. The discussion of the findings will first address the conclusions of the test of the theoretical propositions that identified the properties of the typology of agrarian production systems by degrees of commoditization. The second section will discuss the results of the test of the labor market specialization propositions of the producer types. The labor market specialization identifies the division of labor affecting the agrarian producers of the Pacifico Sur Region of Costa Rica that participate in off-farm work. The third section will address the discussion of the results of the theoretical propositions on the proletarianization of the simple commodity producer type.

A final conclusion will address the main contributions of the findings in reference to the theoretical, methodological and applied extension policy implications inferred from the research.

The theoretical conclusions shall address the contribution of the research findings to the conceptual specification of the types of agrarian production systems in the region. Also, the role of off-farm work as resistance to
commoditization shall be reformulated, and the typology reduced accordingly.

The conclusions derived from the methodological procedures followed in this research will be reviewed. Special focus will be centered on the validity and reliability properties of the typology with regard to the characterization of the social class situation of the producers and their agrarian production systems. The problems encountered in the operationalization of the theoretical proposition will also be addressed. Reflections on the implications for further research that the study and its limitations have suggested will be presented.

Finally, the questions of the extension policy applications of this research will be raised. The generalization possibilities and the limitations of the typology will be discussed. In conclusion, suggestions of policy and applied possible contributions that search to identify the effects of uneven and combined development on rural producers of Costa Rica and the Third World will be advanced.

First Section: Discussion of Findings

The two fundamental questions that were addressed by the hypothesis that stated properties of the typology were the following: 1) Is the typology itself pertinent in qualifying the households of producers into different categories on the property being measured? 2) Was
the hypothesized linkage and relationship between the independent variable commoditization and the dependent variables accepted or not.

In order to draw the conclusions of the answers to these two questions, each proposition will be discussed separately. Once the conclusions of all the hypotheses have been discussed, the general evaluation of the typology will be asserted.

The first theoretical proposition that states "higher the degree of commoditization, higher the concentration of landed property," is accepted. The tests of the proposition confirmed that at higher degrees of commoditization the following statements are true: a) greater the size of the farms (1.1) and b) greater the size of the total land holdings (1.2).

In both hypothesis, the test of the proposition has produced comparable results. In each case, the capitalist producers differentiate themselves significantly from all other types of producers and among themselves by the concentration of landed property. The following table presents the unequal distribution of wealth as represented by the concentration of landed property among the producers (see Table 23).
Table 23. Percentage distribution of total land holdings by percentage distribution of types of producers

<table>
<thead>
<tr>
<th>Type of producer</th>
<th>Overall types of producers (percent)</th>
<th>Total land holding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capitalist entrepreneur</td>
<td>25</td>
<td>38.6</td>
</tr>
<tr>
<td>Capitalist employee</td>
<td>15</td>
<td>36.2</td>
</tr>
<tr>
<td><strong>Subtotal: Capitalist producers</strong></td>
<td><strong>40.5</strong></td>
<td><strong>74.8</strong></td>
</tr>
<tr>
<td>Simple commodity farmer</td>
<td>22.5</td>
<td>14.4</td>
</tr>
<tr>
<td>Simple commodity farm worker</td>
<td>17.7</td>
<td>0</td>
</tr>
<tr>
<td><strong>Subtotal: Simple commodity producers</strong></td>
<td><strong>40.2</strong></td>
<td><strong>21.4</strong></td>
</tr>
<tr>
<td>Peasant farmers</td>
<td>7.8</td>
<td>1.9</td>
</tr>
<tr>
<td>Semi-proletarian peasants</td>
<td>11.5</td>
<td>1.9</td>
</tr>
<tr>
<td><strong>Subtotal: Peasant producers</strong></td>
<td><strong>19.3</strong></td>
<td><strong>3.8</strong></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

However, the high concentration of wealth of the capitalist types of producers was accompanied by a reduction of diversity of the producers with lower degrees of commoditization. The mean size of farms and of the total land holdings of the simple commodity and peasant producers did not present significant differences. The findings that refer to the first proposition, on the distribution of landed property as an indicator of wealth support the conclusions of Peter M. Blau (1977, p. 73), who wrote: "But, the growing concentration of wealth, and particularly, of power, may well reduce diversity by depriving increasing numbers of virtually any wealth and any power, in accordance with Marx's prediction."
The distribution of land is affected by the degree of commoditization, and can be best represented by a linear equation. However, because landed property identifies a highly concentrated resource, a source of wealth and an actual indicator of wealth, the diversity of its distribution is skewed towards the higher status and reduced in the lower status of the social class structure of the Pacifico Sur Region.1

The reversal of ranks of the two types of capitalist producer, assigning the highest status to the capitalist employee was not predicted by the typology. The interpretation of the findings suggests that the division of labor process affecting the capitalist producer is influenced by technological advances and industrial development which furthers the division of labor by raising labor productivity, and thereby freeing manpower resources for specialized training and work.2 However, the mediating factor of technological and economical development seems to be industrialization and education.3 At this stage, the explanation that shall be advanced is that the type of labor market participation of the capitalist producers is of a type that does not seem to produce reproduction of their class situation, through added resistance to commoditization. In fact, the consequences of the labor market participation of the capitalist producer, as revealed by the amount of landed
property concentrated, suggest that either the labor force participation in the skilled job market is facilitated by greater wealth, or that the added income from this employment source can be reflected in the significantly higher investment in amount of landed property this group presented. The alternative of increased investment would be supported if other fixed investments, for example farm machinery, is also higher in the case of the capitalist producer. The following proposition studied the dimension of the level of technical mechanization of the production units, and provided answers to these questions.4

In conclusion, it can be stated that, based on the results of the test of both operationalizations of the proposition, the asymmetrical and transitivity properties of the typology hold true if the types of capitalist producers are collapsed into one category.5

The second theoretical proposition that states, "higher the degree of commoditization, higher the degree of the organic composition of capital," is accepted. The tests of the proposition confirmed that at higher degrees of commoditization the following statements are true: a) higher the levels of mechanization of the farms (2.1) and b) greater the access to farm equipment is a problem for the producers (2.2).
Mechanization of the farm and division of labor are intimately related. Because capitalist producers are specialized in skilled labor markets and affected by the process of specialized divisions of labor, they are not displaced by mechanization. On the contrary, mechanization results in an increase of efficiency because it reduces labor cost. Capitalists would have as an incentive to mechanize, the reduction of labor cost and manpower problems related to human labor performing routinized work would develop. However, only routinized work can be displaced by machines, since machines are designed to substitute the type of work that has been routinized by industrial production methods. Plantation production, in general, is representative of the large work organizations that have adopted industrial routinized methods in agriculture.

The simple commodity and peasant producers specialize in the semi-skilled and unskilled labor markets and are affected by the process of routinization division of labor. Mechanization helps to diminish the proportion of workers in routine and unskilled jobs and expand skilled and specialized jobs. However, because routinized work, that is the labor market participation of the simple commodity and peasant producers type of work has also expanded, the conditions for the capitalist producer to mechanize have been created.6
The implications that derive directly from mechanization are the new requirements of a skilled and semi-skilled labor force to manage the machines. Producers that encounter problems with getting workers are producers that are identifying a type of rural worker hard to get.\(^7\)

In conclusion, it can be stated that the typology distinguished significantly the different levels of mechanizations of the farms, with regard to each of the types of producer.\(^8\) Collapsing the two types of capitalist producers into one category would permit the properties of asymmetry and transitivity of the typology to hold true.

It has been proven that level of technological mechanization of farm production corresponds directly to degrees of commoditization. Commoditization expresses different levels of insertion into a market economy. If Peter L. Berger's (1986, p. 211) proposition (that "An economy oriented toward production for market exchange provides the optimal conditions for long-lasting and ever-expanding productive capacity based on modern technology") is true, then the producers that present a higher specialization of their production oriented towards the exchange markets will be those that would develop the greatest productive capacity. The tests of the following proposition confirmed the export exchange market specialization of producers with higher degrees of commoditization.
The third theoretical proposition that states, "higher the degree of commoditization, higher the specialization of production for export markets," is accepted. The tests of the operationalizations of the proposition confirmed that at higher degrees of commoditization the following statements are true: a) greater the export market orientation specialization of the first major crop or farm productive activity (3.1); b) greater the export market orientation specialization of the second major crop or farm productive activity (3.2); and c) greater the export market orientation specialization of the first two major crops or farm productive activities (3.3).

The interpretation of the results of the first major crop establish that two groups are clearly distinguished. The capitalist and simple commodity producers with high export market orientation specialization and the peasant producers with a distinct specialization toward crops and activities related to food crops for consumption. A status reversal was presented by the simple commodity farm worker that scored a higher export orientation of its production than any other type of producer in the typology.

In summary, it can be stated that if the types of producers were collapsed into the three main types of systems, the highest rank would be assigned to the simple commodity producer, the second to the capitalist, and the
third to the peasants. The Duncan test (P > .05) confirms that the means of these three groups were significantly different.

A tentative explanation of these results can be thought in the widespread small coffee plots that have provided access to the simple commodity producers to engage in the harvesting of an export cash crop. However, in order to fully evaluate the export orientation of the different production systems of the typology, it is necessary to measure the export specialization of the second major crop or activity of the farm.

The operationalization of the proposition by the measurement of the second crop or farm productive activity produced results much more in line with the hypothesized behavior of the producers.

In summary, it can be stated that if the category of peasant farmers was collapsed into one group of peasant producers, the rank order of the typology would reflect adequately the properties of asymmetry and transitivity hypothesized.

In conclusion, the measurement of the second major crop or farm activity identifies that the capitalist producers concentrate the highest scores of specialization of the export market orientation of their production. However, in order to balance the findings of the first operationaliza-
tion, the discussion of the test which evaluates the proposition combining the added effect of both first and second major crop orientations must be presented. As it can be recalled, the variable AGRITYPE identified the combined effects of the first two major crops or farm productive activities with regard to export market orientation specialization.

AGRITYPE is the best indicator to measure and test the proposition revealing that the ranked order of export specialization does correspond to the degrees of commoditization.11

In conclusion, if the typology collapsed, the two capitalist producers the hypothesized properties of asymmetry and transitivity would hold true. The relevance of the destination orientation of farm production toward exports or internal markets, or toward consumption food crops becomes clear when the cash implications become evident. The saliency of this dimension to help characterize the different production systems is illustrated by the correlation between type of crop market orientation and the risk or security factor related to each type of crop or production activity of the farm. The following proposition will present the dimension of the risk versus security characteristics of the type of production activity of the farms and the relation will be established that export
oriented crops are those that are considered less risky and more secure by the producers. The higher probabilities, of good harvest tied to the cash crop factors differentiated by the export or internal markets, explain the impact in capital accumulation facilitated by specializing in one or another type of production orientation. As a source of wealth, export crops present the advantage of being paid in foreign currency. However, if to the currency advantage, the higher security or safety factor of a good harvest is added, the production specialization orientation of the producers becomes a crucial factor that would contribute to explain the diversity and inequality, with regards to wealth and economic development encountered among the producers.12

The results of the following proposition will confirm that producers reproduced through greater market mediated relations of production, that is by higher degrees of commoditization will specialize in safer, less risky crops, and thus assure higher levels of production on their farms.

The fourth and fifth theoretical propositions that stated, "higher the degree of commoditization, higher the shared perception that the type of production is secure," is accepted. Also, the proposition that states "higher the export specialization of production, higher the shared perception that the type of production is secure," is accepted. The tests of the operationalizations of the
propositions confirmed that at higher degrees of commoditization, and at higher export specialization levels of production the following statements are true: a) greater is the specialization in export oriented crops or farm productive activities perceived to be the most secure (4.1); b) higher the shared perceived opinion of the producers that their crops or activities are the most secure (4.2); c) higher the export oriented specialization of the first major crop or activity, greater the likelihood that the crop or activity was qualified as the most secure (5.1); d) higher the export oriented specialization of the second major type of crop or activity, greater the likelihood that the crop or activity was qualified as the most secure (5.2); e) higher the export specialization orientation of the first and second types of crops or activities of the farm, greater the likelihood that the crop or activities were qualified as the most secure (5.3).

The interpretation of the distribution of crops or activities perceived by all the producers among the agrarian production systems by degrees of commoditization (Table 24) clearly confirms the proposition. Specialization in farm productive activities that are less risky and perceived to be safer corresponds to higher degrees of insertion into market mediated reproduction of their social class situation or degree of commoditization.
Table 24. Farm productive activities identified as the most secure by agrarian production systems according to degree of commoditization.

<table>
<thead>
<tr>
<th>Farm productive activities identified as the most secure. Scores and percentage distribution.</th>
<th>No</th>
<th>Yes</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semi-proletarian peasants</td>
<td>83</td>
<td>35</td>
<td>118</td>
</tr>
<tr>
<td></td>
<td>70.3%</td>
<td>29.7%</td>
<td>100%</td>
</tr>
<tr>
<td>Agrarian production systems by degree of commoditization</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peasant farmers</td>
<td>60</td>
<td>25</td>
<td>85</td>
</tr>
<tr>
<td></td>
<td>70.6%</td>
<td>29.4%</td>
<td>100%</td>
</tr>
<tr>
<td>Simple commodity</td>
<td>86</td>
<td>87</td>
<td>173</td>
</tr>
<tr>
<td>farm workers</td>
<td>49.7%</td>
<td>50.3%</td>
<td>100%</td>
</tr>
<tr>
<td>Simple commodity</td>
<td>109</td>
<td>113</td>
<td>222</td>
</tr>
<tr>
<td>farmers</td>
<td>49.1%</td>
<td>50.9%</td>
<td>100%</td>
</tr>
<tr>
<td>Capitalist employees</td>
<td>75</td>
<td>77</td>
<td>152</td>
</tr>
<tr>
<td></td>
<td>49.3%</td>
<td>50.7%</td>
<td>100%</td>
</tr>
<tr>
<td>Capitalist entrepreneurs</td>
<td>112</td>
<td>134</td>
<td>246</td>
</tr>
<tr>
<td></td>
<td>45.5%</td>
<td>54.5%</td>
<td>100%</td>
</tr>
<tr>
<td>Total</td>
<td>525</td>
<td>471</td>
<td>996</td>
</tr>
<tr>
<td></td>
<td>52.7%</td>
<td>47.3%</td>
<td>100%</td>
</tr>
</tbody>
</table>

The advantages derived from specializing in safer crops and of reducing risk should contribute to further the economic and social development of the households of producers that control that advantage. However, the most immediate effect of the capital accumulation derived from specializing in crops and activities with less risk is the potential of added resources for reinvestment, and as Berger
(1986, p. 211) stated, "The optimal condition for long-lasting and ever-expanding productive capacity."

If Peter L. Berger's (1986, p. 211) propositions are right that, "Industrial capitalism has generated the greatest productive power in human history; and that "To date, no other socioeconomic system has been able to generate comparable productive power," then the following is true: The agrarian production systems, that orient their economies toward production for market exchange, should present the greatest levels of production, superior to any other systems. The presentation of the conclusions on the test of the following proposition confirmed that higher production levels corresponded to production systems reproduced through greater insertion of market mediated relations of production.

The sixth theoretical proposition that stated, "higher the degrees of commoditization, greater the production of the farms," is accepted. The tests of the operationalizations of the proposition confirmed that at higher degrees of commoditization, the following statements are true: a) greater the number of heads of cattle on the farms (6.1); b) greater the number of fowls produced on the farms (6.3); c) greater the number of horses dedicated for the production activities of the farms; and in a reduced typology of capitalist, simple commodity and peasant producers, also the
following statement would be true: d) greater the number of milk bottles produced in the farms the week before the interview (6.2).

A reduction of the typology into three levels of commoditization suggest that the validity of the properties attributed to producer types by degrees of commoditization would be enhanced.

1. The size of the herds of cattle is directly related to the degree of commoditization of the producer type. As market mediated reproduction of the production system and the social class situation of the producer increases, so does the number of cattle on their farms.

In conclusion, if the categories of capitalist producers were to be collapsed, the typology would be confirmed to hold as true its asymmetric and transitivity properties. The Pacifico Sur Region of Costa Rica is specialized because of its climate and pastures in cattle production for the meat markets, both international and internal. It is not a predominant dairy region of Costa Rica. However, the evaluation of milk production in these farms is a good indicator of a source of fats and proteins in the household diet.

The test results of the hypothesis that measured the concept of farm production through the use of the number of milk bottles produced on the farms did not confirm the
proposition. The difference between the mean number of bottles of milk produced by each of the six producer types of the typology was not significant. However, in a collapsed or reduced typology by degrees of commoditization of the three main producer types the proposition would be confirmed.

In order to identify production activities that are much more representative of all types of producers and that do not have the great variable capital dimension that investment in cattle herds reflect, it is necessary to test the proposition with regard to smaller animals. The test of the hypothesis that distinguished the producers by the production of fowls on the farms achieved this purpose. The criteria that justified the choice of this production activity is its greater accessibility to both the small and large producers, for market as for family consumption. Chickens, ducks, turkeys, and other fowls are readily available to both the rich and the rural poor.

The results identified that in fact the capitalist producers combined achieved the highest production of fowls. However, the peasants scored a second rank above the simple commodity producers, even if their differences were not statistically significant.
In conclusion, it will be stated that the proposition was confirmed by the indicator of fowl production of the farms.\textsuperscript{13}

The best measurement of production, as an indicator of productivity of the farms, is a product not directed towards consumption or the market, but to be put to use in the production efforts of the farms themselves. The horse, as a work animal, is present in more than five times the farms than oxen. The results of the operationalization of the proposition by the measurement of number of horses identified that the capitalist producers concentrated a significantly higher number of horses than the other producer types.

In conclusion, the proposition was confirmed. The typology would prove to hold its asymmetric and transitivity properties if the category of simple commodity producers were collapsed sustaining the rank order of degrees of commoditization.\textsuperscript{14} The lower average in each production type presented by the producers that participate in the labor market was consistent with the assumption of added resistance to commoditization by participation in off-farm work. However, only the simple commodity producers presented significant different higher means of numbers of horses for those producers that do not work, compared with those that do work.
The proposition was only tested by identifying the production of animals. It did not address the evaluation of crop production. However, the indirect measurement of productivity, as for example institutional services for production, intensity of the use of farm labor, access to financial services, technical assistance, credit, and above all, the adoption of technological innovation in production will be affecting crops as well as livestock production of the farm. The following propositions (seven, eight, nine, and ten) will address the dimensions previously identified.

Institutional services for production, in the form of both technical assistance and credit, are delivered in Costa Rica as a public service from government agencies to the producers. The qualifying factor of degree of commoditization of the producers, in the case of these services, will be mediated by the capacity of these producers according to their status to use the available networks to their benefit in order to acquire services theoretically available for all producers without distinction.

The theoretical assumption, following Blau (1977) is that the capacity of the higher status producers with higher degrees of commoditization that have been able to concentrate the institutional services for production (technical assistance and credit) is an indicator of their power, and of the inequality in power presented among the producers.
The intervening mechanism that will be at work, which corresponds to degrees of commoditization and access to institutional services for production, is the concentration of economic power of the higher status producers of the typology.

The seventh theoretical proposition that stated "higher the degree of commoditization, greater the access to institutional services for production to the farms," is accepted. The tests of the operationalizations of the proposition confirmed that at higher degrees of commoditization the following statements are true: a) greater the likelihood that the producers received technical assistance that year (7.1); b) greater the number of technical assistance visits received by the producers (7.2); c) greater the likelihood that the producers were able to follow the technical assistance advice received that year (7.3); d) greater the likelihood that the producers used credit (7.4); e) higher the terms in number of month of the first loan (7.5); f) greater the likelihood that the first loan was considered to be timely (7.6); and g) greater the likelihood that the first loan was considered to be sufficient (7.7).

The measurement of access to technical assistance clearly identified the unequal delivery of this service by degrees of commoditization. The findings also suggest the increase validity of a reduction of the typology to its
three main producer types without the differentiation or added categories of producers distinguished by their off-farm work participation.

In conclusion, the proposition was confirmed, and the typology by degrees of commoditization categories of producers also confirms that the asymmetric and transitivity properties of the typology are true. In addition, the typology of capitalist, simple commodity and peasant presents significantly different average number of producers in each category from higher to lower.16 The inequality in the access to this societal resource reflects that the social positions defined by degrees of commoditization also identify the inequality of power among the producers.17

As a graduated parameter, technical assistance was identified as the number of technical assistance visits received that year. The typology proved to hold true its asymmetric and transitivity properties. The frequency of technical assistance visits increased as degrees of commoditization increased. The concentration in the delivery of the institutional service of technical assistance expressed by the intensity of the service also identified the power of the producers.

Technical assistance, in itself, does not have an incidence in productivity, except if the production practices incorporate the technical advice. The application of
technical assistance advice in the production practices is the best indicator of indirect productivity. Inequality in the direct application of technical advice to farm production is an indicator of the different opportunity options readily accessible for producers. Again, economic power that is reflected in the capacity to control the resource of technical assistance delivery is also reflected in the capacity to follow and implement technical assistance advice.

Producers with higher degrees of commoditization were proven to have a greater likelihood of applying the technical assistance advice received. The typology by degrees of commoditization was confirmed in its asymmetric and transitivity properties. However, the added capacity to apply technical assistance advice can also indicate greater access to financial resources.

The constraints of being able to apply technical assistance advice clearly would reveal the inequality of wealth. However, in Costa Rica, the banking system has been nationalized, and it is mandated to provide the financial resources needed as credit for the advancement of agricultural production. The access to financial resources as societal resources should, in principle, be equitable. The differential access to credit identifies that the power differences presented in the social positions of these
classes of producers by degrees of commoditization is affecting the distribution and concentration of the resource credit.

The results of the tests of the proposition through access to credit, timeliness of the loans, preferential term conditions, and sufficiency of loan accounts received, all confirmed the proposition. Also, the rank order of the producers by degree of commoditization suffered one or another reversal of status. The validity of the typology would be enhanced if it was reduced to the three principal production types without the added differentiation of producer categories that participate in off-farm employment.

The reversal of the rank order of the producers that are employed outside the farms indicates that the resistance to commoditization assumption does not hold with regard to access to credit. However, if the typology were to be collapsed into the three main types of producers, the differentiation by degrees of commoditization would hold true. The asymmetric and transitivity properties would also be confirmed in the three type typology. 18

The proposition was proven right through the test of all seven hypotheses that operationalized the concept of access to institutional services for production of the farms. The rational at the time (1980) in the Pacifico Sur Region, for preferential treatment for larger producers by
the government agencies that delivered both technical assistance and credits, was the official state policy of support for export crops. However, the simple commodity producers, with regard to the first major farm activity, outrank the capitalist producers in export orientation specialization. Based on this evidence, the explanation of the preferential treatment in technical assistance services and loans, that is benefiting the capitalist producers, has to be thought elsewhere.

The false perception, that capitalist producers are justified in the preferential treatment received because of the export contribution to the nation generated from their farms, is covering the power play of informal networks that channel these services to the capitalist producers, regardless of their export orientation specialization.

In conclusion, I can state that the concentration of the financial societal resources into the hands of the larger work organizations of this agrarian structure has been proven. The lower status producers are virtually totally isolated from this societal resource. The polarization, with regard to access to this societal resource, is consistent with the proposition advanced by Peter M. Blau (1977, p. 241) which states: "As the average size of the financial resources of the work organization in a society
Increases, the concentration of economic power in the society becomes more pronounced."

The consequences of the concentration of economic power is the polarization of a society into opposing classes, caused by the increasing isolation of the lower classes from societal resources.\textsuperscript{19}

The polarization between the higher and lower strata was also confirmed, with regard to the quality of the service received. The gradation of the timeliness of the loans was directly distributed according to degrees of commoditization. The same trend was also registered for the evaluation of how sufficient was the loan to meet its intended productive purpose. The distribution and quality of credit show that this service is concentrated in the higher strata and it is absent in the lower, insulating the peasant producer as a class from this societal resource.

The insulation of the lower class, and the polarization of power and wealth, presented in this stratification, give rise to support the theoretical proposition advanced by Berger (1986, p. 212) which states that: "Under Industrial capitalism, there has been the progressive displacement of all other forms of stratification by class." In order to identify that the stratification system of the Pacifico Sur Region is, in fact, a class system, the following tests of propositions should present a set of multiple parameters
that will coincide in presenting the levels of social differentiations as indicators of social inequality. The following parameters would support the notion of a class system based on social inequality.

The eighth theoretical proposition that states "higher the degree of commoditization, higher the level of participation in the financial and banking institutions," is accepted. The tests of the operationalizations of the proposition confirmed that at higher degrees of commoditization the following statements are true: a) greater the likelihood that the producers have a checking account in a bank (8.1), b) greater the likelihood that the producers have a savings account in a bank (8.2), and c) greater the likelihood that the producers have a savings account in a cooperative (8.3).

If the typology were to be collapsed into the three main types of producers, the properties of asymmetry and transitivity would hold true. Under the conditions of a collapsed typology of three levels of commoditization, the proposition has been confirmed.

Checking accounts can be considered to distinguish producers that would be highly engaged in business transactions, at least in the case of Costa Rica. The participation in the banking systems, measured through savings accounts, suggested that both large and small, rich and poor
producers, independently of their deposits, should have equal access to this service. However, the analysis of the findings, on the contrary, identified that savings accounts are even less frequent than checking accounts among Pacifico Sur producers. Only the peasant farmers presented a higher average number of farmers with savings than checking accounts.

For the properties of asymmetry and transitivity of the typology to hold true the three main categories of producers would have to be collapsed.21

In order to test the proposition outside of the traditional banking institutions, participation was also measured through the use of savings accounts in cooperatives.

The results of the test of the operationalization through the measurement of access to savings accounts in cooperatives suggest that the validity of the typology would be enhanced by a reduction in ranks.

When the simple commodity and peasant producers are collapsed into their common two producer types, the typology presents the asymmetrical and transitivity properties.22 The review of all three hypotheses shows the same conclusion as when access to credit was analyzed, that the peasant producers are virtually insulated from any participation and access to financial services, and from financial support for
their production activity. The consequences of lack of technical assistance, of credit and insulation from financial and banking services, would be readily identified when the evaluation of the technological practices of the farm are discussed in proposition ten.

The inequality in access to financial and capital resources, which concentrates economic power by degrees of commoditization, is not compensated by the intensity of the use and occupation of labor in the farms. As the discussion of the ninth proposition will indicate, the intensity of the occupation of labor in the farms is also directly related to degrees of commoditization. The analysis of the findings show that both sources of wealth and economic power, capital labor are unequally concentrated by degrees of commoditization, thus contributing to the further insulation of the peasantry, as the class with the lowest status in the Pacifico Sur stratification system.

The ninth theoretical proposition that states "Higher the degree of commoditization, higher the intensity of the occupation of labor in the farms," is accepted. The tests of the operationalizations of the proposition confirmed that at higher degrees of commoditization, the following statements are true: a) greater the number of hours worked by the head of households the previous week (9.1), and b) greater the likelihood that the producer will have problems
in contracting labor (9.2). The results of the first operationalization of the proposition suggest that the typology would enhance its validity of identifying degrees of commoditization by a reduction into three ranks.

In order for the typology to hold true the properties of asymmetry and transitivity, the six categories would have to be collapsed into the three main types of producers identified by degrees of commoditization. In each producer type, the rank order of the producers that participate in the labor markets presented higher average number of hours worked than those that did not participate in off-farm work. However, the collapsed typology of three categories, by degrees of commoditization, distinguishes the producers with regard to mean number of hours worked.23

The test of the proposition through the measurement of the variable that identified if the producer encountered problems in contracting off-farm labor, or if finding off-farm work is a problem in their community, resulted in findings that reversed the status of peasants and simple commodity producers.24

The findings, with regard to the intensity of the occupation of labor, measured by hours worked, or by the problems encountered in the supply of labor, highlight the nature of the division of labor process affecting the Pacifico Sur Region. For Blau (1977, p. 192), "The evolu-
tion of the division of labor depends on a surplus of manpower resources. As long as the efforts of most people are needed to supply food and other means of subsistence, few can be spared for different work. In the case of the rural Pacifico Sur social formation, the effects of the law of unequal and combined development affect the process of division of labor, both in its most advanced form, that of specialization, and in its earlier form, that of routinization. The capitalist producers, not only present the highest intensity of occupation of the in-farm labor force, but because this resource has been exhausted, draws upon the labor surplus available from the less intensive production systems. The capitalist sells specialized labor power and, in general, hires much routinized labor power from the simple commodity and peasant labor force. The process, however, needs a minimum of technological and economic development in order to increase the productivity of labor above the levels of subsistence and accumulate the resources needed. The further advancement of the division of labor through specialization, which entails the growth of expert specialties, requires substantial investments, either for mechanization and/or expansion of production. According to Blau (1977, p. 192), "Technological advances and industrial development further the division of labor by raising labor
productivity, and thereby freeing manpower resources for specialized training and work."

The correlation between the increase of the intensity of the occupation of labor and higher technological practices in production would need to be established if Blau's propositions are true?

The tenth theoretical proposition that states "Higher the degree of commoditization, higher the level of technological innovations adopted as production practices of the farms," is accepted. The tests of the operationalizations of the proposition confirmed that at higher degrees of commoditization the following statements are true: a) greater the amount of fertilizer used on the farms (10.1), b) greater the likelihood that the producers used fertilizer (10.2), c) greater the use of herbicide and/or insecticides on the farms (10.3), e) greater the use of Improved, certified and hybrid seed on the farms (10.4), and e) greater the technological level of the agricultural practices of the farms (10.5).

The operationalization through the measurement of amount of fertilizer used revealed that the combined ranks of the simple commodity producers was higher than the status of the capitalist producers.
The collapsed typology into the three types of producers would hold true the properties of asymmetry and transitivity.\textsuperscript{26}

The operationalization of the proposition through the measurement of the use of herbicides and/or insecticides also revealed that the typology would enhance its validity by a reduction into three ranks.

If both capitalist producers and peasant producer types were to be collapsed, the typology would hold true the properties of asymmetry and transitivity.\textsuperscript{27} The qualifying characteristic among producers, with regard to the use of herbicides and/or insecticides, is that the peasants are clearly differentiated by a low and negligible use of these innovations in their farms. Degree of commoditization accurately accounts for these findings, because the access to herbicides and insecticides, which require cash, is only possible to the producers that participate in the markets of agricultural goods and the monetary economy.

The use of fertilizers, herbicides, and insecticides are technological practices that enhance and protect a harvest, however, the crucial technological innovation, which directly affects the level and quality of production is the type of seed used in the crops.

The operationalization of the proposition through the measurement of the technological level of seeds used on the
farms identified the simple commodity producers with the highest status. The indicator of adoption of seed practices revealed that the peasant producers are in a significantly lower status than the producers that are reproduced into their production systems and social class situation through market mediated relations of production.

The analysis of the findings of the test of this hypothesis revealed that the simple commodity producers scored a higher mean scale value of technological innovation of types of seeds used than the capitalist producers. However, evaluating the level of overall adoption of technological innovation should not be performed on just one technological practice alone. The final operationalization of the proposition that measured the common scale of technological practices by their combined effects identified that the typology would enhance its validity by a reduction to its three principal production systems.

The typology would hold true its properties of asymmetry and transitivity if the three main categories of producers were collapsed. Also, the rank order by degrees of commoditization would identify the capitalist with the highest rank, followed closely by the simple commodity producers, and then the peasants with the lowest position. However, the difference between the mean scores of levels of
adoption of technological innovations was not statistically significant for capitalist and simple commodity producers.

In conclusion, I can state that the level of adoption of technological innovations is sharply differentiating the producers of the Pacifico Sur Region along lines of reproduction through commodity relations of production and through reproduction as resistance to commoditization. Both commodity mediated reproduced categories of capitalists and simple commodity producers contrast with significantly higher use of technological practices in their production activities in comparison with the peasant producers.

For Berger (1986, p. 213), "The inclusion of a third world country within the international capitalist system tends to favor its economic development." If economic development is the outcome of an increase in productivity, for Berger (1986, p. 213) this process itself would be a byproduct of the introduction and extension of capitalism. However, the effects of the law of unequal and combined development affect these third world societies as to favor the benefits of capitalism only in the case of those producers that have access to market mediated reproduction and insulate producers, like the case of the peasants that do not have access to market mediated reproduction. The outcome for the producers inserted into the capitalist commodity markets is higher technological modernization and
economic growth, but for the latter is an increase in the social disadvantages of being unequally denied the benefits of income and wealth.

According to Peter L. Berger (1986), the inequality created by the initial capitalist intrusion would soon give way to a relative decline of inequality and then to a stable plateau.31 However, for Berger (1986, p. 211) "These changes in income and wealth inequalities are caused by the interplay of technological and demographic forces and are relatively independent of the forms of socioeconomic organizations (such as, most importantly, capitalist and socialist forms of organization)." In the case of the Pacifico Sur Region of Costa Rica, after over more than one hundred and fifty years of introduction into the capitalist global economy, the access to the technological modernizing innovations is still a virtual monopoly of market mediated producers. The peasantry is insulated from the technological practices that could introduce the increases of productivity and economic growth, which would lead to an improvement in their state of income and wealth inequality.

Berger (1986, p. 211) acknowledges that the leveling phase of a decline in inequalities can be strengthened and accelerated by political intervention of the state through redistribution policies.32
The inequalities that Berger's optimistic prediction foresees declining and then stabilizing are themselves the results of a process of division of labor that is producing opposite results which are combined. The effects of the law of uneven and combined development, permits the extension of modern technologies monopolized by producers reproduced through commoditization, and denies these technologies to those who do not participate in the markets. Among the effects suffered by the division of labor is the combination of the processes of division of labor by specialization and by routinization. Historically, the advanced capitalist social formation went through successive forms of division of labor, first by routinization and subsequently by specialization; however, in third world countries dependent capitalist social formations these two types of processes of division of labor are simultaneous, combined, and are producing their independent effects. An indicator of the presence of the combination of these two types of division of labor processes are their relationships with the trends of social association among the producers of the Pacifico Sur Region. The evaluation of this proposition should be possible if the distinguishing process of reproduction by commodity relations and resistance to commoditization is also associated with differentials in regard to participation in social associations.
Participation in social associations thereby becomes an indicator of the type of division of labor process that is taking place. Blau (1977, p. 215) specifies the relationship between rates of association and types of division of labor processes, stating the following proposition: "The more division of labor is in the form of specialization rather than routinization, the greater is the probability that high rates of associations among occupations integrate them."

As the results of the test of the following proposition on participation in social associations confirmed, the Pacifico Sur agrarian producers can be distinguished by their rates of association. The fact that those affected by high degrees of commoditization present the high rates of association identifies that these producers are being affected by two different, combined, and simultaneous processes of division of labor. The producers with high levels of commoditization are corresponding to the division of labor process by specialization, and those with low levels of commoditization and resistance to commoditization by the form of division of labor process through routinization. Both division of labor processes are taking place at the same time; however, they are affecting and differentiating the Pacifico Sur producers in two opposite directions.
The effects of this combined and uneven development of the division of labor process are identified in the subsequent review of the test of the propositions that follow.

The eleventh theoretical proposition that states "Higher the degree of commoditization, higher the degree of participation in formal organizations by the producers," is accepted. The tests of the operationalizations of the proposition confirmed that at higher degrees of commoditization, the following statements are true: a) greater the number of organizations that the producers have knowledge of (11.1), b) greater the number of organizations the producers participate in (11.2), and c) greater the cognitive participation and membership of the producers in the groups of their community (11.3). The results of the test of the operationalization through the measurement of cognitive participation suggest that the typology would be enhanced in its validity if a reduction would collapse its ranks. For the typology to hold true in its asymmetric and transitivity properties by degrees of commoditization, it would have to be collapsed into the three main categories of producers.35

However, cognitive participation and effective membership are not equivalent indicators of rates of participation in social associations. The strongest indicator of rates of participation in groups is the measurement of actual membership in formal organizations. Again, the test of the
second operationalization also suggests that the typology’s validity would be strengthened by a reduction of its categories.

For the properties of asymmetry and transitivity to hold true, the typology would have to collapse both types of capitalist producers into one category. A three category typology of only capitalist, simple commodity, and peasant producers would be statistically significantly differentiated by levels of membership in organizations.36

The operationalization of participation in organizations by the combined effect of both cognitive and actual membership participation was confirmed. The findings also suggest that the typology should be collapsed into only the three main categories of producer types and social classes previously identified.

In a collapsed typology of the three main production types, the asymmetric and transitivity properties by degrees of commoditization would hold true. However, the simple commodity and peasant producers are not significantly differentiated.37

In summary, the rates of participation in formal organization were confirmed to correspond positively to degrees of commoditization. If the findings are consistent with Blau’s (1977, p. 43) thesis, which states that: "Social associates are more prevalent among persons in
proximate than between those in distant social positions."
Then the membership composition of the organizations of the
Pacifico Sur Region is significantly skewed by a higher
proportion of higher status producers as members.
The outcome of an increase status distance in the
membership of groups, because of the prevalence of high
status members, would be a deterrence in itself for lower
status participation in associations in the Region.\textsuperscript{38}
The insulation of the lower status producers, the peasants,
and the simple commodity producers is enhanced by the
membership composition of the existing organizations in the
communities of the Pacifico Sur.
In conclusion, participation in social associations and
groups is also an indicator of the level of social
mobility.\textsuperscript{39} The low rates of association revealed in this
region identify that social mobility has not had its effect
on rates of association, perhaps because the region has not
experienced high rates of social mobility at all? Under
these circumstances, the question would be to evaluate what
has prevented social mobility to take place? An initial
lead is presented by Blau's (1977, p. 44) theorem that "A
parameter's pronounced salience inhibits social mobility."
In order to further explore the conditions that have
affected rates of participation in organizations and groups
in the region, it is necessary to identify the parameters
that have had an impact on both the status distinctions, status distances, and their degree of saliency achieved. As Blau's (1977, p. 74) theorem points out, "Ceteris paribus, a decline in inequality reduces the impact of status on social association," the only way to evaluate the role of status as the causal factor of rates of social association is to look at the trends in inequality. For an indicator of the historical effect over inequality, the following review of the findings will focus on the patterns of immigration. The outcome of the review of the characteristics of the process of immigration will reveal the trends that have affected the direction of inequality over the previous historical period. In accordance with Blau's (1977, p. 74) theorem that "Ceteris paribus, if the net immigration from abroad into lower strata exceeds that into higher strata, inequality increases," immigration into the Pacifico Sur Rural Region will serve as an indicator of the direction that has affected the state of inequality in that region. The characteristics of immigration were explored by the concept of stability of residence of the producers in their rural communities.

The twelfth theoretical proposition that stated: "Higher the degree of commoditization, higher the stability of residence of the producers in their rural communities," is accepted. The tests of the operationalizations of the
proposition confirmed that at higher degrees of commoditization, the following statements are true: a) greater the number of years that the producer has lived in the present place of residence (12.1), and in a reduced typology of the three main types of production systems by degrees of commoditization, b) greater the likelihood that the previous place of residence of the producer was a rural area (12.2). The results of the first operationalization suggest that a reduction of the typology would enhance its validity.

For the properties of asymmetry and transitivity of the typology to hold true, the categories would have to be collapsed into the three main types of producers.41

The producers that participate in off-farm work in all categories, presented significantly lower mean numbers of years of residence in contrast to the group of producers that do not work off their farms.42 The assumption of added resistance to commoditization by participation in the labor markets was verified as hypothesized.

Years of residence is a proxy indicator of immigration under the rationale that those that have the lower number of years of residence have been the most recent immigrants into these communities under the assumption that years of residence is inversely related to immigration. The confirmation of the proposition suggests that recent immigration has been higher for the lowest strata of producers. Blau's
(1977, p. 74) proposition on immigration, if applicable to the situation of the Pacifico Sur, should be correlated with other graduated parameters of inequality also affecting the lower strata.

The second operationalization when tested did not confirm the proposition. However, in a collapsed typology of only the three main producer types, by degrees of commoditization, the results would confirm the proposition.

In conclusion, the proposition was only confirmed by the operationalization and test of the hypothesis that measured stability of residence by the number of years of residence in the community. The qualifying value of stability of residence as an indicator inversely related to immigration derives its theoretical significance from its impact on the trends that have affected the state of inequality among the producers historically. I would conclude that if level of education, quality of housing, access to consumer goods, and other indicators of societal resources are highly correlated to the disadvantage of the lower strata, producers inequality would be higher.

The following set of propositions will identify different dimensions of social resources, beginning with access to culture and education. The findings show that, in fact, the different measurement of the social resource indicator are highly correlated, consolidating the graduated
parameters that enhance the inequality among the producers of the Pacifico Sur Region of Costa Rica.

The thirteenth theoretical proposition that stated "Higher the degree of commoditization, higher the level of education of the producers," is accepted. The tests of the operationalization of the proposition confirmed that at higher degrees of commoditization, the following statements are true: a) greater the likelihood that the head of household is literate (13.1), b) greater the likelihood that the head of household had formal education (13.2), c) greater the number of years of education achieved by the head of household (13.3), and d) greater the number and type of printed media read by the heads of households (13.4). The results of the operationalization by the measurement of the literacy of the head of household suggest that the typology would enhance its validity through a reduction of its categories.

Collapsing both types of simple commodity producers, the typology would hold true its asymmetric and transitivity properties. Literacy is a very good indicator of level of education in a peripheral capitalist rural social formation, as in the case of the Pacifico Sur Region of Costa Rica. However, the high literacy rates identify the long standing free and extended public educational system in Costa Rica. The measurement of access to public education
becomes a qualifying indicator to establish level of education within this region. The following test of the proposition operationalized the concept of level of education by the access or not of the head of household to any formal educations. Again, the results of the second operationalization by the measurement to access or not of the head of household to any formal education indicated the benefits of a reduction of the typology.

For the properties of asymmetry and transitivity of the typology to hold true, both types of peasant producers would have to be collapsed into one peasant category. Because of the very high overall access to formal education, it becomes necessary to refine the measurement of level of education with an additional indicator that would qualify even further the effect of commoditization on the distribution of the societal resource of education. The following test of the proposition was performed on the operationalization of level of education by the actual number of years of formal education the head of household had achieved.

The results of the third operationalization of the proposition by the number of years of formal education achieved by the head of households, did not suggest that the typology would need to be reduced in types or categories. The typology of six ranks was tested to adequately distinguish the producers by degrees of commoditization.
The typology was tested to hold true its properties of asymmetry and of transitivity. The added resistance to commoditization assumption, derived from off-farm work participation, was also confirmed, with regard to the graduated parameter of average number of years of schooling.

As I have previously stated, the process of division of labor is affected directly by the rising levels of education. Following Blau's (1977, p. 196) proposition which states, "Rising levels of education and skills promote an advanced division of labor," the implication would be that those producers with the highest levels of education would most likely also be the ones affected by the 'advanced division of labor form' which has been defined as the division of labor by specialization. However, the process of division of labor is also directly affected by the possibilities that are enhanced through opportunities of communication, as well as opportunities for association. The written means of communications are differentially available to the Pacifico Sur producers and are conditioned to their degrees of commoditization. If for Blau (1977, p. 214), "Improved efficiency in means of communication promotes the division of labor," then those that efficiently use these means of communication would be advanced in their division of labor processes. In fact, access to information, knowledge, and the benefits of technological innova-
tion, would be largely dependent on access to means of communication, both printed and audio.

The results of the test of the fourth operationalization of the proposition suggest two conclusions. In the first place, the high access to printed media presented by the peasant producers encourages the further use of this vehicle to promote future adoptions of technological innovations. Second, the findings confirm the advantages to improve the typology by a reduction of its categories and ranks of commoditization.

The unexpected third rank position, achieved by the semi-proletarian peasants, inversed the order hypothesized. However, the mean scale scores of access to printed media in the collapsed three producer systems typology would have the capitalist producers with the highest rank. The conclusion of the test is that the capitalist producers presented a concentration of the means of printed media, which identifies inequality in the access to this societal resource and unequal access to these means of communication that affect the process of division of labor. If the typology were to be collapsed into only two degrees of commoditization, the capitalist as fully market mediated reproduced producers and the rest with partial market reproduction and reproduction through resistance to commoditization, the properties of
asymmetry and transitivity by degrees of commoditization would hold true.

The tests of the four hypothesis confirmed the proposition that access to education corresponds to the degrees of commoditizations of the producer types. The level of education and its spread within the population is a crucial factor for social and economical development to take place. Because education mediates the effects of technological and economical development, its unequal distribution, as a societal resource, not only enhances overall inequality, but does so by granting the benefits of advances of the division of labor to those with higher education, while depriving the advances to those with lower access to educational development, skill and training possibilities. The effects of the law of unequal and combined development work to provoke simultaneously on two different population groups the effects of division of labor through specialization and division of labor through routinization. The consequences are of special importance, precisely because together with the very process of industrialization, educational development makes possible the advances of the division of labor in a society. In the case of the dependent-perispheric capitalist societies, it makes possible two processes of division of labor that affect negatively on societies’ integration by polarizing the life chances of its members.47
One of the mechanisms by which education makes it possible for the division of labor to advance is its effects on income inequality. However, when access to higher education is a reserved privilege for some and others are not provided with the opportunities to have access to higher levels of education, inequality persists and income inequality becomes the condition for supremacy and privileges to continue to be the monopoly of the higher status. For inequality to diminish, it is necessary that the lower strata experience some upward mobility. Blau (1977, p. 74) identifies this proposition writing, "For inequality to diminish it is necessary that some low or middle strata experience upward mobility or that some highest strata experience downward mobility." However, if Berger's (1986, p. 212) proposition, which states, "In all advanced industrial societies education has become the single most important vehicle of upward mobility," is also to apply only to the producers of the Pacifico Sur with high degrees of commoditization, then what other sources of upward mobility are left for those producers with lower degrees of commoditization? Structural change then would seem to be another option. However, instead of promoting upward mobility, structural change itself is generally promoted or caused by social mobility. Following Blau (1977, p. 125), "Consolidated graduated parameters restrict
vertical mobility." The evaluation, then, of the potential for social change to occur will depend on the conditions that would favor or not vertical mobility to take place. The conditions that are reflected by increased inequality are derived from the consolidation of graduated parameters. The following proposition that tested the relationship between quality housing and degrees of commoditization confirmed, together with the subsequential indicators of inequality, show that indeed the state of consolidation of graduated parameters of inequality in the Pacifico Sur do not encourage the forecast of upward mobility to occur for the lower strata; consequently, neither is social change expected to be advanced by high rates of future social mobility. Because of the very high correlation of consolidated graduated parameters affecting the lower strata of producers of the Pacifico Sur, self induced structural change does not seem very likely to occur in the near future. 

For now, the conditions of consolidation of graduated parameters of inequality will be discussed in the following proposition. The access to quality housing, as an indirect indicator of income is demonstrated to be highly correlated and consolidated with the parameter of access to education presently analyzed.

The fourteenth theoretical proposition that stated "Higher the degree of commoditization, higher the access to
quality housing," is accepted. The tests of the operationalizations of the proposition confirmed that at higher degrees of commoditization the following statements are true: a) greater the likelihood that the types of dwellings of the households are permanent and stable (14.1), b) greater the likelihood that the dwellings of the households are in good condition (14.2), c) greater the likelihood that the dwellings of the households are serviced with electric lighting (14.3), d) greater the number of rooms in the dwellings of the households (14.4), and e) greater the number of bedrooms in the dwellings of the households of producers (14.5).

The results of the first operationalization that distinguished the dwellings by permanent, temporary, mobil, and marginal show that a reduction of the typology would improve its validity.

If the categories of capitalist producer and simple commodity producers were collapsed into their respective single production type, the typology would hold true its asymmetric and transitivity properties.

The operationalization of the proposition adequately measured a dimension of access to quality housing. However, the condition of the dwelling itself completes the characterization of the concept of the quality housing, adding a qualifier to the type of dwelling and identifying its
condition as good, regular, or bad. The results of the second operationalization of the proposition also suggest that a reduction of the categories of the typology would enhance its validity.

In order for the properties of asymmetry and transitivity of the typology to hold true, both the capitalist and peasant producers would need to be collapsed into their common producer types. The following operationalization searched to identify the dimension of services to the dwellings through the access to electric lighting as an additional indicator of the quality of housing in the Pacifico Sur Region. The findings of the third operationalization of the proposition are consistent with the two previous tests of hypotheses on access to quality housing and suggest that the typology should be reduced even further in order to improve its validity.

The rank order of the simple commodity and peasant producers was inverted, the typology to hold true its asymmetric and transitivity properties, by degrees of commoditization, would have to be collapsed into capitalist and noncapitalist producers. However, the differences in the means of the peasant and simple commodity producers are not statistically significant.

The quality of a dwelling, as a home, can best be identified by its functional allocation of space, which is
reflected in the number of rooms, especially bedrooms, it has for the disposition of household members.

The results of the fourth operationalization of the proposition again suggested that the typology would benefit in its validity by a reduction of categories.

In order to sustain the properties of asymmetry and transitivity, the typology would need to be collapsed into the three main producer types.53

Among the rooms in a dwelling, the bedrooms permit access to greater privacy and help avoid situations of promiscuity. Under the assumption that the population and the size of the households are evenly distributed, the inequality of access to bedroom facilities is a good indicator of the quality of the dwelling accommodations available to the Pacifico Sur producer households. The results of the last operationalization through the measurement of the number of bedrooms, as an indicator of quality of the dwellings, did not reveal any need to reduce the typology of six categories of producer types.

The ranks were not reversed and the properties of asymmetry and transitivity of the typology were confirmed. The last operationalization of the proposition, together with the previous tests reviewed, confirm that access to quality housing corresponds directly to degrees of commodi-
tization of the producer's household, class situation, and production system.

Clearly, inequality of access to societal resources is identified through unequal access to durable goods, as in the case of the quality of a household's dwelling. However, consumer patterns need to be identified in relation to the possession of lesser value, semi-durable goods, and household appliances. The following proposition addressed the inequality of access to societal resources, with regard to access to consumer goods of every day use, as for example, type of cooking fuel and semi-durable goods, as in the case of household appliances and entertainment equipment.

The fifteenth theoretical proposition that stated: "Higher the degrees of commoditization, higher the access to household appliances," is accepted. The tests of the operationalizations of the proposition confirmed that at higher degrees of commoditization the following statements are true: a) greater the likelihood that the producers have access to a refrigerator and/or a kitchen (15.1), b) greater the likelihood that the producers own a radio and/or a television set (15.2), and c) greater the likelihood that the cooking fuel used by the producers in clean, modern, and processed (15.3). The first operationalization through the measurement of access to household appliances, as in the case of a refrigerator and/or a kitchen produced results
that would strongly suggest that the typology would be enhanced in its validity by a reduction of its categories.

For the properties of transitivity and asymmetry to hold true, the typology would have to be collapsed into only two categories of producers, the capitalist and the rest. The fact that even in a three-category typology both simple commodity and peasant producers registered practically equal scores of access to these household appliances reveals that with respect to this consumer pattern, only the capitalist producers are significantly differentiated from the rest.54

The same pattern will be confirmed, with regard to access of entertainment equipment, as in the case of the possession of television sets and/or radios. The test of the second operationalization through the measurement of the access to communication and entertainment equipment confirmed the proposition. The results also suggest that the typology would be enhanced in its validity by a reduction of its categories.

In order for the properties of asymmetry and transitivity of the typology to hold true, both the simple commodity and peasant producers would have to be collapsed into their respective generic category.55

The purpose of the last operationalization of the proposition, which tested the access to household appliances with the indicator type of cooking fuel, is to
measure the proposition on a very common every day consumer item. The test of the hypothesis confirmed the proposition even with regard to an inexpensive, readily accessible consumer good, identifying that significant differences in patterns of consumptions differentiate the Pacifico Sur producer households by degrees of commoditization. The results again suggest that the typology would benefit in its validity properties if it was reduced in categories.

For the properties of asymmetry and that of transitivity to hold true, the typology needs to be collapsed into its three principal producer types.56

The proposition was confirmed in all three operationalization tested and through different measurement that identified access to household appliances. The distinguishing patterns of consumption, expressed by the capitalist producers, reveals their concentration of societal resources and the inequality of access to these resources, by both the simple commodity and peasant producers. The lack of intersection of the graduated parameters reviewed in the tests of this proposition explains the decrease of status diversity revealed by the reduced differences of the simple commodity and peasant producers.57 The outcome of the consolidation of graduated parameters is an increase in inequality. Following Blau's (1977, p. 124) proposition that, "The less graduated parameters intersect, the greater
Is the inequality," the subsequent proposition will test if access to health care services is also determined by degrees of commoditization and, thus, intersects or not with the indicators of inequality previously reviewed?

The sixteenth theoretical proposition that stated "Higher the degree of commoditization, higher the access to health care service," is rejected. The tests of the operationalizations of access to health care services did not confirm the proposition. Thus, the proposition did not prove to be true and it is withdrawn as a property determined by degrees of commoditization in the conditions of the Pacifico Sur Region of Costa Rica.

The analysis of these results led to the distinction that, with regard to the graduated parameter of access to health services, the inequality of the access to societal resources did not follow the same trend as with the previously identified indicators. The condition created by this parameter, instead of consolidating the graduated parameters of inequality to social resources, intersects with the previously analyzed parameters. The intersection of the parameters of access to health services led to a reduction of inequality in the Pacifico Sur Region, which is positively correlated with a status diversity increase. As a result, of the situation created by the intersecting health care parameter, structural change is also affected.
According to Blau (1977, p. 125), "Intersecting parameters promote structural change." However, the structural change promoted has not originated as a result of social mobility created by the inner workings of the system, but from effects exterior to the system of social stratification.59

In summary, I can state that the failure to confirm the proposition that access to health care services is directly related to commoditization leads me to explain this situation of intersecting parameters to an external agent, responsible of induced outside structural change in the region. The role of state intervention, through, redistribution policies, is facilitating the access to health care services by the social security system. The role of the state is clearly identified as promoting a structural change in the conditions of inequality. Berger (1986, p. 211), in reference to the changes in income and wealth inequalities, states the following proposition which identifies this positive role of the state: "...this process can be strengthened and accelerated by political interventions (notably redistributionist policies), but if these interventions exceed a certain degree (which at this time cannot be precisely specified), there will be negative consequences for economic growth and eventually for the standard of living." However, based on the conditions of the inequality revealed up to this point in the Pacifico Sur
Region, only positive consequences could be expected at this stage by an increase in state redistribution policies.60

Up to this point, the analysis of the findings has been concentrated in the review of graduated parameters of inequality. The following proposition will identify the case of a nominal parameter, that of gender. The relationship between gender and minority group status is associated with a situation of social disadvantage. According to Blau (1977, p. 124), the following outcome will be more likely as parameters consolidate: "The more consolidated group differences with correlated status differences are, the less frequent are integrative social associations among groups and state." Resulting in the minority status of the disadvantaged gender group. If these parameters intersect, the results would be the opposite.61

The test of the following proposition, confirms that the nominal parameter of gender is consolidated with the graduated parameters of inequality. The status of the Pacífico Sur female heads of household as a group, identified with the social disadvantages of access to societal resources, thus as a minority group is confirmed by the analysis of the findings of the seventeenth proposition.

The seventeenth theoretical proposition that stated: "Higher the degree of commoditization, lower the presence of female heads of households on the farms," is accepted. The
test of the operationalization of the proposition confirmed, that at higher degrees of commoditization the following statement is true: a) greater the likelihood that the head of household is male (17.1). The test of the operationalization confirmed that as degrees of commoditization increase, the likelihood of the heads of households to be males increase and that the likelihood for the heads of households to be females decrease. The results also suggest once more that the typology would enhance its validity by a reduction of its categories.

Because of the reversal of ranks of the simple commodity farmers and capitalist producers, and among the two categories of peasant producers, for the properties of asymmetry and transitivity of the typology to hold true, the typology would need to be collapsed into two principal producer types. In fact, a two category typology, according to degrees of commoditization, would distinguish the peasant producers as presenting significantly higher proportion of female and lower proportion of male heads of households in relation to both the simple commodity and capitalist producers.\textsuperscript{62}

In conclusion, it is clear that the peasant producers distinguish themselves from both types of commodity mediated reproduced types of producer households on the basis of a statistically significant higher presence of female heads of
household. The concentration of female heads of households in the lowest status type of rural producers consolidates the nominal parameter of female gender with the graduated parameters of inequality that have previously characterized the peasantry. The fact that being a member of the peasant group coincides with also being a female head of household reinforces the minority status of women. According to Blau's (1977, p. 125) proposition, the consequences of this situation affect the likelihood of intergroup mobility for this category of producers in a special way: "Consolidated nominal parameters restrict intergroup mobility." If to this situation we would add all the consequences derived from the consolidation of graduated parameters that characterize the peasantry, the result would also include a restriction in vertical mobility.63

The combination of the negative effects of consolidated nominal parameters and graduated parameters situate the condition of female heads of households in the most disadvantaged position of all groups of producers of the region. The pronounced salience achieved by the fact of being a female peasant head of household restricts both intergroup and vertical mobility. For Blau (1977, p. 44), "A parameter's pronounced salience inhibits social mobility," this fact of inhibited social mobility clearly identifies female heads of households of the peasant
category as a minority group within the Pacifico Sur Region. Additionally, because female heads of households are such a small group in this region, their minority status and isolation is increased by the intensification of the sallency of the parameter gender. Following Blau's (1977, p. 43) proposition that, "The probability is that intensified sallence of a parameter decreases the rates of intergroup associations of small groups more than those of large groups," I could infer that one of the few positive characteristics of minority status, that of being more involved in intergroup relations is additionally restricted to the female heads of households minority.64

The effect of reduced social integration by restricted intergroup relations would impact the role of female heads of household in the process of division of labor in the region. For Blau (1977, p. 214), "The division of labor depends on opportunities for communication." If women are significantly isolated, their division of labor process would tend to be characterized by a backward, simple and routinized, rather than specialized form. However, if the female producer status is additionally identified with the peasant production type, the consolidated state of graduated parameter characteristic of this producer type increases their isolation and society's integration is weakened, as concluded by Blau (1977, p. 215).
In order to assess the characteristics of the division of labor process, Durkheim's (1933, p. 262) thesis that, "The division of labor varies in direction ratio within the volume and density of societies," needs to be addressed. The following review of the findings of the test of the last proposition will identify this dimension of the division of labor process.

The eighteenth theoretical proposition that stated: "Higher the degree of commoditization, the higher the concentration of population incorporated and dependent of the farms," is accepted. The tests of the operationalizations of the proposition confirmed, that at higher degrees of commoditization the following statements are true: a) greater the number of families incorporated into the type of production system (18.1), b) greater the number of households of producers where the head of household contributes to the family income (18.4), and in a reduced typology of the two main types of production systems by degrees of commoditization, reproduction through commoditization and reproduction as resistance to commoditization, the following is true: c) greater the number of persons per family in the households of the producers (18.2), and d) greater the number of households with more children on the farms (18.3). The first operationalization of the proposition proved that
at higher degrees of commoditization, the concentration of rural producer families is higher.

For the properties of asymmetry and transitivity to hold true, the typology would have to be collapsed to the three principal types of production systems by degrees of commoditization.

The following test of the proposition reviews the relationship between higher concentrations of population and degrees of commoditization.

The second operationalization of the proposition revealed that the typology would need to be reduced considerably in order to enhance its validity. A reduction into the two categories that identify differentials in commodity mediated reproduction of relations of production, would satisfy the asymmetric and transitivity properties of the typology.65

The proposition does not only refer to the absolute concentration of population on the farms, but also qualifies the concentration of dependents as corresponding positively to degrees of commoditization. The last two tests will address this dimension, first with regard to the distribution of children and second to the presence of heads of household contributing to the family income. Both indicators identify the likelihood of greater number of dependents, young and old, in the households of producers.
The third operationalization through the measurement of the young dependents of the households revealed that the proposition holds true in a reduced typology of the two types of producers by commodity reproduction or resistance to commodity reproduction. Number of children and degrees of commoditization do not relate in linear progression. Other factors would have to be researched to integrate a model that would account for the distribution of young dependents in the household of producers, and would explain the higher concentration of such dependents in the simple commodity types of producers.

The following operationalization of the proposition refers to the dimension of concentration of older dependents in the households of producers by degrees of commoditization. The overall effect of the economic contribution of the head of household would be to impact the pool of resources of the family unit and its availability of resources to attend to the needs of older dependent members. Greater the resource disposability, greater the likelihood of support for older dependent family members.

The results of the fourth operationalization of the proposition confirmed that at higher degrees of commoditization, the number of heads of households that contribute to the family income is higher. The results of the test of the hypothesis also suggest that the typology would be enhanced
in its validity by a reduction of its categories of degrees of commoditization.

For the typology to hold true, its asymmetric and transitivity properties, the capitalist employees and capitalist entrepreneurs would have to be collapsed into one category or type, and also, both types of simple commodity producers would need to be collapsed into one simple commodity producer type.67

The proposition that higher concentration of population corresponds to higher degrees of commoditization was confirmed. However, two testings of the proposition failed to verify the same conclusion. The ecological relationship advanced by Durkheim (1933, p. 262) between population density and division of labor can apply to different production systems only in the sense that these are limited by the fixed territorial boundaries of a farm unit. The impact on the division of labor, caused by differentials of population density, are theorized to originate from the increase or decrease of opportunities for communication and distribution of tasks among the persons involved in such production systems (Blau, 1977, p. 181, T-23). The relationship between division of labor and degrees of commoditization should be studied directly. The distinguishing characteristic of degrees of commoditization on the division of labor can best be identified through the study of the
process of specializations of labor market participation of the producers involved in the different types of production systems.

In order to appreciate the effects of labor market participation, as resistance or not to commoditization, the different labor markets need to be distinguished. The following section will identify the different labor market orientation specialization of the different production systems. The section will consist of the review of the test of the three labor market participation specialization propositions.

Second Section: Division of labor through labor market specialization of the producer types

The first labor market theoretical proposition which stated: "Capitalist employees concentrate their labor force participation in the permanent, full time employment labor market," is accepted. The tests of the operationalizations of the propositions confirmed that the following statements are true with regard to the capitalist employee producer type:

a) They present a significantly higher observed frequency of employment in the permanent labor market than they do in the seasonal or occasional labor markets (19.1).
b) Among all types of producers they present the highest significant participation of employment in the permanent labor market (19.3).

c) Among all types of producers, they present the highest significant participation of employment in the permanent labor market characterized by the urban non-agricultural labor market (19.4).

d) They worked a significantly higher number of hours during the previous week of interview than both the simple commodity and peasant producers (19.5).

e) Among all other types of producers, they have the highest number of households with at least one member employed in the nonlaborer, other types of employment’s labor market (19.6).

f) Among all other types of producers, they have the highest number of households without any member working as laborers (19.7).

g) Among all other types of producers, they have the highest significant number of households with at least one member employed in the nonlaborer labor market (19.8).

In conclusion, it is evident that the capitalist producer types that participate in off-farm work are involved in the most advanced forms of division of labor in comparison to the other agrarian producer types of this region in Costa Rica.
It is important to state that the specialization of the capitalist producers that participate in off-farm work into the permanent, full time labor market has been clearly established. The division of labor in the Pacífico Sur Region could be confirmed to assign to the capitalist producers a specialization in the most productive and highly skilled labor market, identified by their permanent full time occupations. The division of labor process affecting the capitalist producers can be characterized as of the specialization form rather than of the routinization form. The implications of the capitalist producer type, specializing in the permanent full time labor market, can be evaluated by its effects on the Pacífico Sur social formation's integration. In fact, because the capitalist producer, as previously identified, consolidated to their benefit the highest ranks in access to societal resources, the added consolidation of the advantages of the division of labor would tend to decrease the likelihood of social associations among the different strata of producers and classes of the Pacífico Sur Region. Following Blau's (1977, p. 215) proposition, the effects may be as stated: "The more the society's division of labor is consolidated with graduated parameters, the greater is the probability that infrequent social associations among strata weaken society's integration."
The weakening of society's integration, or a relative lack of society's integration, is a feature of the effects on a peripheric social formation of the law of uneven and combined development. The state of backwardness or under-development of the Pacifico Sur Region of Costa Rica will be affected in the future by the tendencies that produce an improvement in its societal integration or by those increasing its levels of disintegration.

The second theoretical labor market proposition which stated "Simple commodity farm workers concentrate their labor force participation in the journeyman, occasional, day-to-day employment labor market," is accepted. The tests of the operationalizations of the proposition confirmed that the following statements are true with regard to the simple commodity farm worker type:

a) In relation to all the labor markets, they presented among all types of producers a significantly higher observed frequency of employment in the occasional labor market (20.1).

b) Among all types of producers, they presented the highest significant participation of employment in the occasional labor market (20.2).

c) They have more family members employed in the occasional labor market than each of the other types of producers (20.3).
d) Higher the degree of commoditization, smaller the number of family members of producer households that participate in the occasional labor market (20.4).

e) They presented a significantly higher number of households with at least one family member participating in the occasional labor market in contrast to the capitalist employee type (20.5).

f) Among all other types of producers, they have the highest significant number of households with at least one family member working in the occasional labor market (20.6).

The evaluation of the test of the proposition, with regard to the specification of the typology, indicates that a reduction of the categories of degrees of commoditization would enhance its validity.

The results indicate that even if the linear component of the relationship was confirmed as significant, the rank order did not correspond to the hypothesized sequence. In order for the typology to hold true it asymmetric and transitivity properties, both the simple commodity farm workers and semi-proletarian peasant categories would have to be collapsed into one production type.

The journeyman laborer performs a job that is less specialized than the high skilled full time occupations. However, the journeyman retains a level of expertise in his/her occupation that is less routinized than the collec-
tive and simplified job requirements of seasonal harvest work performed in the plantations for a few months a year. The division of labor process affecting the simple commodity farm worker situates this producer type in the middle of the spectrum of the two forms by specialization or routinization. The occasional labor market is an agricultural avenue of proletarianization because it can facilitate the transformation of the simple commodity producer into the ranks of the rural wage earning working class that has achieved the skill levels for full time employment.

The third theoretical labor market proposition which has stated that, "Semi-proletarian peasants concentrate their labor force participation in the seasonal employment labor market," is accepted. The tests of the operationalization of the proposition confirmed that, with regard to the semi-proletarian peasant type, the following statements are true:

a) They have more households with a higher number of family members employed in the seasonal labor market in comparison to both the capitalist employee type and the simple commodity farm worker type (21.2).

b) They have more households with at least one family member employed in the seasonal labor market than the producers of the capitalist employee type or the simple commodity farm worker type (21.3).
d) Higher the degree of commoditization, smaller the number of family members of producer households that participate in the occasional labor market (20.4).

e) They presented a significantly higher number of households with at least one family member participating in the occasional labor market in contrast to the capitalist employee type (20.5).

f) Among all other types of producers, they have the highest significant number of households with at least one family member working in the occasional labor market (20.6).

The evaluation of the test of the proposition, with regard to the specification of the typology, indicates that a reduction of the categories of degrees of commoditization would enhance its validity.

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The journeyman laborer performs a job that is less specialized than the high skilled full time occupations. However, the journeyman retains a level of expertise in his/her occupation that is less routinized than the collec-
systems and in the other a semi-skilled or unskilled subdivision of repetitive, routinized, and simplified work process of seasonal harvesting has taken place.  

Blau (1977, p. 188) explains these two forms writing:
"If tasks vary among persons but each repeats the same over time, the division of labor is in the form of routinization, if tasks vary both among persons and over time, the division of labor is in the form of specialized expertness...." Each type of division of labor will have differential consequences on the producers that specialize in either of the occupations.

The consequences for the semi-proletarian peasants that participate in off-farm work and thus specialize in seasonal employment are an increase in their status of inequality. For Blau (1977, p. 188), "This implies that the routinized form of the division of labor tends to be accompanied by great differences in training and skills, and quite likely also in income and authority, between a small staff of technical and administrative experts and a large complement of mostly unskilled and semiskilled workers. Specialization in seasonal employment identifies the status of the peasant producer in a subproletarian condition only trained for routinized seasonal plantation jobs and not qualified for full rural proletarianization as an agrarian wage earner. Based on these assumptions is that rural labor market
participation as proletarianization has been reserved to qualify only the off-farm work specialization of the simple commodity producer type.

In conclusion, the findings of the three labor market participation propositions show that the typology, by degrees of commoditization which assumed that all off-farm work contributes to added resistance to commoditization, needs to be revised.

The general assumption that the labor market participation implies reproduction as resistance to commoditization does not hold true because the effects of each labor market specialization are different. The previous three propositions confirmed that each producer type specializes in the participation to a different labor market. The division of labor form of specialization that is associated with the capitalist producers' labor force participation suggests that the permanent labor market is characterized by non-laborers and thus above proletarian status. The division of labor form of routinization is associated fully with the characteristics of the seasonal labor process of the peasant and thus below proletarian status. In the context of the present dissertation research effort, only the model that predicts the simple commodity producers labor force participation was developed. The concept of proletarianization has been defined as the process of joining the labor force that
affects the simple commodity producers exclusively. The following review and discussion of the findings will center in the test of the propositions on the proletarianization of the simple commodity farm worker.

**Third Section: The theoretical proposition predicting proletarianization of the simple commodity producer**

The first theoretical proletarianization proposition which stated that "The simple commodity farm worker is the only agrarian producer whose participation in the labor force can be predicted on its chances or odds of proletarianization," is accepted. The tests of the operationalizations of the proposition confirmed that the concept of proletarianization can be characterized by the following statements that are true with regard to the labor force participation of the transitional class situation of the simple commodity producer type:

a) The log of the odds of a simple commodity head of household of joining the labor force is directly related to the level of education, inversely related to the amount of land, inversely related to the level of technology and directly related to the level of the dependency ratio of the household (22.1).

b) The log of the odds of a capitalist head of household and the log of the odds of a peasant head of household of joining the labor force are not predicted by the model.
that predicts the proletarianization of the simple commodity head of household. The model was presented in the previous statement (22.1 and 22.2).

c) The simple commodity farm worker presents a significantly higher participation in the labor market of laborers in comparison to both the capitalist employee type and the semi-proletarian peasant type (22.3).

d) The simple commodity farm workers households present the highest participation of its heads of households in increasing number of labor markets in comparison to both, the households of the capitalist employee type and the semi-proletarian peasant type (22.4).

The transitional class situation of the simple commodity producer through labor market participation is characterized as proletarianization. The characteristics of proletarianization are distinguished from both the division of labor form of specialization and by routinization. Proletarianization, first of all, is not defined as a permanent form of labor force participation which distinguishes the off-farm work orientation of the capitalist employees. The nature of the division of labor of the simple commodity producer is occasional employment. The journeyman, day-to-day, part-time occupation of a simple commodity farm worker is defined by a simultaneous dedication to productive tasks in her/his own farm and in off-farm
work as a laborer of the rural labor markets. The factors that push her/him toward off-farm employment in contrast with other simple commodity producers that do not work off the farm are the availability of land and the technological level of farm mechanization. Simple commodity heads of households with less land and lower technological levels in farm productive power would be predicted to seek employment off the farm. The added pressure to proletarianize will also come from and increase in the dependency ratio of her/his household. Under the three previously indicated factors, off-farm occasional employment suggests an alternative to compensate household consumption needs through extra income from rural employment. The pull factor, however, is level of education, the semi-skilled occasional labor market requires higher levels of education than the average of the simple-commodity producer. At higher levels of education, the likelihood that off-farm employment becomes an attractive alternative increases. Level of education also distinguishes the labor force participation of the simple-commodity producer from the peasant producers off-farm work specialization. The higher educational level which predicts greater likelihood for a simple commodity producer to participate in off-farm work, distinguishes the characteristics between the occasional and seasonal labor markets. The occasional labor market becomes the avenue of the
transformation of a simple-commodity producers into the rural wage earners status because it is representative of a wide field of job markets for rural laborers. The fact that the simple commodity farm workers heads of households participate in an increasing number of labor markets is an indicator of their level of skills and access to the variety of occupations of the rural proletariat.

Simple commodity producers compelled by smaller size farms, lower levels of technology, and a higher dependency ratio in their households, are predicted to have a greater chance of proletarianizing, when their higher educational achievements qualifies them for occasional rural employment. The decomposition of the social class situation of simple commodity farmers into the class of the rural proletariat resembles the characteristics of the division of labor by craft. According to Blau (1977, p. 187), "If tasks do not vary among persons but are variable over time, all persons perform the same diverse work, as illustrated by a crew of skilled workers in the same craft." The occasional, part-time, journeyman characteristics of the labor force specialization of the simple commodity producer type indicate that the over time the variable or diverse work tasks dimension is pertinent to the notion of proletarianization. Situating the proletarianization form of division of labor between routinization and the form by specialization previously
Identified. However, further research would be needed to qualify if this process of class situation transformation by proletarianization is characterized as resistance or not to commoditization. Future studies would need to contrast the commoditization levels of simple commodity farmers with full-scale recomposed rural proletariats without land of their own. The differential access to life chances defined by market mediate reproduction of relations of production of either family farming or of wage labor would need to be investigated.

In conclusion, it can be stated that level of education is the distinguishing factor between the simple commodity and peasant producers labor force participation. The simple commodity producer has increased chances or odds of joining the labor force as education increases. In contrast, the peasant head of households chances or odds of joining the off-farm labor force decrease as their educational level increases. However, further research should be undertaken to identify a theoretical model that would adequately represent the factors that predict the labor force participation of both the capitalist and peasant producers.

The final discussion will center on the results of the proletarianization propositions included in the model that predicts the chances or odds of proletarianization of the simple commodity agrarian producer.
The second theoretical proletarianization proposition that stated "Lower the amount of landed property disposable, higher the chances or odds of proletarianization," is accepted. The test of the operationalization of the proposition by the model that predicted the log of the odds of the simple commodity producer head of household of joining the labor force confirmed that the following statement is true: The log odds of a simple commodity producer head of household of joining the labor force is inversely related to the number of manzanas (1MANZANA = 1.7270 ACRES) of land under her/his possession (23.1). Access to the productive resource land is a determining factor in predicting the changes of the head of household to join the off-farm work force. The simple commodity agrarian productive system counts on family labor and produces both for household consumption and for the market. The limitation of landed property increases the incentives to complement the consumption and income needs through labor market participation. The reproduction of the simple commodity family agrarian production system relations of production through the mediation of the market of agricultural goods require an adequate amount of landed property. A reduction of the amount of farmland for production is an obstacle for the reproduction of the simple commodity relations of production. The transformation of simple commodity rela-
tions of production is achieved by the combined and uneven development of proletarian relations of production derived from wage labor.

However, access to the occasional, day-to-day labor market is conditioned on the skill development of the craft qualifications of the occupations of rural laborers. The restriction of access to land, if combined with other factors as level of education, increase the odds of the proletarianization alternative.

The third theoretical proletarianization proposition that states "Higher the level of education achieved, higher the chances or odds of proletarianization," is accepted. The test of the operationalization of the proposition confirmed that the following statement is true: The log odds of a simple commodity producer head of household of joining the labor force is directly related to the number of years of education achieved (14.1).

The opportunities for employment of the simple commodity farmer increase as their level of education increases, thus the chances of employment are higher. The qualifications and skill requirement of the simple commodity farm worker in the occasional labor market are diverse, because the occupations in the craft are varied. The likelihood of employment increases in a temporary base because higher education can reflect in being able to
qualify for a greater variety of different jobs available in different time periods. The occasional nature of the employment possibilities of an agrarian producer that engages in year round activity of their own, is limited to part-time, day-to-day different types of employment, in different tasks. Being qualified in a greater range of tasks within the craft is an added advantage for finding work when work becomes available. However, a highly qualified and educated producer would have the advantage to apply this knowledge in her/his own agrarian production system, through the application of greater and more productive technological innovations. The limiting factor for this alternative is the access to an adequate amount of capital resource. The organic composition of capital available in the farms is expressed by the amount of fixed capital invested in productive technology. When the level of technological mechanization or level of mechanization of production is low, the producer with the know-how and high level of education would have no other alternative than to sell her/his labor in the labor markets in order to maximize her/his advantage.

The fourth theoretical proletarianization proposition that stated, "Lower the degree of the organic composition of capital, higher the chances or odds of proletarianization," is accepted. The test of the operationalization of
the proposition confirmed that the following statement is true: The log odds of a simple commodity producer head of household of joining the labor force is inversely related to the level of technological mechanization achieved on the farm (25.1). As the access to mechanization, farm equipment, and animal power diminishes, the reliance on human muscular power increases in the simple commodity agrarian production system.

Lower levels of technological mechanization of farm production increases the demand of household and family members physical power. The alternative between income possibilities being provided by the selling of agricultural goods, generated by the low productivity of manual labor efforts and the income from wages provided by employers that produce at higher technological and mechanized levels, favors greater renumeration from off-farm work. Under conditions of low productivity of family production, the market regulated prices would undermine the incentives not to participate in off-farm work and exclusively produce within the farm. Occasional employment, as a complementary means to meet the family farm household needs, does not necessarily signify only consumption requirements. The transformation process of the proletarianization of simple commodity producers would need to be further studied to determine whether or not it is also a source of capitaliza-
tion for the farm unit. The research has established that at lower levels of technological mechanization, and thus, organic composition of capital, the chances of joining the labor force increase. However, the direction of the transformation is not established. The outcome of this process could either be for some producers, full-scale change of the class situation into rural workers without land, or for others, a process of capitalizing through savings of the off-farm wages and investing these earnings in the farms as to increase the fixed capital and mechanization base of production. In the case of the middle level producer, the simple commodity farmer, labor force participation can produce both types of results. A longitudinal study would need to be undertaken to determine the outcome of different alternatives to the process of proletarianization of the simple commodity producer.

The three factors, access to land, level of education, and level of mechanization are the only significant contributors to the prediction of the chances or odds for a simple commodity producer of joining the labor force. The dependency ratio of the producers household, included in the model and that constituted the fifth proletarianization proposition, was not confirmed. A reformulation of the model would not include this independent variable as a predictor of labor force participation of the simple commodity producer.
The propositions, with regard to the explanation of the relationships between the independent variable of the model were withdrawn, based on the state of multicollinearity among these variables.

Conclusion

**Theoretical conclusions on the properties of typology by degrees of commoditization**

**First** A typology of agrarian production systems by relations of reproduction of relations of production in a capitalist social formation is identified by market or commodity mediated reproduction expressed by degrees of commoditization. Reproduction by commoditization or resistance to commoditization has distinguished different types of agrarian production systems and social class situation of rural producers with regard to their access to societal resources and their life chances.

**Second** Off-farm work employment cannot be generalized to imply reproduction as added resistance to commoditization. The distinction of each producer type that participates in the labor markets as being affected by a transformation of their social class situation characterized by a lower degree of commoditization than their counterparts that do not participate in the labor markets selling their labor cannot be sustained. Each production system will be
affected by off-farm work employment differently depending on the type of labor market in which they specialize.

The typology of six producer types was confirmed to distinguish the producers of the Pacifico Sur Region of Costa Rica in 17 of the 18 theoretical propositions tested. However, a variety of different combinations of significantly differentiated groupings of producer types were obtained through the application of the Duncan test. Based on the theoretical assumptions that have guided the conceptualization of the typology, I suggest the typology should be reduced to its three main types of producer categories. The asymmetrical and transitivity properties were proven to hold true in the great many cases where the Duncan test was applied to the reduced typology of three categories, as it was reported in the endnotes. The reduced typology of only three producer types would include the following categories:

a) the capitalist producer type, reproduced through relations of full commoditization, identified by the highest degree of commoditization of the typology,

b) the simple commodity producer type, reproduced through relations of partial commoditization, identified by the median degree of commoditization of the typology, and

c) the peasant producer type, reproduced through relations of resistance to commoditization, identified by the lowest degree of commoditization of the typology.
Theoretical conclusions on the labor market specialization of the agrarian producer types

First The capitalist producer that participates in off-farm work specialize in the full time permanent labor market. The capitalist employed in off-farm work presented a higher rank than the capitalist producers that do not work outside of their farms, in the following properties: capitalist employees concentrate more landed property, present a higher organic composition of capital and technological mechanization of their production processes of their farms. The capitalist employees have a greater number of heads of cattle, chickens, ducks, and turkeys on their farms. Also, the capitalist employee benefitted in a larger proportion of credit, and considered their loans to be enough to satisfy their purposes above all other types of producers. The capitalist employees concentrated the highest proportion of producers with bank account for both checking and savings. The capitalist employees registered the highest number of hours worked the week before the interview and presented the highest level of adoption of technological practices in their agricultural production. The capitalist employed in off-farm work presented the highest level of social organization, participating of more knowledge and membership in groups than any other producer group. The capitalist employees read more types of printed media and in greater proportion than any other group. The
type and state of the housing conditions of the capitalist employees are the best quality housing conditions of any producer type. The capitalist employees dispose of refrigerator and kitchen in greater proportions than any other producer type and they cook with most modern cooking fuel in relation to all other types of producers. The capitalist employees presented the highest proportion of head of households that contribute to the family income. The division of labor process affecting the capitalist employee will be defined as of the form by specialization.

Based on the distinguishing characteristics of the capitalist producers that participate in off-farm work, in relation to the capitalist producers that do not work outside of the farm, I would conclude that off-farm work participation cannot be conceptualized as reproduction through relations of added resistance to commoditization. However, further analysis and research is required in order to assess if off-farm work employment in the exclusive permanent labor market can identify reproduction through relations of higher levels of commoditization of the capitalist producer type.

Second The simple commodity producers that participate in off-farm work specialize in the occasional, day-to-day journeyman labor market. The simple commodity farm workers, employed in off-farm work, presented a lower
rank than the simple commodity producers that did not work off the farm in the following properties: Simple commodity farm workers presented a smaller concentration of landed property, lower level of organic composition of capital and technological mechanization of their production processes of their farms. They specialized in a smaller proportion in export crops, and their crops were considered to be less safe than those of the simple commodity producer that did not work off the farm. The simple commodity farm workers had fewer cattle, chickens, ducks, turkeys, and horses on their farms. They received less technical assistance, by benefiting from less technical assistance visits and were less able to apply the technical assistance advice received, than the other simple commodity producers. However, they did benefit more than the simple commodity producer that did not work outside their farms, with regard to credits, and they did participate more in the financial institutions. They worked more than their counterparts in the week before the interview and did apply fertilizer more frequently than the nonworking simple commodity producers. The overall index of adoption of technological innovations in agricultural production identified that the simple commodity farm workers presented a higher rank in relation to their counterparts that did not work off the farm. Also, the overall index of participation in social organizations
showed them in a higher rank than the simple commodity producers that did not work.

The simple commodity farm workers presented a lower rank in all the educational indicators and in the number of rooms and bedrooms of their homes. They also scored a lower rank with regard to ownership of refrigerators, kitchens, radios, and television sets in relation to the nonworking, simple commodity producers. The simple commodity farm workers concentrated less number of families in their producer type, less heads of households that contributed to the family income, and less stable residence pattern than their counterparts that did not work off the farm. However, they also registered less male heads of households and more modern cooking fuel use than their counterparts. The simple commodity farm workers presented better lighting facilities in their homes, and better knowledge of the existing groups in their communities. The division of labor process affecting the simple commodity farm worker will be defined as of the form by craft, both variable and repetitive.

Based on the mixed results that characterize the simple commodity producer that participated in off-farm work, it was not possible to determine one way or another if their reproduction through labor market participation could be conceptualized as added resistance or not to commoditization. Further analysis and research would be required in
the future, in order to determine if exclusive participation in the occasional labor market is either conclusive to reproduction of the class situation through relations of added resistance to commoditization or not.

Third. The peasant producers that participated in off-farm work, specializes in the seasonal labor market. The semi-proletarian peasant employed in off-farm work presented a lower rank in relation to the peasant producers that did not participate in off-farm work in the following properties: The semi-proletarian peasants concentrated less landed property, have a lower organic composition of capital and technological mechanization of their farm productive processes. They do not over rank their peasants counterparts in export crop specialization. The semi-proletarian peasant presented the smallest number of heads of cattle, fewer chickens, ducks, turkeys, and horses on their farms. The semi-proletarian peasant received less technical assistance than any other producer type and their loans were less favorable and less timely. The access to savings account in banks is the lowest among all producer types. Their use of fertilizer as a technological innovative in their production practices is the lowest in comparison to all the other producer types. The semi-proletarian peasant has the lowest membership in community groups and is the producer type with less number of years of residence in
their communities. The semi-proletarian peasant registered the lowest literacy rate, and their heads of households presented the lowest level of number of years of formal education. The quality and type of housing of the semi-proletarian peasants is the lowest and they present the lowest number of bedrooms per home in contrast to all other producer types.

However, the semi-proletarian peasants, because of their marginal insertion into the money economy, outranked the peasant farmers who did not work outside their farms with regard to consumer goods and participation into the wider society. Their crops were considered more secure, they had greater access to credit and disposed of more bank checking and cooperative savings accounts. They worked a greater number of hours the previous to the interview and adopted many more technological innovations into their farm production practices in relation to the peasants that did not work off the farm. They had a greater knowledge of the existing groups in their communities and read more and diverse types of printed media than their nonworking counterparts. The semi-proletarian peasants presented a higher rank in having had some type of formal education and their lighting facilities were better, in relation to the peasant farmers that did not work off the farm. The semi-proletarian peasants had greater access to refrigerators,
kitchens, televisions, and radios, and use in greater proportion modern cooking fuel. The semi-proletarian peasants have a greater proportion of male heads of households, and concentrate more families in their production systems, in relations to the peasant farmers that do not work off the farm. The division of labor process affecting the semi-proletarian peasants will be defined as the form by routinization.

Based on the mixed results that characterize the semi-proletarian peasants that participate in off farm work, I can conclude that the lumpen proletarianization standards of this type suggests that reproduction through relations of off-farm employment contribute to added resistance to commoditization, with regard to the long term structural determinants. However, because of the access to a source of monetary income, the short term indicators of standard of living score higher for the peasants that participate in off-farm work. However, in order to determine if exclusive seasonal labor force participation is clearly reproduction through relations of added resistance to commoditization, further research should be undertaken.

Theoretical conclusions on the proletarianization of the simple commodity producer type

First, The odds or chances of the simple commodity head of households participation in the off-farm labor
markets can be predicted to increase when access to landed property decreases, years of formal education increases, and the levels of technological mechanization of farm production decrease.

Second Proletarianization is the process that characterizes the labor force participation of the simple commodity producer in off-farm employment. Proletarianization is distinguished by the specialization in the occasional labor market, combined with high participation in the other rural laborer job markets. The occasional labor market specialization dimension accounts for the repetitive character of the division of labor process and the variability of tasks accounts for the variable dimension. The simple commodity farm worker is proletarianized because she/he has achieved the qualifications of the craft of the rural proletariat or rural wage laborer, and thus can compete in the labor market of the rural proletariat.

Methodological conclusions

First The reduction of the typology of agrarian production systems of the Pacífico Sur Region of Costa Rica would enhance the validity of the typology, with regard to the adequate representation of the categories of producers, according to degrees of commodity reproduction.

Second The content validity of the typology would be enhanced by a reduction. The typology is a multi-
dimensional and continuous classification system of the producer types. Collapsing the typology into three main types of producer (capitalist, simple commodity and peasants) without distinction of their off-farm work participation was proven to uphold the asymmetric and transitivity properties of the typology. The reduction would increase the accuracy of the typology in measuring what it is supposed to measure, that is: distinct producer types and social class situations according to degrees of commoditization or commodity mediated relations of reproduction. The rank order in a collapsed typology would correspond to the theoretical content of the concepts defining the three main production systems investigated.

Third The criterion related validity of the typology would also be enhanced in a collapsed three category typology. In 17 of 18 propositions tested through multiple operationalizations, degrees of commoditization measured in the collapsed typology proved to be in correspondence to the hypothesized properties. In a typology identifying capitalist, simple commodity and peasant production systems, the correspondence of the actual relationships to the hypothesized relationships was increased. The criterion validity of the typology is increased in a reduced typology of the three main producer
types in comparison to the typology of the six categories originally conceptualized.

**Fourth** The construct validity of the typology would be enhanced in a reduced typology of the three main producer types. The theoretical framework, that has guided this research, conceptualized social class situations of rural producers and agrarian production systems in a social formation distinguishing three types. The theory identified that market mediated reproduction of the relations of production recreates the social class situations and production systems of capitalist, simple commodity and peasant producers. A reduced typology, that clarifies these three exclusive types of commodity, mediated reproduction of capitalist, simple commodity, and peasant relations of production, is much more consistent with the theoretical framework. A collapsed typology would better represent the concepts of the theory of social class situations and production systems in a rural social formation. As expected, the reduction of the typology enhanced the correspondence of the scale to the set of concepts that represent the theory. The hypothesized properties of these three production systems were tested and confirmed to correspond to the theoretical propositions in 17 of 18 dimensions studied. The theory of the transformation process of social class situations by participation in the
off-farm labor markets needs to be further developed before it can be adequately integrated into a coherent multidimensional classification model. The construction validity of a three category typology would be in more accurate correspondence with the body of tested theory on the conceptualization of rural social classes of producers.

Fifth The reliability of the typology, by degrees of commoditization, was proven true. The linkage of the abstract concepts, represented in the conceptualization of the producer types by degrees of commoditization and the theoretical propositions advanced as properties of these production systems, were empirically confirmed. In 55 operationalizations of the theoretical propositions, the hypothesized properties were successfully tested. In each case the hypothesized relationship were repeatedly confirmed. The same results time after time, through different measurements procedures, identified that the distribution of properties corresponded to degrees of commoditization. In all the tests, with the exception of access to health care services, the results agreed closely that the unequal distribution of the characteristics identified through the indicators corresponded to degrees of commodity reproduction of the relations of production or degrees of commoditization of the producer types. The concept degrees of commoditization was proven reliable by the measurement of the
properties that were tested through this very diverse set of multiple indicators. A reduction of the typology into the three main producer types would only enhance the reliability of the typology.

**Sixth** The operationalization of the theoretical proposition was limited by the uneven quality of the data set. The sixth proposition that stated: "Higher the degree of commoditization, greater the production of the farms should have also been treated with regard to crop production. However, the accuracy of the agricultural production data was affected by missing values, diverse measurement units and uneven knowledge among the producers to adequately determine their own volume of production. Also, the money value of the harvest was not included in the survey for fear that the producers would be reluctant to release such information to enumerators representing an official government agency. In the future, the measurement of crop production should be undertaken through indirect means. The average productivity per crop can be determined and then inferred by the exact measurement of the total land use dedicated for each crop or agricultural product. The local, national, and international prices of crops could be used to determine the total money value of the farm agricultural production, once the total farm production is estimated. In conclusion, such a procedure would improve the test of the sixth proposition and make it extensive to crop production.
S Seventh. Another source of problems of operationalization of the proposition can be illustrated by proposition fourteen. The proposition stated that: "Higher the degree of commoditization, higher the access to quality housing." The measurement of the concept of quality housing was performed through the number of rooms and number of bedrooms in the houses of the producers. A better indicator of quality housing would have been the ratio of people per room or bedrooms in the house. However, the assumption that the population distribution also varies reduced the usefulness of the indicator as a measurement of uneven access to wealth and quality housing.

The operationalization of proposition eighteenth did not confirm that the number of people concentrated in each production type follows a linear distribution corresponding directly to degree of commoditization. Under these conditions, the indicator of persons per bedrooms would be appropriate to measure more accurately access to quality housing. Indeed, the test of the operationalization by the hypothesis that there is an inverse relationship between degrees of commoditization and number of persons per bedrooms of the households of producers was confirmed. The results of the test of linearity of the improved operationalization suggest that a new hypothesis should be introduced which could be stated as follows: "Higher the degree of
commoditization, lower the mean number of persons per bedrooms in the household of producers."

In conclusion, I can state that as in the previous case the operationalization of the propositions are opened for improvement and the analysis of the results can lead to further refinement of the indicators used to test the theoretical proposition. The cross analysis of the results of the initial set of hypotheses is necessary in further studies to generate improved hypotheses and indicators that would enhance the proxy between the theoretical relationships conceptualized and their test and measurements.

**Eighth** Future studies may improve the scope of the findings by testing new propositions that were not proposed in this research. The limitations of the data set put restrictions on the number of dimensions that this research studied. In future studies of agrarian production system by degree of commoditization, I would recommend adding two new propositions to be measured and tested. First, the study of actual productivity levels, both by production per unit of land under cultivation and per unit of manpower utilized, should be undertaken. Even if production volume corresponds to degree of commoditization, it is not certain that actual intensity and efficiency of the acre of land and labor power in production would also necessarily correspond to degrees of commoditization. Also, productivity per cost of inputs should be evaluated in order to determine which production
system is indeed the most productive and efficient. The complications that entail the study of this dimension should take into account the quality of the farming soil and other natural conditions that normally are not equally distributed among the different types of producers. Access to markets, transportation, infrastructure and availability of services for production are also a factor in differentials of productivity. Production factors, which over time, have been concentrated in the hands of the higher status producers. Second, the study of net income should be undertaken directly with the effort to measure wages, income from produce sales and income from other services. The indirect measurements of income cannot substitute the accuracy of the estimation of both monetary and nonmonetary income of the producers. The degree of difficulty of obtaining accurate information on income is very high, however, the efforts for the study of the income of producers are worthwhile. The correspondence of real income by degrees of commoditization implies that nonmonetary income for producers that have little or marginal market mediate reproduction exceeds the monetary component. The measurement of the different forms of income and their relationships would help explain the assumed process of added resistance to commoditization in the labor force participation of peasants. Also, the estimation of the proportion of wage income to the overall farm income of
capitalist producers would contribute to explain the apparent higher status enjoyed by these producers in contrast to the capitalist producers that do not participate in off-farm work. In conclusion, the study of the income source of rural producers should be undertaken in future research that searches to replicate the application of the typology of agrarian production systems.

**Applied conclusions**

**First** The typology of agrarian production systems by relation of reproduction effectively identified the three main classes of producers of the Pacifico Sur rural social formation of Costa Rica. The typology was also able to account for the three transitional class situation affected by the transformation effects of labor market participation of the producers. In future studies which could include added dimensions and properties of these producers the same typology, preferably under its reduced version can be used again.

**Second** The generalization capability of the typology is facilitated by the characteristics of its definitional empirical variables. The typology identifies the different degrees of market mediate reproduction of relations of production through the following observable factual conditions of the producers: a) the contracting or not of labor power for farm production and b) the sale or not of farm production to the markets of
agricultural goods. The nature of these classification properties is such that they can be applied in different cultural settings. A simple classification system that can distinguish the degrees of commodity reproduction of agrarian producers is of wide potential for adoption in different Third World societies.

The use of the same typology is advantageous for cross-cultural studies because it increases the homogeneity of the data and the measurement instrument used. The comparison of the structural conditions affecting the producer types in different Third World social formations would be facilitated by the use of a common typology. The application of a typology that measures the composition and distribution of producers according to degrees of commoditization would reveal as an indicator the different levels of penetration of capitalist relations of production in Third World agrarian social formations. In addition, longitudinal studies would be able to monitor, over time, the patterns of diffusion of the capitalist relations of production within the same agrarian structure and among different dependent social formations.

Third Among the applied policy implications of being able to depose of a simple and common classification instrument are the following:
a) enable policy makers to monitor the effects of rural
development policies as it affects distinctively
each agrarian production type.
b) enable policy planners to design specific programs
that address the particular development constraints
and needs of each agrarian production system.
c) enable extension professionals to adapt projects
according to the regional and local area composition
and distribution of the agrarian production systems
present.
d) enable observers and the public to evaluate the real
social and economic goals of each country's
development policy. The identification of the true
beneficiaries of agrarian development policies would
be facilitated.

Fourth The labor market specialization of each
producer type introduces the need to distinguish the
possible uneven and combined effects of rural development
policies and programs. The theoretical and practical
implications of the development of the rural capitalist
production system needs to be addressed. If the extension
of the capitalist producer type requires the added input of
off-farm hired labor power, where do these workers come
from? The great majority of the rural reserved army of
laborers come from the peasant and simple commodity produc-
tion sectors that are priced to transform themselves into
seasonal and occasional wage laborers. However, if the labor market participation of the peasant and simple commodity producers corresponds to a decrease in their standard of living, is this not a very high price to pay for the expansion of the capitalist farm? In my opinion, rural policy makers need to evaluate the alternatives that can reduce the conflicting demands of the development of these production systems and maximize their mutual benefits.

Fifth The increase of farm production for the market and agricultural productivity can also be achieved through the transformation of the peasant into a simple commodity producer. The major constraint of the peasant farmer is the limited access to land at their disposal. The peasants that participate in off-farm work depose of less land than the peasants that do not work. The peasants that farm enough land to meet the household consumption needs do not participate in off-farm work. If peasants that have been able to satisfy their subsistence needs could depose of additional units of land, could this not lead to the production of a surplus that could be cooperatively commercialized? The transformation of peasants into simple commodity producers could increase the overall farm production for markets.

The same would apply for the semi-proletarian peasants. Instead of incorporating the undervalued peasant labor force for seasonal off-farm work in capitalist plantations, the
alternative could be considered. The wealth generated by the peasant farmers with access to more land could generate greater overall output and eliminate the social distortions originated from seasonal migrations. The applied policy considerations raised need further study, however, they also require the clarification of the options and values that guide the development strategies. It is important to question the explicit objectives of development policies and to clarify the intentions of such policies with regard to their true beneficiaries.

Sixth Alternatives to the proletarianization of the simple commodity producer that specializes in the occasional labor market should also be considered. The applied implications of the transformation of the simple commodity producer that works off the farm derives from the fact that their higher levels of education and skill development facilitates their labor force participation. However, the highly qualified simple commodity farmers that work off the farms present the lowest technological levels of mechanization applied to their own production. The contradiction centers in the fact that these highly educated producers present lower technological mechanization levels of production then their less educated counterparts that do not work off the farm for wages. The odds or chances that predict the proletarianization of the simple commodity producer increase as their level of education increases and
their level of technology decreases. Level of technology and education seem to affect these producers as push and pull factors that increase their chances of transformation into part-time rural laborers. If the conditions could change in order to allow these producers to use their knowledge and skills in the task of increasing the technological mechanization levels of their own production, would the outcome be preferable than its alternative? Would the overall production of farm goods for the market be greater by the increase of the productivity of the simple commodity farms in contrast to the added production generated on the capitalist farms that occasionally hire their labor force? The fact that the simple commodity farm worker presented the highest adoption of technological innovation of production practices in use of fertilizer, herbicides, insecticides, and improved seeds, is evidence enough that, given the access to capital, they would also invest in farm equipment and mechanize. The answer to these questions justify the further study and reevaluation of this issue.

In my opinion, it would be preferable to encourage and facilitate the higher qualified simple commodity producers to become full fledged family farmers producing full time for the market than the present alternative. I consider it necessary to reevaluate the present situation and change the conditions that force these producers to sell their labor power because of limited access to land. Instead, simple
commodity producers with higher education and skills should be prime candidates to become beneficiaries of loans that would provide the investment capital to help them become innovators and adopters of new farm technologies and perceive credits for land purchases. Specific programs should be directed to facilitate the resources, the land and the technical assistance to these producers in order to raise their farm productivity and their level of life as an alternative to proletarianization.

Seventh The capitalist sector of the agrarian structure should be encouraged to develop without detriment to the other production systems. The indirect labor cost subsidies that the capitalist farm receives from the peasant and simple commodity producers should be eliminated. The capitalist rural enterprises should only be allowed to hire labor power in fair competition with the urban capitalist productive sectors recruiting from both the rural and urban labor class. The policy of eliminating the labor cost subsidies to the capitalist rural producers will free land by the collapse of the unproductive plantations and will improve the standard of life of the landless rural worker by equalizing rural and urban wages over time. The process of forced dispossession of the peasantry through demographic pressures and exploitation through the monopoly of land should be replaced by market practices that forces the capitalist producer to compete for labor power at the
average national wage levels. Unproductive plantations, that require the subsidies of seasonal peasant labor power that absorbs its own cost of reproduction of labor through subsistence farming year round, in order to be available for seasonal harvesting for a few months, should become obsolete. The only capitalist enterprise that should be encouraged to flourish is the one that employs full time permanent workers at the national average wage levels and that innovates technologically through mechanization.

Eighth The welfare of the rural people would be best served if both peasant and simple commodity producers would be encouraged to increase their production for the markets, stay on their farms, and elevate the technological levels of their production practices. The policies, plans and programs designed to achieve the reduction of off-farm work need to address the specific logic and requirements of each agrarian production system. The increase of degrees of commoditization should be an objective of any rural development policy directed to improve the life standards of the rural producers and the national contribution of agriculture. However, the access and opportunities for greater market participation for producers reproduced with limited or with resistance to commodity relations of production is more often hampered than facilitated by the traditional capitalist production system. The capitalist plantation has historically developed at the expense of the market access
of the simple commodity and peasant family farms and in competition with these producers.

The conditions for greater commodity reproduction of the simple commodity and peasant family farm systems require a redistribution by the state of the power and resources that the traditional capitalist sector has concentrated in most Third World social formations. Only rural development policies and extension services plans and programs that redefine explicitly the goals of increased commoditization of the simple commodity and peasant farmers will be pointed towards success in the Pacifico Sur Region of Costa Rica and most Third World countries.

Rural development policies and extension programs that do not take into account the combined and uneven effects of the potential conflicting demands of the agrarian production systems with each other will prolong the crisis of rural social formations in most of the Third World. It is my goal that the typology that has been presented serves a contribution in the continual study of agrarian social structures and in the efforts to improve the life chances of the rural poor of Costa Rica and other Third World social formations.
Chapter 11 Endnotes

1. Some writers stress that the salvation of the small farmer is found in the development of a more productive farmer system with access to land and inputs for production. Gradualistic technological modernization is then the key to farmers' economic welfare and development. Such writers include, among others, Schultz (1964), Mosher (1969), Coombs and Ahmed (1974), Lele (1975), Wortman and Cummings (1978), Hardwood (1979), Stevens (1977), and Norman (1980). In contrast, analysts of the social consequences of the Green Revolution, such as Byres (1972), Whittenbarger and Havens (1973), Feder (1968, 1976), Griffin (1974, 1975, 1976, 1977), Scoble and Posada (1977), have denounced technological change, claiming that it accelerates the elimination of the small farmer.

2. Since Kroeber (1948), Redfield (1950), Geertz (1962), Foster (1967), and others, the term peasant has evoked controversy about minor aspects of characterization, even among anthropologists themselves. But, for everyone, the peasant society has been viewed as an intermediary stage between primitive and modern society. The peasantry is drawn into the modern age by the dynamism of the city. Within an evolutionary framework, the peasant has been viewed as a cultural human type, inferior to the urban culture, and dominated by it.

3. Alexander Vasil’evich Chalanov (Chayanov) who, after the Russian Revolution, became Director of the Institute of Agricultural Economy, was among those, who like A. Chelintsev and N. Markarov headed "the organization and production school." From that group, Kossinsky and Brutskus were the first to contrast the peasant and capitalist economies on the plane of economic theory.

4. In contrast, the Marxists in Chayanov’s time claimed the peasantry to be a form of incipient capitalism represented by petty commodity production. Chayanov (1925) begins with the observation that the social phenomenon of wages and the capitalist category of profit are absent in peasant economies. Peasant production is based on family labor, not on wage labor, and the satisfaction of subsistence needs takes precedence over profit maximization. He maintained that the peasant family labor household was neither in the process of becoming capitalist nor of
disintegrating into working class households. It is constantly in the process of reproducing itself.

5. Chayanov (1925, pp.5-7) showed how, for different families, the balance between consumer satisfaction and the effort of working involved is affected by the size of the family and the ratio of working members to nonworking members. His thesis explained that this mechanism was self exploitation. He wrote "...thorough empirical studies on peasant farms in Russia and other countries have enabled us to substantiate the following thesis: The degree of self exploitation is determined by a peculiar equilibrium between family demand satisfaction and the drudgery of labor itself... As soon as the equilibrium point is reached, continuing to work becomes pointless..."

6. The assumptions hold only if labor units do not vary considerably from year to year, allowing peasants to estimate the work required to produce a given labor product to satisfy consumption needs. If harvests are erratic, as is often the case, due to natural causes, the peasant is left with no basis for deciding on the degree of self-exploitation and the labor consumer balance is not determined by the peasant family, a point contrary to the theory.

7. For Chayanov (1925), this tendency would offset an increase in the intensity of labor, and if this is not sufficient, the labor consumer balance may be maintained by employment of family members in the off-farm sector, or the nonagricultural sector.

8. Had Chayanov conceptualized the labor-consumer balance in its relations to the wider society as the starting point, he may have arrived at the same conclusion as Kautsky (The Agrarian Question, 1976) through the observation that the self-exploitation of labor is not a natural characteristic, but the outcome of the need for money as the household is integrated into the market economy and affected by its relations of production.

9. Chayanov termed this bifurcation a purely "capitalist one" because it was made up entirely of capitalist categories and was conceived only within the capitalist system. He even cited Marx, himself, to support his position, referring to the section on "share cropping and peasant parcellated property" in Capital, Vol. III, Part 2, Chap. 47, Section V, pp. 339-50. On page 347,
Marx states that "...with parcelled farming and small-scale landed property... production to a very great extent satisfies own needs and is carried out independently of control by the general rate of profit."

10. The concept of simple commodity production can be defined as production for exchange without the categories of wage labor and capitalist profit. It presupposes competition, the existence of private property and the circulation of commodities in both directions. Producers sell to the market and buy their inputs for economic reproduction at market determined prices. Thus, the productive enterprise is individually and completely integrated into the national factor of the production market. The difference between small capitalist farm holdings and the simple commodity producer are the categories of wage labor and capitalist profits. The capitalist farmers employ wage labor and generate profits that can be invested in more intensive production. The simple commodity farmers are limited conceptually to reproducing the productive unit without the help of nonfamily workers.

11. According to Marx (1967, Vol. 1), the difference between these modes is, that for the capitalist the process of exchange is one in which money is exchanged for merchandise or commodity and this, in turn, is exchanged or transformed into money, being M-C-M its process. However, the simple commodity process starts with commodities that are exchanged for money in order to be transformed into commodities, like C-M-C.

12. Díaz-Polanco (1977), Rojas and Moncayo (1978), and Gutelmaan (1974) also confused the two notions Marx had of modes of production and only applied the concept of mode as the system of production (organization of the labor process), because he did not elaborate on the characteristics that this mode would have in terms of relations of production. The main contribution is still that this perspective was able to identify the presence of this phenomena when the orthodox Marxists were proclaiming that capitalism would do away with this production system, either by transforming them into capitalists, or into proletarians. The peasant farms were an identified, real historical fact, that could not be understood by Kautsky or the rest of the orthodox Marxists, but that was as real as could be. The persistence of these types of production
organizations in developing countries faces the same problem.

13. Gutelman (1974) has attempted to specify the social relations, in terms of inheritance, by emphasizing the fact that those who keep control of the land must buy the land again from the other family members in each successive generation. The basic social relations of production in the peasant mode of production would thus be a relation among generations of kin. Like the simple commodity mode, it is characterized by family labor and its objective is simple reproduction. It, however, differs from simple commodity mode in that production is fundamentally for home consumption and not for sale on the market.

14. According to Bautista (1983), peasant relations of production cannot be derived from the dynamism of household production alone. For it is a well proven fact that the peasantry is no longer reproduced independently of the external economy. One can no longer speak of an autonomous peasantry from this perspective. The reproduction of the peasant household, in this case, is partly dependent on nonpeasant capitalist enterprises. Thus, conclude that on this basis the concept of peasantry should be replaced by existing concepts within a deductive logic of markets, that of simple commodity production, because it is there where the determinants of the conditions of reproduction, decomposition, and transformation of the peasantry lie.

15. The purpose of such simplification and its consequences can be distinguished when Banzon Bautista (1983) states that "...one should also note that the argument that the peasant economy does not constitute a mode of production reduces the significance of the concept of Articulation of Modes of Production. The theoretical problematic, we are left with, is the articulation of the peasant FORM of Production with the Capitalist MODE on which it depends" (p. 305).

Two implications can be identified here: 1) The reduction of significance of the concept of articulation of mode of production, because there is only one mode in consideration, the capitalist mode; and 2) The simple commodity production mode is no longer present, in their denial of the peasant mode, even if they stressed the need to relate it to the
simple commodity mode of production, they end by eliminating it altogether.

16. Banzon Bautista (1983, pp. 306-307) concludes, by stating that "...This thesis argues that the peasant form of production must be conceived as a double specification of the units of production (household) and the social formation. In combination with the internal structure of the household unit, the social formation/external economy/capitalist mode of production determines the conditions of reproduction, decomposition and transformation of the peasantry. This double specification implies that the concept of peasant economy cannot be deduced from a general theory but is an empirical concept whose content is subject to a concrete analysis of particular historical conjunctures."

17. Vergopoulos (1978) similarly conceives the peasantry as simple commodity producers. Vergopoulos (1978) states that peasant subsistence and preservation lies in the fact that agrarian capitalists are progressively removed, leaving the countryside to the peasant production network. According to him, "peasant agriculture does not constitute a precapitalist residual, but a form recreated by modern capitalism that is articulated to it in an exemplary manner." He will add that this form is not capitalist, but is a capitalism without capitalists. The peasant entrepreneur is not interested in profit accumulation, contenting himself with the equivalent of a salary.

18. According to de Janvry (1981a), the simple commodity mode of production has been used by Marx to develop the theory of value under conditions where an average rate of profit among branches of production is not being formed and where commodities consequently are exchanged at their value (Marx, Capital, Vol. 1, 1967). Therefore, the concept of the simple commodity mode of production was developed, not as if the mode of production had any historical value or reality, but only for the theoretical purpose of developing the labor theory of value.

19. Nowhere in Kautsky’s (1976) writings is there mention of a peasant mode of production or of a peasant-based petty or simple commodity mode, even though peasants are acknowledged to be petty commodity producers.
20. Kautsky (1976, p. 175) stated: "...The real basis of their survival is the fact that they cease to compete with the large capitalist farms which develop by their side. Far from selling the same commodities as the larger farms, these small holdings are often buyers of these commodities. The one commodity which they do possess in abundance, and which the bigger holdings need, is their labor power.... Under this state of things, both types of farms do not exclude each other, but on the contrary, coexist like capitalist and proletarian, even though the small peasant becomes increasingly proletarianized."

21. The Norodniks insisted on the permanence on the peasantry, even under capitalism. On the other hand, the Bolsheviks were too quick to affirm that with the development of capitalism in agriculture. The peasantry would disappear. Some members of the peasantry would be absorbed as a portion of the rural bourgeoisie while the vast majority join the ranks of the rural proletariat. At this level of debate, nothing was gained. However, the debate came to an end under Stalinism. But, the real world continued to restate the problem theoretically for a new generation.

22. Alain de Janvry (1981a, pp. 105-106) states in the following: "But, here again, open behavior is demystified, all we are left with are class relations through which peasants surrender a surplus according to the rules of the prevailing mode: Rent under feudalism, surplus value through the labor market or surplus labor through the terms of trade under capitalism. The perceived relations of dominance that are posited as an articulation of modes of production are merely the social relations of production in the dominant mode of production. And, because articulation is taken as a substitute for these social relations, it becomes impossible to define social relations for a specifically peasant mode... We conclude this discussion by rejecting the concept of peasant (or simple commodity) mode of production articulated to capitalism. Peasants are to be seen instead as a class or fraction of class within different modes of production -- a class that is essential in modes like feudalism and transitory (and, hence, only a fraction of a class) in others, like capitalism.

23. The problems encountered in the deductive development of the concept of peasantry illustrate the need to
clarify the general theory that takes into account the different agrarian production systems. The theoretical perspective, that will serve as the framework of this research, is based on the distinction of the concepts of mode of production and social formation. From this perspective, a theory of social stratification of the rural population can be deduced from the process of division of labor, that corresponds to the different agrarian production systems.

24. The conceptualization of the rural social stratification is implicit in the formulation of the concept of social formation. The approach, that conceptualizes peasants in particular relations of production, can appropriately characterize their class situation. An analysis of the way the relations of production are linked together has the advantages that are suggested by Samir Amin (1976, p. 26). Amin states: "Taken together, these analyses enable us to understand the dynamics of classes and social groups. Empirical analysis detects social "categories" in numbers that are arbitrary: two (the "rich" and the "poor"); or three (adding the "in-betweens"); or 15 or 20 (occupational categories, or income bracket). Taking this method to extremes, one arrives at one category per individual, thus, conforming to the individualistic requirement of the ideology that takes the place of social science."

25. The fifth alternative theoretical perspective overcomes the level of appearance by relating the social group stratification to its corresponding social classes. In order to address this perspective appropriately, I shall first define and explain the concepts of mode of production and social formation. It is in the misuse and misunderstanding of these concepts that we discovered the basis of the shortcomings of the deductive theoretical approaches that we have discussed in the previous four perspectives.

26. Marx (1978) frequently used the expression "mode of production of material goods," or simply mode of production," to describe the form or way that material goods were produced, and the impact upon society as a whole of such a form or way. The mode of production of material life determines the general character of the social, political, and spiritual process of life (Marx, 1959). "What distinguishes one economic epoch from another, is not what they do or produce, but how they do it, with what type of instruments of work they do
It" (Marx, Capital I, p. 132). However, one should not confuse the expression of mode of production of material goods with the concept of mode of production. A theoretical concept that only refers to the economic structure of society.

27. Mode of production is a theoretical concept, that refers to the global social totality. The concept includes the economic structure, and the other levels of the social totality (the political and Ideological levels), as well. Marx and Engels did not define this concept of mode of production that they used so frequently, and the great majority of Marxists authors have used this notion without defining it and limited it to the economical structure.

28. In "Capital" Marx (1967, p. 86) he states: "My view that each special mode of production and the social relations corresponding to it, in short, that the economic structure of society, is the real basis on which the judicial and political suprastructure is raised, and to which definite social forms of thought correspond; that the mode of production determines the character of the social, political, and intellectual life generally. All this is very true for our own time, in which material interests preponderate, but not for the Middle Ages, in which Catholicism, nor for Athens and Rome, where politics, reigned supreme. This much, however, is clear, that the Middle Ages could not live on Catholicism, nor the ancient world on politics. On the contrary, it is the mode in which they gained a livelihood that explains why here politics, and there Catholicism, played the chief part."

29. The dominant structure according to Althusser (1970) not always the economic region (like in the Middle Ages, or in ancient Rome) that exercises this "dominant" role, even if the assignment of what region or level dominates is assigned in "last instance" by the economic level.

30. Althusser (1970) will explain that the Marxist totality is neither a whole, each of whose elements is equivalent as the phenomenon of an essence (Hegelianism), nor are some of its elements epiphenomena of any one of them (economism or mechanism); the elements are asymmetrically related but autonomous (contradictory); one of them is dominant. The economic base determines in the last instance which element is to be dominant. Hence, it is a structure in
dominance. But, the dominant element is not fixed for all time. It varies according to the over-determination of the contradictions and their uneven development.

31. In the feudal mode of production, it was not the economic mechanism that assured the reproduction of the mode of production, because, for the surplus to be appropriated by the landlords, the intervention of suprastructural factor was indispensible. Under feudalism, there was no direct economic necessity for the serf to hand out their surpluses. They did it for reasons explained in the ideological and political ties they had established with the landlords.

32. Following Marta Harnecker (1982), the notion of what is the structuring matrix of the mode of production is crucial, for in this misunderstanding lies the heart of Poulantzas (1973) theoretical mistakes handed down to Eric Olin Wright (1983) in the concept of social class and social relations of production. For Poulantzas', the matrix of a mode of production is the type of articulation within a mode of production of its different structures, economical, political, and ideological.

33. According to Althusser (1969; 1970), the production forces and the relations of production, as concepts, are generally taken to mean the machines or their productivity, on the one hand, and the human relations between the members of a society on the other. For Althusser (1970) and Balibar (1970), they are both "relations" (connections) combining together laborers, means of production and nonlaborers within the mode of production. The productive forces constitute the connection of real appropriation of nature, or the "possession" connection, while the relations of production are the relations of expropriation of the product or the "property ownership" connection.

34. According to Lenin, in his article on the tax in kind (cited by Marta Harnecker, 1982, p. 144), the social of Russia formation contained: 1) peasant natural economy of a patriarchal type, 2) small commodity production, 3) private capitalism, 4) state capitalism, and 5) socialist. Russia, at that time, was a mixture of all those diverse forms of economic and social characteristics.
35. Marx suggested this situation when he wrote (1967, p. 212): "There is in every social formation a particular branch of production that determines the position and importance of all others, and the relations obtaining in this branch accordingly determine the relations of all other branches as well. It is as though light of a particular hue was cast upon everything, tingeing all other colors and modifying their specific feature."

36. Andre Gunder Frank (1969), in his early writing, made the mistake of denying any type of pre-capitalist relations of production in his effort to prove the domination of the capitalist relations of production at an early colonial period. He confused the domination of capitalist relations of exchange with the domination at the level of relations of production at this historical period. We can now clarify that stating capitalist domination in today's Latin American social formations does not imply the nonexistence of pre-capitalist relations of production, but only their dominated status.

37. According to Balibar (1970), the social formation is in itself a complex structure, composed of regional complex structures articulated around the matrix of the dominant relations of production of its economic complex structure. Each regional structure has a relative autonomous process of its own, according to the nature of its characteristic dominant relations of production.

38. The study of social formation should include how the dominant relation of production are combined, and how they exercise their influence over the subordinate relations of production. As was exemplified by Maurice Godeller (1971), when generating a synthetic definition of the precise nature of the Inca social formation.

39. According to Poulantzas (1973, pp. 15-16) "A social formation, which is a real-concrete object and so always original because singular, presents a particular combination, a specific overlapping of several "pure" modes of production (as Lenin demonstrated in the development of capitalism in Russia). Bismark's Germany is characterized by a specific combination of capitalist, feudal, patriarchal modes of production whose combination alone exists in the strong sense of the term....The social formation itself constitutes a complex unity in which a certain mode of production dominates the others which compose it."
40. Alain de Janvry wrote (1981a, p. 102), "There really is no debate on the correct social location of peasants in precapitalist modes of production (feudal, asiatic, or communal). But, when capitalism dominates, should peasants who are external to precapitalist modes be conceptualized as part of a peasant (or simple commodity) mode or as a transitory class or fraction of class within the capitalist mode.....We conclude this discussion by rejecting the concept of a peasant (or simple commodity) mode of production articulated to capitalism....Because different modes of production tend to coexist in a social formation -- particularly, feudal, communal, and capitalist in Latin American agriculture -- different peasant classes correspond to each of these articulated modes."
Chapter III Endnotes

1. In this case, the characterization of the relations of production is independent to each mode. For the feudal and capitalist modes of production, the relations of production that are reproduced, are relations of exploitation. For the simple commodity and peasant mode of production, the relations of production that are reproduced are of a nonexploitative character.

2. For Marx (1978) (Capital Vol. III, p. 818), in reference to social production, "The capitalist process of production is producing and reproducing these production relations, themselves, and thereby also the bearers of this process, their material conditions of existence and their mutual relations, i.e., their particular socioeconomic form. For the aggregate of these relations, in which the agents of this production stand with respect to nature and to one another, and in which they produce, is precisely society, considered from the standpoint of its economic structure, however, simultaneously the bearers of definite social relations entered into by individuals in the process of reproducing their life. Those conditions, like these relations, are on the one hand prerequisites, on the other hand, results and creations of the capitalist process of production; they are produced and reproduced by it."

3. As for Althusser (1970), structure can only be understood as process. It identifies also what Althusser (1970) and Balibar (1970, p. 320), conceive as their opposition to structuralism, when that school of thought uses the term synchrony and diachrony, in an ideological manner, conceiving these terms, as "places." Note: The combination of the synchronic structure and its temporal or historical realization, its development, or the diachrony, is ideological. For Althusser (1970, p. 320), the synchrony of an object is merely the concept of that object, existing as one of a set of concepts in the theory of that object. Like the synchrony of production is its concept: Reproduction. So, for us, the synchrony of the relations of production is the concept of reproduction of relations of production.

4. For Harnecker (1982), the technical division of labor is the division of labor within one specific process of production. It includes the distribution of tasks, it could also conduct into the division of social
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production, through specialization. However, the social division of labor is the distribution of different tasks that the individuals perform in a society (economic, ideological, political, tasks that are accomplished because of the situation they occupy within the social structure). This division started with the distinction between manual and intellectual labor, and between the sexes. Conceptually, this type of division of labor is determined by the social relations of production.

5. Marx (1978, pp. 541-542) wrote: "Capitalist production, therefore, of itself, reproduces the separation between labor-power and the means of labor. It, thereby, reproduces and perpetuates the conditions for exploiting the laborer. It incessantly forces him to sell his labor-power in order to live, and enables the capitalist to purchase labor-power in order that he may enrich himself...Capitalist production, therefore, under its aspect of a continuous connected process, of a process of reproduction, produces not only commodities, not only surplus-value, but it also produces and reproduces the capitalist relations; on the one side, the capitalist, on the other, the wage-laborer."

6. Following Balibar (1970) and Marx's Capital, I find it necessary to specify the concepts I am using: I will call process of production, any work process that is done under determined relations of production. In any social production, we will encounter a division of labor, named the division of social production. Balibar (1970, p. 318) shows that simple reproduction is the concept of social production, which includes the process of the technical division of labor and the social division of labor. Division of social production is the division of social production in different branches, sectors, or areas of production within a society (social production is only apparently the production of things).

7. According to Harnecker (1982), the process of division of labor and its different aspects are the elements of the work process. This process never would occur if it were not historically determined by specific relations of production. It only occurs under the determination of such relations. These relations are the ones that are established among the agents of production. This includes all the individuals who, in one way or another, participate in the process of material
production of goods. First of all, there are the technical relations of production. They can be individual or cooperative. However, the process of cooperative work sometimes develops to a point where the individual workers lose control over the process of control and organization. This distinction introduces the notion of direct worker and nondirect worker. The first are the agents of production who are under direct contact with the materials being processed. The second are those that have the functions of control, organization and supervision of the process of all levels of the work process.

Following Harnecker (1982), the technical relations of production will be defined as the forms of control and domination that the agents of production exercise over the means of work, in particular, and the work process, in general.

8. Not all social groups in such a model will constitute themselves in one or the others of these antagonistic polarizations. There are others who cannot constitute themselves into classes. In these categories are various types: Social categories that are in an intermediate position between the two classes, like the technicians or administrators. However, this should not confuse these categories with the notion of fractions of a class, because these others are simply the subgroups that compose a class.

9. For Marx (1968) (Theories of Surplus-Value II, p. 152), "Capitalist production is based on the antithesis of two factors, materialized labor and living labor. Capitalist and wage-laborers are the sole functionaries and factors of production whose relationship and confrontation arise from the nature of the capitalist mode of production. The circumstances under which the capitalist has, in turn, to share a part of the surplus-labor or surplus-value, which he has captured, with a third, nonworking person, are only of secondary importance. The capitalist confronts the worker as the direct owner of the entire surplus-value, in whatever manner he may later be sharing it with the money-lending capitalist, landowner, etc. As James Mill observes, production could, therefore, continue undisturbed if the landed proprietor disappeared and the State took his place. He -- the private landowner -- is not a necessary agent for capitalist production, although it does require that the land should belong to someone, so long as it is not the worker, but, for
Instance, the State and the exclusion of the landowners (who only enter post festum), as a result of conditions of ownership of natural forces that have not grown out of the capitalist mode of production but have been passed on to it."

10. For George Lukács (1971, p. 84, in History and Class Consciousness) states: "The petty bourgeoisie does not look for the suppression of the two extremes of capital or labor, but to attenuate their opposition. In the decisive battles of society, they will alternatively change leadership, passing from being under the direction of one class to the other, in a pendulum movement constantly."

11. Bartra (1980) states that the simple commodity peasant producers are from a mode of production perspective, a class of the simple commodity mode. The simple commodity mode differs from the feudal mode of the landowner class, in that it is a nonclassist mode. The mode has no exploitive relations of production. The relations are of cooperation and mutual assistance because there is no appropriation of surplus-value from any other class, but self exploitation, or subsistence and simple reproduction. Under these conditions, simple commodity classes were not exploited in the period of transition, itself conceptualized as a mode of production. In a historical social formation they are always exploited, a dominated class, either by the landowners under feudalism, or by the bourgeoisie under capitalism.

This calls for the second distinction, that differentiates the simple commodity producer from the case of landowners. In the second place, they are not dominated by two classes, the landowner and capitalist, but exclusively by the capitalist class, under their exclusive domination. Because, even if they "appear" to be under landowner exploitation, through rent, this is only the "form" that the capitalist share the plus-value with the landowners.

12. The logic of these "conditions" under which the capitalist mode exercises its forms of exploitation also depends on its own "conditions" of reproduction of its relations of production. The simple commodity producers are a class in transition, on the basis that the tendency of this mode of production is to maximize the part of labor that is wage-labor paid. In a historical social formation, the tendency to permit the
self-exploitation of the simple commodity class would be manifest, as long as the prevailing capitalist relation of production could not take them into their own reproduction as proletarian, and be more effectively exploited as wage-laborers.

13. I would like to specify that the historical outcomes do not only come about on the basis of a functionalist approach of the "needs" of capitalism, or of the laws of motion of their systems of relations of production. The historical outcomes are the fruit of the relations of the class struggle at every level. In a class struggle, initiatives and actions of the ruling classes are confronted always with resistance and actions of the dominated classes. The outcome is the result of these relations of force, or of strengths that prevail, where sometimes neither class got what it wanted altogether. A mixed result. However, that normally is in the benefit of the ruling class as a half victory but at the same time means only a half defeat for the oppressed classes.

14. According to Harnecker (1982), in societies where private property of the means of production exist, the owner of the means of production has a place to play in the production process. Then, from a social point of view, it is now important to distinguish between workers who are owners, and workers who are not owners, of the means of production. Each agent of production is doubly determined, by his/her technical function and his/her social function. For example, in the capitalist mode of production, the model will specify that the laborer will be, from a technical perspective, a direct worker and from the social one, a nonowner worker. The capitalist, on the other hand, from the technical perspective, is a nondirect worker, and from the social perspective, an owner of the means of production. The capitalist can also participate in direct work while being a nondirect worker from a technical perspective, but he is always an owner of the means of production; his/her, determinant technical function is always as a nondirect worker in control of the production process. The technician is also viewed from these two forms of determination; socially he is a nonowner, and technically a nondirect worker. However, even if an agent of production is doubly determined, technically and socially, it is the latter that has a dominant character. The ownership of the means of production implies the connection of surplus-value appropriation, kind of ownership, the duality of
"possession" (use, enjoyment), and property (property strictly speaking). The capitalist enters only the labor process as the nondirect worker, but in this case, the nondirect worker appropriating surplus-value.

15. The classes do not create the structure, but they do act upon them, and are able to modify them within the historically determined limits. Without this intervention, the social structure could always overcome its contradictions and reproduce itself limitlessly. The historical changes in real social formation need of the class intervention called revolutions if one class is to substitute another in their control over society.

16. The interpenetration is inseparable from the technical relations and the social relations of production, because the technical relations serve as support of the social relations. At the same and precise time, the social relations act upon the technical relations, giving them their historically specific character. Following Harnecker (1982), social relations of production will be defined as the relations that are established between the owners of the means of production and the direct producers in a determined production process. According to Louis Althusser (1970) and Balibar (1970) as for Marta Harnecker (1982), the relations of production are formed by the technical and social relations of production.

17. I have not included the determinations of suprastructural elements (political and ideological) because I am only trying to identify the process of formation of classes from the level of the complex economic structure of a social formation. Additional dimensions would be necessary to identify if a study of the praxis of the social classes were my objective. Here, I limit the object of my study to these determinants only.

18. Marx (1978, V.1, p. 48) states "...to become a commodity a product must be transferred to another, whom it will serve as a use-value, by means of an exchange."

19. Marx (1978, V.1, pp. 77-78) states "...Since the producers do not come into social contact with each other until they exchange their products, the specific social character of each producer's labor does not show itself except in the act of exchange."
20. Marx will add (1978, V.I, p. 78) "...It is only by exchanges that the products of labor acquire, as values, one uniform social status, distinct from their varied forms of existence as objects of utility."

21. Marx states (1978, V.I, p. 549) "simple reproduction is only the periodical repetition of this first operation; each time money is converted afresh into capital...." Several successive acts of exchange have only made the last represent the first."

22. Marx states (1978, V.I, p. 529) "...these commodities must then be thrown into circulation. They must be sold, their value realized in money, this money afresh converted into capital, and so over and over again. This circular movement, in which the same phases are continually gone through in succession, forms the circulation of capital. The first condition of accumulation is that the capitalist must have contrived to sell his commodities, and to reconvert into capital the greater part of the money so received."

23. Marx explains (1978, V.I, p. 535) "...In other words, simple reproduction, sooner or later, and of necessity, converts every capital into accumulated capital, or capitalized surplus-value....we saw in Chapters IV-VI that in order to convert money into capital something more is required than the production and circulation of commodities....the possessor of the means of production and subsistence, on the other, the possessor of nothing but labor-power, must confront one another as buyer and seller."

24. Marx expresses this notion explaining (1978, V.I, p. 545) "...actually functioning as capital, the capitalist class requires additional labor. If the exploitation of the laborers already employed do not increase, either extensively or intensively, then additional labor-power must be found. For this, the mechanism of capitalist production provides beforehand, by converting the working class into a class dependent on wages, a class whose ordinary wages suffice, not only for its maintenance, but for its increase....from a concrete point of view, accumulation resolves itself into the reproduction of capital on a progressively increasing scale. The circle in which simple reproduction moves, alters its form, and to use Sismondi’s expression, "changes into a spiral."
25. Marx states (1978, V.1, p. 544) "...from this moment the capital-value and the surplus value are both of them sums of money, and their reconversion into capital takes place in precisely the same way. The one, as well as the other, is laid out by the capitalist in the purchase of commodities that place him in a position to begin afresh the fabrication of his goods, and this time, on an extended scale. But, in order to be able to buy those commodities, he must find them ready in the market. His own yarns circulate, only because he brings his annual product to market, as all other capitalists likewise do with their commodities."

26. Marx states (1978, V.1, p. 542), "capitalist production, therefore, under its aspect of a continuous connected process, of a process of reproduction, produces not only commodities, not only surplus-value, but it also produces and reproduces the capitalist relations; on the one side the capitalist, on the other, the wage-laborer."

27. Marx (1978, V.1, pp. 575-576) states, "As simple reproduction constantly reproduces the capital-relations itself, i.e., the relation of capitalists on the one hand, and wage-workers on the other, so reproduction on a progressive scale, i.e., accumulation, reproduces the capital-relation on a progressive scale, more capitalists or larger capitalists at this pole, more wage-workers at the other role. The reproduction of a mass of labor-power, which must incrassantly reincorporate itself, with capital for that capital's self-expansion; accumulation of capital is, therefore, increase of the proletariat."

28. In Weber (1978, Part One, Chapter IV), the section on "Status Groups and Classes" was updated with a later version. The early formulation of class and status was left in Part Two, Chapter IX, Section 6.

29. Nisbet (1966, p. 213) stated "class has plainly, a very different significance in Weber from anything to be found in Marx." Not only did Nisbet distort Weber, but to do so he also, as we have shown, distorted Marx. The distortion is justified on the notion that the Weberian concept of status groups, which according to Nisbet (1966, p. 214) is the "modern stratification picture" are normally communities. The operation makes Weber closer to Tocqueville and opposed to Marx. His conclusion is that status becomes the tool of analysis in modern sociology. In contrast, for Nisbet (1966, p.
Marx's monolithic and unwieldy vision of class tended to dominate the study of stratification. No doubt, what proved necessary to end the spell of Marx in modern sociology was not so much the accumulation of new data as the political spectacle of Stalin's Russia and consequent ideological disaffection. But, the result, however gained, was the same; the gradual supersession of "class" by "status" as the key concept in sociological studies of stratification. Today, as a sociological concept class is dead."

30. For Poulantzas (1973, p. 62), "...the important point in his theory of classes is his distinction between (a) "class situations" ...and (b) "status group" (in some sense, a functional term)...I merely note here that the double ideological status which the 'social group' receives in this problematic is sometimes conceptually marked out, as in the case of Weber's distinction between 'class' (class situation) and 'status group' (function). The task in this problematic is to mark boundaries (a) between social 'classes' (reduced to the economic-class situation) and (b) between the different 'groups,' whose relation to the classes always remains mysterious, these groups take part political-functional relations, while social classes are confined to the economic-class situation."

31. For Max Weber (1978, pp. 306-307), "commercial classes arise in a market-oriented economy, but status groups arise within the framework of organizations which satisfy their wants through monopolistic liturgies, or in feudal or in Standisch-patrimonial fashion. Depending on the prevailing mode of stratification, we shall speak of a 'status society' or a 'class society'. The status group comes closest to the social class and is most unlike the commercial class. Status groups are often created by property classes. Every status society lives by conventions which regulate the style of life, and, hence, creates economically irrational consumption patterns and fetters the free market through monopolistic appropriations and by curbing the individual's earning power..."

32. Property classes, which are primarily based on property differences, are identified by Weber (1978, p. 303) as represented by the examples of slave owners, land owners, urban patricians, rural peasants or small urban craftsmen. However, the examples of the commercial classes, which are determined by the marketability of
their goods and services, are exclusively those corresponding to the modern capitalist society. For Max Weber (1978, p. 304), examples of commercial classes are typically either entrepreneurs (merchants, shipowners, industrial and agricultural entrepreneurs), bankers, financiers, and professional or highly qualified technical workers.

33. Weber (1978) includes in the categories of commercial classes the in-between "middle classes") of the self-employed farmers, craftsmen, public and private officials and the liberal professions, together with the labor groups with exceptional qualifications.

34. According to Weber (1978, p. 305), "the unfinished last part of Karl Marx's Capital apparently was intended to deal with the issue of class unity in the face of skill differentials. Crucial for this differentiation is the increasing importance of semi-skilled workers, who can be trained on the job in a relatively short time, over the apprenticed and sometimes also the unskilled workers...."

35. Marx (1978, V.1, p. 699) wrote: "...in fact, the events that transformed the small peasant into wage-laborers, and their mean of subsistence and of labor into material elements of capital, created at the same time, a home-market for the latter."

36. Marx (1978, V.1, p. 699) states: "...The large farmer sells them, he finds his market in manufacturers... -- things whose raw materials had been spun and woven by it for its own use were now transformed into articles of manufacture, to which the country’s districts at once served for markets. The many scattered customers, whom stray artisans until now had found in the numerous small producers working on their own account, concentrate themselves now into one great market provided for by industrial capital."

37. Marx (1978, V.1, pp. 699-700) explains: "...Thus, hand in hand with the expropriation of the self-supporting peasant, with their separation from their means of production, goes the destruction of rural domestic industry, the process of separation between manufacture and agriculture. And, only the destruction of rural domestic industry can give the internal-market of a country that extension and consistence which the capitalist mode of production requires."
38. According to Marx, the peasant production system, as well as others that are based on small property holdings pre-suppose parcelling of the soil, and scattering of the other means of production. Small property production also excludes cooperation and division of labor.

39. Marx writes (1978, V.1, p. 714) "...At a certain stage of development, it brings forth the material agencies for its own dissolution. From that moment, new forces and new passions spring up in the bosom of society; but the old social organization fetters them and keeps them down. It must be annihilated; it is annihilated. It's annihilation the transformation of the individualized and scattered means of production into socially concentrated ones, of pygmy property of the many into the huge property of the few, the expropriation of the great mass of the people from the soil..."

40. Marx (1978, p. 714, V.1) writes "...This expropriation is accomplished by the action of the imminent laws of capitalistic production itself, by the centralization of capital...the entanglement of all people in the net of the world-market, and with this the international character of the capitalist regime."

41. Marx states (1978, V.3, p. 110) "the phenomena analyzed in this chapter requires for their full development the credit system and competition on the world-market, the latter being the basis and the vital element of capitalist production."

42. Marx states (1978, V.3, p. 333) "...the sudden expansion of commerce and emergence of a new world-market overwhelmingly contributed to the fall of the old mode of production and the rise of capitalist-production; this was accomplished conversely on the basis of the already existing capitalist mode of production. The world-market, itself, forms the basis for this mode of production."

43. Marx writes (1978, V.3, p. 336) "originally, commerce was the precondition for the transformation of the crafts, the rural domestic industries ...into capitalist enterprises. It develops the product into a commodity, partly by creating a market for it, and partly by introducing new commodity equivalents and supplying production with new raw and auxiliary materials, thereby opening new branches of production based from the first upon commerce, both as concerns
production for the home and world market, and as concerns conditions of production originating in the world market."

44. Marx (1978, V.3, p. 333) wrote "...the obstacles presented by the internal solidity and organization of pre-capitalistic, national modes of production to the corrosive influence of commerce are strikingly illustrated...the broad basis of the mode of production here is formed by the unity of small-scale agriculture and home industry.... In India, the English lost no time in exercising their direct political and economic power as rulers and landlords, to disrupt their small communities."

45. Marx referred to this type of situation stating (1978, V.3, p. 333) "...commercial supremacy itself is now linked with the prevalence to a greater or lesser degree of conditions for a large industry. Compare, for instance, England and Holland. The history of the decline of Holland as the ruling trading nation is the history of the subordination of merchant’s capital to industrial capital."

46. In the early stages of the development of capitalism, Marx states (1978, V.3, p. 335) "...the merchant is the actual capitalist who pockets the lion’s share of the surplus-value." The transition that follows on the base of the accumulation of surplus-value by the merchants is three-folded." He writes (1978, V.3, p. 335) "...First, the merchant becomes directly an industrial capitalist...second, the merchant turns the small masters into his middlemen, or buys directly from the independent producer, leaving him nominally independent and his mode of production unchanged. Third, the industrialist becomes merchant and produces directly for the wholesale market."

47. Marx explains (1978, V.3, p. 336) "...as soon as manufacture gains sufficient strength, and particularly large-scale industry, it creates in its turn a market for itself, by capturing it through its commodities. At this point, commerce becomes the servant of industrial production, for which continued expansion of the market becomes a vital necessity.... The industrial capitalist always has the world-market before him, compares, and must constantly compare, his own cost-prices with the market-prices at home, and throughout the world."
48. Marx writes (1978, V.1, 703) "...the discovery of gold and silver in America, the extirpation, enslavement, and entombment of miners of the aboriginal population, the beginning of the conquest and the looting of the East Indies, the turning of Africa into a warren for the commercial hunting of black-skin, signaled the rosy dawn of the era of capitalist production."

49. Marx writes (1978, V.1, p. 711) "...to establish the 'Eternal Laws of Nature of the capitalist mode of production, to complete the process of separation between laborers and conditions of labor, to transform, at one pole the social means of production and subsistence into capital, at the opposite pole, the mass of the population into wage-laborers, into 'free-laboring poor,' that artificial product of modern society."

50. Marx states (1978, V.3, p. 329) "...prima facie, a pure and independent commercial profit seems impossible so long as products are sold at their value. To buy cheap in order to sell dear is the rule of trade. Hence, not the exchange of equivalents."

51. Marx (1978, V.3, p. 330) explains "...thereby it dissolves the old relationships...nevertheless this disintegrating effect depends very much on the nature of the producing community."

52. Marx explains (1978, V.3, pp. 329-330) "...In respect to quality, they are all expressions of social labor. But, they are not values of equal magnitude. The quantitative ratio in which products are exchanged is at first quite arbitrary. They assume the form of commodities inasmuch as they are exchangeable...continued exchange and more regular reproduction for exchange reduces this arbitraries more and more."

53. For Marx (1978, V.3, p. 330): "...aside from the fact that it exploits the differences between prices of production of various countries.... Those modes of production bring it about that merchant's capital appropriates an overwhelming portion of the surplus-product partly as a mediator between communities which still substantially produce for use-value, and for whose economic organization the sale of the portion of this product entering circulation, or for the matter, any sale of products at their value is of secondary importance...."
54. Marx states (1978, V.3, p. 331): "...merchant capital, when it holds a position of dominance, stands everywhere for a system of robbery, so that its development among the trading nations of old and modern times is always directly connected with plundering, piracy, kidnapping, slaves, and colonial conquest...."

55. For Marx (1978, V.3, p. 329), "but this monopoly of the carrying trade disintegrates, and with it trade itself, proportionately to the economic development of the peoples, whom it exploits at both ends of its course, and whose lack of development was the basis of its existence."

56. Marx explains (1978, V.3, pp. 331-332) "...commerce, therefore, has a more or less dissolving influence everywhere on the producing organization, which it finds at hand and whose different forms are mainly carried on with a view to use-value. To what extent it brings about a dissolution of the old mode of production depends on its solidity and internal structure."

57. For Marx (1978, V.1, p. 524), "...that which appears in these fluctuations of wages within a single country as a series of varying combinations, may appear in different countries as contemporaneous differences of national wages."

58. For Marx (1978, V.1, p. 525), "...this is not the case on the universal market, whose integral parts are individual countries. The average intensity of labor changes from country to country; here it is greater, there less. These national averages form a scale, whose unit of measure is the average unit of universal labor. The more intense national labor, therefore, as compared with the less intensive, produces in the same time more, which expresses itself in more money."

59. Marx explains (1978, p. 525) "...but, the law of value in its international application is yet more modified by this, that on the world-market the more productive national labor reckons also as the more intense, so long as the more productive nation is not compelled by competition to lower the selling price of its commodities to the level of their value."

60. Marx explains (1978, V.1, p. 525) "...in proportion as capitalist production is developed in a country in the same proportion to the national intensity and
productivity of labor these rise above the international level. The different quantities of commodities of the same kind, produced in different countries in the same working-time, have, therefore, unequal international values, which are expressed in different prices."

61. For Marx (1978, V.1, p. 525), "...it follows then, that the nominal wages, the equivalent of labor-power expressed in money, will also be higher in the first."

62. Marx explains (1978, V.3, p. 238) "...the favored country recovers more labor in exchange for less labor, although this difference, this excess is pocketed, as in any exchange between labor and capital by a certain class." For Marx (1978, V.1, p. 525), "...it follows then, that the nominal wages, the equivalent of labor-power expressed in money, will also be higher in the first nation than in the second, which does not at all prove that this holds also for the real wages...."

63. Marx elaborates on this notion, stating (1978, V.3, p. 238) "...the same may obtain in relation to the country, to which commodities are exported and to that from which commodities are imported; namely, the latter may offer more maternalized labor in kind than it receives, and yet thereby receive commodities cheaper than it could produce them. Just as a manufacturer who employs a new invention before it becomes generally used, undersells his competitors and yet sells his commodity above its individual value, that is, realizes the specifically higher productiveness of the labor he employs as surplus-labor. He, thus, secures a surplus-profit."

64. Marx elaborates (1978, V.3, p. 238) by stating "...As concerns capitals invested in colonies, etc., on the other hand, they may yield higher rates of profit for the simple reason that the rate of profit is higher there due to backward development and likewise the exploitation of labor, because of the use of slaves, coolies, etc."

65. Marx (1959) stated the following propositions:

1. "In the social process of production, men (people) enter into definite relations that are indispensable and independent of their will."
2. These relations of production correspond to a definite stage of development of their material powers of production.

3. The sum total of these relations of production constitutes the economic structure of society -- the real foundation...the mode of production in material life determines the general character of the social, political, and spiritual process of life.

4. At a certain stage of their development, the material forces of production in society come into conflict with the existing relations of production...from forms of development of the forces of production these relations turn into their fetters.

5. Then comes the period of Social Revolution. With the changes of the economic foundation, the entire immense superstructure is more or less rapidly transformed.

6. No social order ever disappears before all the productive forces for which there is room in it have been developed, and new, higher relations of production never appear before the material conditions of their existence have matured in the womb of the old society.

7. In broad outlines, we can designate the Asiatic, the ancient, the feudal, and the modern bourgeois methods of production as so many epochs in the progress of the economic formations of society.

8. The bourgeois relations of production are the last antagonistic form of the social progress of production...at the same time the productive forces developing in the womb of bourgeois society create the material conditions for the solution of that antagonism. Their social formation constitutes, therefore, the closing chapter of the pre-historic stage of human society."

66. The later use of the term does not represent a new concept but simply the naming of an old one. For a complete listing of all the works where Trotsky discusses the concept of "combined development, see Knei-Paz (1978, p. 89).
67. This law (for a critique of the Marxist concept of historical 'law', see Karl Popper's "The Poverty of Historicism, London, 1960, part IV) implies that in so far as the pattern of internal historical development of each country and particularly of a backward one, there is no universal history.

68. In fact, it goes even further for Trotsky because for him, the backward society copies not the finished product as it exists in its country of origin, but its "ideal type," and is able to do so for the very reason that it is in a position to append instead of going through the process of development of the innovation. Trotsky (1972, pp. 26-27) states this by saying: "Although compelled to follow after the advanced countries, a backward country does not take things in the same order. The privilege exists -- permits, or rather compels, the adoption of whatever is ready in advance of any specified date, skipping a whole series of intermediate stages. Savages throw away their bows and arrows for rifles all at once, without traveling the road which lay between those two weapons in the past."

69. According to Knei-Paz (1978, pp. 94-98), for Trotsky, the attributes of this process are:

1. Backwardness, far from being total, is only partial, and in some ways backward societies are as advanced as any other.

2. Conversely, some sectors of society have not changed at all. The overall impact is the uneven distribution of new forms of production and the polarization of society into various groups or logically related to one another.

3. The juxtaposition of very old and very new forms creates stark anomalies and a general nonrationalized economic and social structure.

4. The co-existence within one social framework of two fundamentally different and contradictory "models" of society arouses "consciousness" of backwardness, a conscience that the society is in some important sense defective.

5. New methods of production create new goals and aspirations which are at variance with previous ones. Since the former have not been wholly
adopted and the latter not wholly abandoned, there is both confusion over goals and a clash between them.

6. The contradictions inherent in uneven, nonuniform development, the growth of a consciousness of backwardness and of alternatives, the conflict over goals—all these create disharmony, instability, and a political situation which is growing potentially explosive.

7. The social problems and political crisis resulting from this situation can only be resolved by revolution, and this revolution will have a peculiar character arising directly from the peculiar character of its backwardness. The "revolution of backwardness" thus forms a separate though related theoretical subject in itself, identified as the Theory of Permanent Revolution.

70. The underlying factor of this process of social disintegration, is that while capitalism develops one part of society, it throws back the development of other parts, hampering the integrity of the whole. Trotsky describes this process in the following passage: "Capitalism finds various sections of mankind at different stages of development, each with its own profound internal contradictions. The extreme diversity in the levels attained and the extraordinary unevenness in the rate of development of the different sections of mankind during the various epochs, serve as the starting point of capitalism. Capitalism gains mastery only gradually over the inherited unevenness, breaking and altering it, employing therein its own means and methods...thereby it brings about their rapprochement and equalizes the economic and cultural levels of the most progressive and the most backward countries... by drawing the countries economically closer to one another and leveling out their stages of development, capitalism, however, operates by methods of its own; this is to say, by anarchistic methods which constantly undermine its own work, setting one country against another, and one branch of industry against another, developing some parts of the world economy while hampering and throwing back the development of others. Only the correlation of these two fundamental tendencies -- both of which arise from the nature of capitalism -- explains to us the living texture of the historical process" (Trotsky, 1970, pp. 19-20).
Chapter IV Endnotes

1. Cardoso and Faletto (1968, p. 29) state, "Since the beginning, a double process of binding occurred in the historic process, one that created an ambiguous situation, or a new contradiction. From the moment that internal social groups in Latin America defined their objectives of creating a nation, like in the case of the anti-colonist wars -- the political focus of action of these social forces tried to gain autonomy over the market situation. But, the binding effects to the external world system continued to define their situation objectively in function of the market, limiting their decision capabilities and autonomous actions."

2. For Cardoso and Faletto (1968), the two types of determinants of the degrees of autonomy of the dominant classes in Latin America, according to their model, depended on:
   1. The internal structure that was formed during the colonial period, and
   2. The capacity of the outward orientated social groups in control of the export-productive sector to establish:
      a) favorable relations with the new hegemonic capitalist world centers, and
      b) successful alliances with the local inward looking oligarchy that controlled the traditional economic activities.

3. England established its linkages with the Latin American countries under the scope of obtaining its demand for raw material needed for its own industrial expansion. In order to assure the steady supply it needed, it developed investments abroad in the transport sectors and in the control of the marketing facilities, but did not try to excerpt the local power groups of their control over their production base. The only exception to this rule was the case of the mining industries where they became partners with the native ruling classes.

4. The Incorporation of Central America into the world market by the enclaves had the following features:
1. The enclave was a product of the dynamism of the central economies. The imposing character of the capitalism system at that time was the rise of imperialism. Imperialism this time acted independently from the initiative of the local power groups and took direct control of this export sector.

2. In both cases, the enclave served to order the internal economic sector of those nations to its needs, which produced as an internal effect, a type of acute dependency situation. For Cardoso and Faletto (1968, p. 48), this new linkage was the trademark of U.S. enclave expansion, differentiated from the English partial enclave developments that incorporated generally the local power groups. The U.S. capitalist enclave, on the contrary, only served to reinforce the oligarchic rule by undermining the small leverage of the local social power groups that were associated with the more modern productive-export sector of the economies in these countries.

5. According to Cardoso and Faletto (1968), the local economies were apparently successful by increasing their exports and achieved a high degree of specialization of their production. However, the local economies suffered a strong loss of surplus and were weakened in the process of internal capital accumulation. The growth registered by this outward model did not help develop or stimulate an internal market. The structure of the internal economies was unbalanced and the national income was concentrated in the enclave sector which marginalized the rest of the economy.

6. According to Cardoso and Faletto (1968), in the plantations a high degree of labor was used, and a smaller concentration of capital was required. However, in the mining enclave, the concentration of labor was lower but the capital concentration was higher. Another difference is that the distribution of income into the national economy, even if low, was higher in the case of the mining enclaves than in the plantation enclaves.

7. Two extremes cases or types of plantation enclaves situations that could be present in a continuum are as follows:
1. A case in which a local social group lost control of the productive-export sector and the sector was inserted into the world market through the new foreign-controlled enclave.

2. A case in which the agricultural production enclave developed directly as an initiative of this foreign interest group. In this last case, the enclave co-exists with a local export-economic sector of fragile linkage to the world market and an inward productive sector, so that even if small and marginal, continues to be controlled by the traditional oligarchies.

However, the degrees of autonomy of the national internal social groups that controlled the local economic process was greater in the second case, than in the first. The first case, one of higher level of dependency to external powers, is found in the extreme example of Honduras in the historical reality of the Latin American context.

8. As documented by Torrez-Rivas (1971, p. 102), in 1930 the United Fruit Company was paying only one cent of a dollar per bunch of bananas in taxes to Honduras, while in Guatemala and Costa Rica, their tax was double.

9. According to the two types described, the effects were different:

1. In the case where the enclaves encountered a local social group in control of the productive export system, social groups related to the commercial and finance sectors assumed a role of connecting the external exports sector to the national economy. Under these circumstances, the regulating functions of the state were reinforced. As a result of these functions and the taxes paid by the enclave sector, a bureaucracy was developed creating the basis for what has come to be known as the "traditional middle" class tied to the state apparatus. These groups are identified in the model as traditional because they did not emerge from the modern urban industrial sector.

2. In the case of the countries where the enclave grew without a national social control over the productive export system, the local dominant social groups played a secondary role in the productive process. According to Cardoso and Faletto (1968),
the social structure of these countries could be schematized as formed by a large mass of workers together with a small oligarchy that controls the military and government apparatus, tied with a largely unproductive latifundio system. The political leadership in these cases was assumed by local "caciques" or "caudillos" that represented provincial power groups and defended the oligarchic interest as a whole. The Caudillo gained and lost power as the result of armed revolts.

10. In both cases, the relation between the political system and the economic system had similar forms.

a) production is directed as an extension of the central economies in a double sense.
   i) There is outright control of Investment.

ii) The benefits generated by those Investments only go by the internal monetary flow of the dependent nation on their way out, back to the central economies that control the enclaves.

b) The enclave sector does not have any real connection with the local economies, nor with the subsistence economies or the agricultural internal markets. Its relation with the dependent society are all through the state apparatus and the political structure. This factor is crucial in giving this type of relation a political character, because these conditions of operation do not depend on a market regulation with the national economies, but are the expression of political relations with the local power structures.

c) From the perspective of the world market, the economic relations are set out and established in the central economies, out of the reach of the local economical-productive groups to Influence the prices or other market conditions.

11. For Cardoso and Faletto (1968, p. 82), control of the enclave situation was possible, not because of economic mechanisms, but on the basis of the political relation the enclave could assure with the local authorities. The linkage then with the external sector was made by the local authorities. The linkage then with the external sector was by local control groups not as entrepreneurs but as a political dominant class.
12. The reason for the difficult integration between the middle class reformers and the workers organizations, according to Cardoso and Faletto (1968) was that such a mobilization could endanger the whole political power structure. Once the workers were on the move, nothing would prevent them from demanding their autonomous participation or share of power. The result was that the middle classes abandoned any open confrontation with the oligarchic power structures to avoid being overtaken by the working classes. Thus, their abandonment identified the great weakness and fragility of the system as a whole: its resistance to change under pressure.

13. According to Weber (1976:48) "...to begin with, there is this general factor: the economic surplus...always had its original basis in the rents which the landed princes and noble class derived from their estates and from levies on their dependents."

14. Marx (1978:209) stated: "...The essential difference between the various economic forms of society...lies only in the mode in which this surplus-labor is in each case extracted from the actual producer, the laborer."

15. For Stinchcombe (1961:165), "Agriculture everywhere is much more organized around the institutions of property than around those of occupation."

16. According to Marx (1978:166), the process of development of a market for commodities oriented production system involved a whole series of destructions and penetrations of the commodity form on older forms of production. He states (1978:166) "It is clearly the result of a past historical development, the product of many economic revolutions, of the extinction of a whole series of older forms of social production."

17. "In every agricultural gubernia there is free competition side by side with monopoly industry...and this means that during the present transition period, we cannot escape this mosaic reality. We cannot cast aside this patchwork reality, however inelegant it may be; we cannot cast away one bit of it...and how is it, indeed, that there is such a category as a middle peasant in the era of purely Imperialist capitalism" (I. V. Lenin (1965:V29, pp. 168-169).
18. For Friedmann, the full scale development of commoditization is completed when the producers household has totally separated from any ties except those of the market.

19. The process of extended reproduction requires markets to transform the factors of production into commodities which are bought by capital in order to produce commodities which are sold and converted into new capital. In both simple and extended reproduction, the technical elements refer to the means of production and their technical conditions of production that include the technical relations of production. The social elements which refer to the distribution of the product include the social relations of production that reproduces the social division of labor within that social formation.

20. However, as stated by Bernstein (1979:424), "In elaborating some of the issues and concepts relating to commoditization, there is no suggestion that the process is a uniform one, that it follows a simple linear progression, nor that it is complete."

21. Bernstein (1979:425) explains the difference of the logic of production between these two types of producer, stating, "...simple commodity production is distinguished from capitalist commodity production by its "logic" of subsistence (meeting the needs of simple reproduction) as opposed to the logic of the appropriation and realization of surplus-value and the accumulation of capital."

22. For H. Friedmann (1980:175), "The transformation of simple commodity production to capitalist production involves a further intensification of commodity relations within reproduction, so that labor power is mobilized exclusively through the market instead of the domestic group."

23. Friedmann (1980:175) explains that "The whole complex of institutions of 'peasant' reproduction which resist commoditization must decompose in order for capitalist (or simple commodity) production to emerge. Communal and 'pre-capitalist' class relations must give way to mobility of labor, and national markets in credit and land."
24. According to H. Friedmann (1980:162), "The undermining of reproduction and the recombination of some of the old elements of production into new relations is transformation." The effects of uneven and combined development together present the results that transformation can occur either way as a transition into "new" and higher degrees of commodity reproduction or into "old" and lower degrees of commodity reproduction.

25. Following Marx (1978, Capital, Vol. I, part II, Chapter VI), "The buying and selling of labor-power," it is clear that buyers and sellers of labor power are not on equal terms.

26. According to Marx (1978:169), "The value of labor power resolves itself into the value of a definite quantity of means of subsistence. It therefore varies with the value of these means as with the quantity of labor requisite for their production." The essence of the labor theory of value distinguishes the buyer of labor as a commodity transformer of capital that has been extracted as surplus-labor from the seller of labor. On the other hand, the seller of labor is distinguished as the owner of a commodity that has lost value in the forced exchange between labor power and a salary. The historical conditions of a class that is forced to sell its labor require the expropriation of all other means of subsistence that could allow them to resist the sale of their labor power.

27. As Roger Bartra (1980) stated, they are exploited as proletarians because they are simple commodity producers. I would characterize the condition of the peasant and the semi-proletarianized peasant producer as a sub-proletarian or a rural lumpen proletarian, who is exploited as a proletarian not because they are simple commodity producers but because they are subsistence producers.

28. As previously stated, Max Weber's (1978) distinction between levels of skill in the labor force can clarify the direction that the analysis of the differential effects of integration into the labor markets can generate. In any case, I can state that the presence of any form of labor force participation of agrarian producers at any level of commoditization will have as an effect to either be or add resistance to the process of full commodity reproduction of relations of production.
29. As stated previously by Max Weber (1978:927), "We may speak of a "class" when (1) a number of people have in common a specific causal component of their life chances, insofar as (2) this component is represented exclusively by economic interests in the possession of goods and opportunities for income, and (3) is represented under the conditions of the commodity or labor markets. This is "class situation"..." a plurality of people, meeting competitively in the market for the purpose of exchange, in itself creates specific life chances."

30. As stated by Bartra (1980) the system of social classes is represented in a social stratification of groups of people and their families cluster together in a distribution along a continuum but that can be distinguished by the process of reproduction of their class situation.

31. The property space with both affirmatives in buying labor power and selling agricultural production identifies the capitalist production type. The capitalist is characterized by the highest degree of commoditization of all agrarian producers.

32. The property space that is identified as the production type that sells to the markets of agricultural commodities but does not hire labor power from the labor market represents the simple commodity producer. The simple commodity producer is a farmer that employs exclusively family labor in their production unit and is characterized by a medium level of degree of commoditization.

33. The property space of producers without any participation to market reproduction, neither the agricultural commodities markets nor the labor market identifies the peasant producer. The peasant agricultural producer exclusively uses family labor and consumes their production. The peasant subsistence farmer is characterized by the lowest degree of commoditization and the highest degree of resistance to commoditization.

34. The property space formed by the dimensions of not selling production to the markets of agricultural commodities but hiring labor power from the labor markets is not an agricultural producer. The non-productive land holding type is, in fact, a nonagrarian production unit; theoretically these land holdings
could constitute either recreations or leisure type of rural residences that could not be conceptualized as farms of any type. The nonfarm is not theoretically meaningful and will be excluded from the typology. Following Lazarsfeld (1937), I shall reduce this type from my typology, based on a functional reduction because this type is a nonproductive land holding and should not be included in a typology of production types.

35. **Landed property and education:** Lower concentrations of land are an incentive for the simple commodity producer to increase educational achievement as a war to compensate for the disadvantage of lower societal resource expressed by farm size. Higher education would work to compensate the inequality of access to land.

36. **Landed property and the organic composition of capital:** The increase of fixed capital acquisitions and the mechanization of production are dependent on the capital accumulation possibilities of the simple commodity producer. Because hiring labor is not an alternative for the simple commodity producer, the only source of capital accumulation is the extraction of extra surplus from more access to land for production and higher intensity in use of family labor power through mechanization. Increase in the access to land leads to increase in the organic composition of capital.

37. **Landed property and dependency ratio:** An increase in the amount of available land for the producer can only be put into production by a surplus labor effort on the family labor pool available to the simple commodity household. The additional family labor force demanded would have as a net result a reduction of the dependency ratio, mobilizing more dependent, nonworking family members to incorporate into the family labor force. The direct effect of a higher concentration of landed property would be to depress the dependency ratio of the simple commodity producer’s household.

38. **Education and dependency ratio:** As educational achievement levels increase, the productivity of family labor increases so as to reduce the pressure of surplus labor extraction on the simple commodity household. The direct effect of increase in educational levels and higher productivity of family labor could generate the compensatory income needed to relieve nondependent
members of the simple commodity household from direct participation in the production process and restore them to their status of nonworking members, thus increasing the dependency ratio of the family. A higher educational level explains a higher dependency ratio of the simple commodity household.

39. Educational achievement: As educational levels of achievement increase, the simple-commodity producer is better prepared to participate in the labor markets because his/her improved skills increase his/her likelihood to find employment.

40. Landed property: As landed property concentrations decrease, the simple-commodity producer has incentive to participate in the labor markets in order to compliment the household income and consumption needs.

41. Organic composition of capital: As the degree of organic composition of capital or level of technological mechanization of the simple commodity farm decreases, the productivity and output also decreases, improving the chances that the producer would search for employment as a means to compensate the lost income, thus increasing the likelihood of proletarianization.

42. Dependency ratio: As the proportion of dependents in the household of the simple commodity producer increases, the likelihood that the producer would search for employment to compensate for the added consumer requirements of the household also increases. The dependency ratio best identifies Chayanov's (1925) labor-consumer balance that measures the ratio of working members to nonworking members of the rural household.
Chapter V Endnotes

1. According to Blalock (1969), in sociology, discussions which involve typologies have had a common theoretical characteristic: to find numerous implicit hypotheses buried among the comparisons of the several types.

2. Quoting McKinney, Blalock (1969, p. 33) would clarify "...researchers skilled in the use of typologies have not been statistically or mathematically inclined, and vice versa. This may be one of the reasons for the existing gap between sociological theory and empirical research."

3. Only after the typology has been proven to discriminate among the empirical cases and their types, and that the trend presented by the data fits a linear distribution, could future research be developed on the design of causal modeling.

4. The identification of this variable shows that it comes from question 39 of the questionnaire, is variable 145 and is registered in the data set in deck 4, column 62.

5. I chose this variable because it identified the farm production of the first major crop as sold. In all cases that other secondary crops or activities had been sold, the first crop was also sold.

6. The question is number 42 of the questionnaire, variable 189 of the data set, and is registered in column 58 of deck 5 of the data files.

7. However, all of the affirmative responses were also cases that had responded affirmative to VENUNO, to selling products to the market. All of the 203 peasant producers that had responded no to VENUNO had also responded no to JORN, hiring laborers that year. In fact, the desegregation effect of this dimension, hiring or not hiring labors distinguished among the commodity producers, divided them into two groups. From the total 793 cases of producers that sold produce to the market, 298 of them hired laborers that year and 395 did not hire laborers.

8. This criterion distinguishes the household of producers by the effects or reproduction into agrarian production types and social class situation through resistance to commoditization.
9. The variable OFFRMWK comes from question 26 of the questionnaire, is variable 54 of the data set, and is registered in columns 74-75 of deck one of the data files.

10. The variable comes from question 28 of the questionnaire, is variable 55 of the data set, and is registered in column 76 of deck one of the data file.

11. The variable came from question 27 of the questionnaire, is variable 56 of the data set, and is registered in column 77 of deck one of the data file.

12. The variable came from question 29 of the questionnaire, is variable 57 of the data set, and is registered in column 78 of deck one of the data file.

13. The variable came from question 31 of the questionnaire, is variable 58 of the data set, and is registered in column 79 of deck one of the data file.

14. Following the guide set out by McKinney (1966), I have methodologically constructed a continuous variable, the composite variable of commoditization, by means of the transformation of three dichotomous variables. The continuous variable commoditization is the independent variable that explains the distribution of properties and characteristics of social differentiations among the households of producers of the Pacifico Sur Region of Costa Rica.

15. Following Max Weber (1978, p. 927), I hypothesize that each type of producer category includes a distinct "number of households that have in common a specific causal component of their life chances," and that this component, their production system, is "represented exclusively by economic interests in the possession of goods and opportunities for income." The conditions under which these production systems vary are the "commodity or labor markets" and that will be identified by the level of commoditization. Finally, each level of commoditization identifies a social class situation represented by a condition of determination in which a "plurality of household, meeting competitively in the market for the purpose of exchange, in itself creates specific life chances."

16. The first question addressed the test of differences in the means of the dependent variable due to the changes in the independent variable. The fact that differences
are encountered do not inform as to what pair or groups of means are different. However, the fact that the means are different does identify that a trend exists in the data.

17. The same hypothesis could then be written in terms of the slopes. The null hypothesis will state that the slopes are equal to zero. \( H_0: B_j = 0 \) for all \( j \) and the alternative hypothesis will state that the slopes are not equal to zero: \( H_a: B_j = 0 \) for some \( j \). The use of the slopes in substitution for the testing of the means is possible because both statements are the same. The equivalence is based on the definition of the slopes as being equal to the difference between the mean \( M_j \) minus the grand mean \( M \). If \( B_j = 0 \) for all \( j \), then each \( K \) population means must equal the grand mean and, hence, the \( K \) populations means are equal, if equal, their difference is zero.

18. For Kirk (1968, p. 116) "Orthogonal polynomials are introduced here because they provide a convenient way of determining whether or not the trend of data is linear or nonlinear." The one tail test of the slope only identifies that there is or not a trend and the direction of the trend.

19. For Kirk (1968, p. 120), "The F test procedure described here is appropriate for planned orthogonal trend test."

20. Kirk (1968, p. 120) states that "This test is referred to as a test for departure from linearity."

21. It is variable number 92 of the data set and it is registered in columns 72-74 in deck two of the data file.

22. It is variable 131 of the data set, and it is registered in columns 25-27 of deck three of the data file.

23. It is variable 190 of the data set and is registered in column 59 of deck five of the data file.

24. It is the 191st variable of the data set and it is registered in column 60 of deck five of the data file.

25. It is the 93rd variable of the data set and is registered in columns 75-76 of deck two of the data file.
26. It is variable 94 of the data set and is registered in columns 77-78 of deck two of the data file.

27. SURECROP is variable 194 of the data set and is registered in columns 64-65 of deck five of the data file.

28. It is variable 202 of the data set. It is registered in columns 77-79 of deck five of the data file.

29. It is variable 199 of the data set and is registered in columns 72-73 of deck five of the data file.

30. It is the 199th variable of the data set and is registered in columns 70-71 of deck five of the data file.

31. It is the 199th variable of the data set and is registered in columns 70-71 of deck five of the data file.

32. It is variable 197 of the data set and is registered in column 69 of deck five of the data file.

33. It is variable 87 of the data set and is registered in column 65 of deck two of the data file.

34. It is variable 91 of the data set and is registered in column 71 of deck two of the data file.

35. It is variable 91 of the data set and is registered in column 71 of deck two of the data file.

36. It is variable 68 of the data set and is registered in column 34 of deck two of the data file.

37. It is variable 21 of the data set and is registered in columns 38-40 of deck two of the data file.

38. It is variable 73 of the data set and is registered in column 43 of deck two of the data file.

39. It is variable 74 of the data set and is registered in column 44 of deck two of the data file.

40. It is variable 64 of the data set and is registered in column 30 of deck two of the data file. It is variable 64 of the data set and is registered in column 30 of deck two of the data file.
41. It is variable 65 of the data set and is registered in column 31 of deck two of the data file.

42. It is variable 66 of the data set and is registered in column 32 of deck two of the data file.

43. It is variable 61 of the data set and is registered in columns 14-15 of deck two of the data file.

44. The epistemic relation with the concept of the intensity of occupation of labor in the farms is established on the basis that farms that have exhausted the use of the in-farm labor supply will be the ones seeking to contract out of farm labor. Farmers in need of labor are the ones that would point out this issue or run into problems in their quest of getting labor.

45. It is variable 192 of the data set and is registered in column 61 of deck five of the data file.

46. It is the 146th variable of the data set and is registered in columns 63-64 of deck four of the data file.

47. It is variable 147 of the data set and is registered in column 65 of deck four of the data file.

48. It is variable 148 of the data set and is registered in column 66 of deck four of the data file.

49. And they are variables 28, 30, 32, and 34 of the data set. They are registered in columns 43-44, 46-47, 49-50, and 52-53 of deck one of the data file.

50. They are variables 29, 31, 33, and 35 of the data set, and are registered in deck one, in columns 45, 48, 51, and 54 of the data file.

51. YRESID is variable 12 of the data set and is registered in columns 23-24 of deck one of the data file.

52. It is variable 13 of the data set and is registered in column 25 of deck one of the data file.

53. It is variable 17 of the data set and is registered in column 30 of deck one of the data file.

54. It is variable 15 of data set and is registered in column 27 of deck one of the data file.
55. It is variable 16 of the data set and is registered in columns 28-29 of deck one of the data file.

56. It is variable 18 of the data set and is registered in column 31 of the data file.

57. It is variable 36 of the data set and is registered in column 55 of deck one of the data file.

58. It is the 41st variable of the data set and is registered in column 60 of the first deck of the data file.

59. It is variable 47 of the data set and is registered in column 67 of deck one of the data file.

60. It is variable 42 of the data set and is registered in column 61 of deck one of the data file.

61. It is variable 43 of the data set, and is registered in column 62 of deck one of the data file.

62. It is variable 50 of the data set and is registered in column 70 of deck one of the data file.

63. It is variable 49 of the data set and is registered in column 69 of deck one of the data file.

64. COCICOM is the 48th variable of the data set and is registered in column 68 of deck one of the data file.

65. It is variable 21 of the data set and is registered in columns 35-36 of deck one of the data file.

66. Costa Rica is a country with national free health care services for both the urban and rural population. However, personal social security coverage is an indicator of the level of labor market participation of the members of the household of the producer and thus hypothesized to be inversely related to commoditization.

67. It is variable 22 of the data set and is registered in column 37 of deck one of the data file.

68. It is variable 21 of deck one of the data file.

69. It is registered in columns 7-9 of deck one of the data file.
70. It is variable 5 of deck one of the data file.

71. It is variable 5 of deck one of the data file.

72. The number of dependents of the household is not only determined by the children, but also by the adult nonworking members. The greater the number of heads of households that do contribute to family income, the higher the proportion of the older population of dependents of the farms.

73. It is variable 11 of the data set and is registered in column 22 of the data file.

74. It is variable 109 of the data set and is registered in columns 29-30 of deck three of the data file.

75. It is variable 110 of the data set and is registered in columns 31-32 of deck three of the data file.

76. It is variable 111 of the data set and is registered in column 33 of the data file.

77. It is variable 115 of the data set and is registered in columns 37-38 of deck three of the data file.

78. It is variable 114 of the data set and is registered in column 36 of deck three of the data file.

79. It is variable 98 of the data set and is registered in columns 14-15 of deck three of the data file.

80. It is variable 99 of the data set and is registered in column 16 of deck three of the data file.

81. Under age 12 was chosen because of the widespread free public educational system of Costa Rica that would compel households to send their young to school. Household members over age 12 that also go to school, compensate for the family labor input of those under age 12 that have been considered totally not contributing to the family labor supply. Other categories of dependents are not included, such as the elderly, sick, unemployed, and others, under the consideration that children under 12 are a good indicator of the level of dependency per household.
Chapter VI Endnotes

1. The slope of the linear regression is positive with a Pearson correlation coefficient of \( r = 0.2575 \) statistically significant with a one tail test probability of \( P < 0.00005 \). Higher order trends were also significant. However, the linear component of the relationship accounted for 68.9 percent of the variation. The correlation ratio ETA is \( 0.3101 \) and will represent the standardized regression coefficient of the following equation expressed in standard scores: \( Y \) score = \( 0.3101 \) (\( X \)), when the intercept \( A \) is zero, \( Y \) the predicted score of the average farm size and \( X \) the degree of commoditization (category or type of agrarian production system). The proportion of variability of \( Y \) accounted for by a change of (\( X \)) expressed by ETA squared is 9.61 percent.

2. The slope of the linear regression is positive with a Pearson correlation coefficient of \( r = 0.2551 \) statistically significant with a one tail test probability of \( P < 0.00005 \). Higher order trends were also significant. However, the linear component of the relationship accounted for 64.9 percent of the variation. The correlation ratio ETA is \( 0.3168 \) and will represent the standardized regression coefficient of the following equation expressed in standard scores: \( Y \) score = \( 0.3168 \) (\( X \)), when the intercept \( A \) is zero, \( Y \) the predicted score of the mean size of the total land holding and \( X \) the degree of commoditization category or type of agrarian production system). The proportion of variability of \( Y \) accounted for by a change in (\( X \)) expressed by ETA squared is 10.03 percent.

3. Higher order trends were also significant. However, the linear component of the relationship accounted for 93.9 percent of the variation. The correlation ratio ETA is \( 0.3874 \) and will represent the standardized regression coefficient of the following equation expressed in standard scores: \( Y \) score = \( 0.3874 \) (\( X \)), when the intercept \( A \) is zero, \( Y \) the predicted score of the average level of mechanization of the farm, and \( X \) the degree of commoditization (category or type of agrarian production system). The proportion of variability of \( Y \), accounted for by a change of (\( X \)) expressed by ETA squared, is 15.01 percent.

4. The slope of the linear regression is positive with a Pearson correlation coefficient of \( r = 0.1740 \), statistically significant with a one tail test
probability of $P < 0.0005$. Higher order trends were also significant, however, the linear component of the relationship accounted for 74.7 percent of the variation. The correlation ratio ETA is 0.2013 and will represent the standardized regression coefficient of the following equation expressed in standard scores: $Y$ score $= 0.2013 \times (X)$, when the intercept $A$ is zero, $Y$ the predicted score of the average number of producers that identified getting farm machinery as a problem and $X$ the degree of commoditization (category or type of agrarian production system). The proportion of variability of $(Y)$ accounted for by a change of $(X)$ expressed by ETA squared is 4.05 percent.

5. The slope of the linear regression is positive with a Pearson correlation coefficient of $r = 0.1084$, statistically significant with a one tail test probability of $P < 0.00005$. Higher order trends were also significant and accounted for the greater portion of variation. The linear component present of the relationship accounted for 31.6 percent of the variation. The correlation ratio ETA is 0.1929 and will represent the standardized regression coefficient of the following equation expressed in standard scores: $Y$ score $= 0.1929 \times (X)$, when the intercept $A$ is zero, $Y$ the predicted score of the average value of the export orientation of the first major farm activity and $X$ the degree of commoditization (category or type of agrarian production system). The proportion of variability of $(Y)$ accounted for by a change of $(X)$ expressed by ETA squared is 3.72 percent.

6. The slope of the linear regression is positive with a Pearson correlation coefficient of $r = 0.1701$, statistically significant with a one tail test probability of $P < 0.0005$. Higher order trends were found to be not significant and rejected with a level of significance of $P = 0.5733$. The linear component of the relationship accounted for 91 percent of the variation. The correlation ratio ETA is 0.1783 and will represent the standardized regression coefficient of the following equation expressed in standard scores: $Y$ score $= 0.1783 \times (X)$, when the intercept $A$ is zero, $Y$ the predicted score of the average value of the export orientation of the second major farm activity and $X$ the degree of commoditization (category or type of agrarian production system). The proportion of variability of $(Y)$, accounted for by a change of $(X)$, expressed by ETA squared, is 3.18 percent.
7. The slope of the linear regression is positive with a Pearson correlation coefficient of $r = 0.1998$, statistically significant with a one tail test probability of $P = 0.0005$. Higher order trends were found to be significant, however, the linear component of the relationship accounted for 77.5 percent of the variation. The correlation ratio ETA is 0.2269 and will represent the standardized regression coefficient of the following equation expressed in standard scores: $Y$ score = 0.2269 $(X)$, when the intercept $A$ is zero, $Y$ the predicted square of the mean value of the export orientation of the two major farm activities, and $X$ the degree of commoditization (category or type of agrarian production system). The proposition of variability of $(Y)$ accounted for by a change of $(X)$ expressed by ETA squared is 5.15 percent.

8. The slope of the linear regression is positive with a Pearson correlation coefficient of $r = 0.1135$, statistically significant with a one tailed test probability of $P < 0.0005$. Higher order trends were also significant. The linear component of the relationship accounted for 49.5 percent of the variation. The correlation ratio ETA is 0.1614 $(X)$, when the intercept $A$ is zero, $Y$ the predicted score of the average level of perceived security of the production activities of the farms, and $X$ the degree of commoditization (category or type of agrarian production system). The proposition of variability of $(Y)$ accounted for by a change of $(X)$ expressed by ETA squared is 2.6 percent.

9. The slope of the linear regression is positive as hypothesis with a Pearson correlation coefficient of $r = 0.1857$, statistically significant with a one tail test probability of $P < 0.0005$. Higher order trends were also significant; however, the linear component of the relationship accounted for 71.0 percent of the variation. The correlation ratio ETA is 0.2204 and will represent the standardized regression coefficient of the following equation expressed in standard scores: $Y$ score = 0.2204 $(X)$ when the intercept $A$ is zero, $Y$ the predicted score of the average number of heads of cattle of the farms, and $X$ the degrees of commoditization (types or categories of agrarian production systems). The proposition of variability of $(Y)$ accounted for by a change of $(X)$ expressed by ETA square is 4.86 percent.
10. The slope of the linear regression is positive as hypothesized with a Pearson correlation coefficient of $r = 0.1083$, statistically significant with a one tail test probability of $P = 0.001$. Higher order trends were not found to be significant, rejected with an F ratio of only 0.380 statistically not significant at a probability level of $P = 0.8227$. The correlation ratio ETA is 0.1171 and will represent the standardized regression coefficient of the following equation expressed in standard scores: $Y = 0.1171 (X)$, when the intercept $A$ is zero, $Y$ the predicted score of the average number of milk bottles produced by the farm, and $X$ the degree of commoditization (category or type of agrarian production system). The proposition of variability of $(Y)$ accounted for by a change of $(X)$ expressed by ETA square is 1.37 percent.

11. The slope of the linear regression is positive and larger than zero as hypothesized with a Pearson correlation coefficient of $r = 0.0886$, statistically significant with a one tail test probability of $P = 0.007$. Higher order trends were not found to be significant. The correlation ratio ETA is 0.1306 and will represent the standardized regression coefficient of the following equation expressed in standard scores: $Y = 0.1306 (X)$, when the intercept $A$ is zero, $Y$ the predicted score of the mean number of fowls produced on the farms, and $X$ the degree of commoditization (category or type of agrarian production system). The proposition of variability of $(Y)$ accounted for by a change in $(X)$, expressed by ETA square is 1.71 percent.

12. The slope of the linear regression is positive with a Pearson correlation coefficient of $r = 0.2537$, statistically significant, with a one tail test probability of $P < 0.0005$ and will represent the standardized regression coefficient of the following equation expressed in the standard scores: $Y = 0.2577 (X)$, when the intercept $A$ is zero, $Y$ the predicted score of the mean number of horses in the farms, and $X$ the degree of commoditization (type of category of agrarian production system). The proportion of variability of $(Y)$ accounted for by a change of $(X)$ expressed by ETA square is 7.2 percent.

13. Higher order trends were not found to be significant. The test for deviation from linearity failed to establish a higher order trend with an F = 0.6447 and a probability of $P = 0.6307$. The slope of the linear regression is positive with a Pearson correlation
regression is positive with a Pearson correlation coefficient of $r = 0.2053$, statistically significant with a one tail test probability of $P = 0.0005$. The correlation ratio ETA is 0.2112 and will represent the standardized regression coefficient of the following equation expressed in standard scores: $Y = 0.2112(X)$, when the intercept $A$ is zero, $Y$ the predicted score of the mean number of producers that received technical assistance for their farm production, and $X$ the degree of commoditization (category or type of agrarian production system). The proportion of variability of $(Y)$ accounted for by a change in $(X)$ expressed by ETA square is 4.46 percent.

14. The slope of the linear regression is positive with a Pearson correlation coefficient of $r = 0.1422$, statistically significant with a one tail test probability of $P < 0.0005$. Higher order trends were not found to be significant. The correlation ratio ETA is 0.1485 and will represent the standardized regression coefficient of the following equation expressed in standard scores: $Y = 0.1485(X)$, when the intercept $A$ is zero, $Y$ the predicted score of average number of technical assistance visits to the farms, and $X$ the degree of commoditization (category or type of agrarian production system). The proportion of variability of $(Y)$ accounted for by a change in $(X)$ expressed by ETA square is 2.2 percent.

15. The slope of the linear regression is positive with a Pearson correlation coefficient of $r = 0.2038$, statistically significant with a one tail test probability of $P < 0.00005$. Higher order trends were not found to be significant. The correlation ratio ETA is 0.2077 and will represent the standardized regression coefficient of the following equation expressed in standard scores: $Y = 2.2077(X)$, when the intercept is zero, $Y$ the predicted score of the average number of farmers that applied technical assistance advice, and $X$ the degree of commoditization (category or type of agrarian production system). The proportion of variability of $(Y)$ accounted for by a change in $(X)$, expressed by ETA square, is 4.31 percent.

16. Higher order trends were also significant, however, the linear component of the relationship accounted for 63.4 percent of the variation. The correlation ratio ETA is 0.4306 and will represent the standardized regression coefficient of the following equation expressed in
17. The slope of the linear regression is positive with a Pearson correlation coefficient of \( r = 0.1776 \), statistically significant with a one-tailed test probability of \( P < 0.0005 \). Higher order trends were not found to be significant and rejected with an \( F = 1.4823 \) and a probability level of significance of \( P = 0.2054 \). The correlation ratio ETA is 0.1930 and will represent the standardized regression coefficient of the equation expressed in standard scores: \( Y \) score = 0.1930(\( X \)) when the intercept \( A \) is zero, \( Y \) the predicted score of the average number of months for the term of repayment of the first loan, and \( X \) the degree of commoditization (category or type of agrarian production system). The proportion of variability of \( Y \), accounted for by a change of \( X \), expressed by ETA squared, is 3.73 percent.

18. The slope of the linear regression is positive with a Pearson correlation coefficient of \( r = 0.2757 \), statistically significant with a one-tailed test probability of \( P < 0.0005 \). Higher order trends were significant; however, the linear component of the relationship accounted for 77.9 percent of the variation. The correlation ratio ETA is 0.3123 and will represent the standardized regression coefficient of the following equation expressed in standard scores: \( Y \) score = 0.3123(\( X \)), when the intercept \( A \) is zero, \( Y \) the predicted score of average number of producers that received loans and that considered them to be timely, and \( X \) the degree of commoditization (category or type of agrarian production system). The proportion of variability of \( Y \), accounted for by a change in \( X \), expressed by ETA squared is 9.76 percent.

19. Higher order trends were found to be significant, however, the linear component of the relationship accounted for 69.1 percent of the variation. The correlation ratio ETA is 0.3037 and will represent the standardized regression coefficient of the following equation expressed in standard scores: \( Y \) score =
0.3037(X), when the Intercept A is zero, Y the predicted score of the index of sufficiency of the first loan and X the degree of commoditization (category or type of agrarian production system). The proportion of variability of (Y) accounted for by a change in (X) expressed by ETA squared in 9.22 percent.

20. The slope of the linear regression is positive with a Pearson correlation coefficient of $r = 0.1285$, statistically significant with a one tail probability of $P < 0.0005$. Higher order trends were not significant and rejected with an $F = 1.1897$ and a probability of $P = 0.3137$. The correlation ratio ETA is 0.1457 and will represent the standardized regression coefficient of the following equation expressed in standard scores: $Y$ scores = 0.1457(X), when the intercept A is zero, Y the predicted score of the average number of farmers with checking accounts in banks and X the degree of commoditization (category or type of agrarian production system). The proportion of variability of (Y), accounted for by a change of (X), expressed by ETA, squared, is 2.12 percent.

21. The slope of the linear regression is positive as hypothesized with a Pearson correlation coefficient of $r = 0.0884$, statistically significant with a one tail probability of $P = 0.003$. Higher order trends were also found to be significant; however, the linear component of the relationship accounted for 31.5 percent of the variation. The correlation ratio ETA is 0.1575 and will represent the standardized regression coefficient of the following equation expressed in standard scores: $Y$ score = 0.1575(X), when the intercept A is zero, Y the predicted score of the average number of producers with savings accounts, and X the degree of commoditization (category or type of agrarian production system). The proportion of variability of (Y), accounted for by a change of (X), expressed by ETA squared, is 2.48 percent.

22. The alternative hypothesis that the slope is larger than zero is accepted, presenting a positive Pearson correlation coefficient of $r = 0.1423$ statistically significant with a one tail probability level of $P < 0.0005$. Higher order trends were not found to be significant with an $F$ ratio of 0.8701 and a probability level of $P = 0.4813$. The correlation ratio ETA is 0.1539 and will represent the standardized regression coefficient of the following equation expressed in standard scores: $Y$ score = 0.1539(X),
when the intercept $A$ is zero, $Y$ the predicted score of the average number of producers with savings accounts in cooperatives and $X$ the degree of commoditization (category of type of agrarian production system). The proportion of variability of $(Y)$, accounted for by a change in $(X)$, expressed by ETA squared, is 2.37 percent.

23. The slope of the linear regression is positive as hypothesized with a Pearson correlation coefficient of $r = 0.0765$, statistically significant with a one tail test probability of $P = 0.008$. Higher order trends were found to also be significant, accounting for the greater portion of variation. The linear component of the relationship only accounted for 12 percent of the variation. The correlation ratio ETA is 0.2207 and will represent the standardized regression coefficient of the following equation expressed in standard scores: $Y \text{ score} = 0.2207(X)$, when the intercept $A$ is zero, $Y$ the predicted score of the mean number of hours worked by the head of household the previous week, and $X$ the degree of commoditization (category or type of agrarian production system). The proportion of variability of $(Y)$, accounted for by a change in $(X)$, expressed by ETA squared, is 4.87 percent.

24. The rationale of this indirect measurement is that farmers in need of labor are the ones that would point out this issue, or will be the ones to run into problems in the quest of contracting out of farm labor.

25. The alternative hypothesis, that the slope of the linear regression is positive and larger than zero, is accepted, and as hypothesized, the Pearson correlation coefficient is positive with $r = 0.3889$ statistically significant with a one tail test probability level of $P < 0.0005$. Higher order trends were also found to be significant, however, the linear component of the relationship accounted for the greater proposition of variation with 69.1 percent. The correlation ratio of ETA is 0.4680 and will represent the standardized regression coefficient of the following equation expressed in standard score: $Y \text{ score} = 0.4680(X)$, when the intercept $A$ is zero, $Y$ the predicted score of mean number of producers that identified contracting labor as a problem, and $X$ the degree of commoditization (type or category of agrarian production system). The proportion of variability of $(Y)$, accounted for by a change of $(X)$, expressed by ETA squared, is 21.9 percent.
26. The alternative hypothesis that the slope is positive and larger than zero is accepted with a statistically significant Pearson correlation coefficient for \( r = 0.0656 \) of \( P < 0.0005 \). Higher order trends were not found to be significant. The correlation ratio ETA is 0.1110 and will represent the standardized regression coefficient of the following equation expressed in standard scores: \( Y \) score = \( 0.1110(X) \), when the intercept \( A \) is zero, \( Y \) the predicted score of the mean amount of fertilizer used on the first crop, and \( X \) the degree of commoditization (type or category of agrarian production system). The proportion of variability of \( (Y) \) accounted for a change in \( (X) \), expressed by ETA squared, is 1.23 percent.

27. The alternative hypothesis, that the slope of the distribution of the mean number of farmers that used fertilizer is positive and larger than zero, was accepted. The Pearson correlation coefficient of the linear regression is \( r = 0.1226 \) statistically significant with a one tail probability level of \( P < 0.0005 \). Higher order trends were found not to be significant. The regression coefficient of the following equation expressed in standard scores: \( Y \) score = \( 0.1529(X) \), when the intercept \( A \) is zero, \( Y \) the predicted score of the mean number of farmers that used fertilizer on their first crop, and \( X \) the degree of commoditization (type or category of agrarian production system). The proportion of the variability of \( (Y) \), accounted for by a change of \( (X) \), expressed by ETA squared, is 2.34 percent.

28. The alternative hypothesis, that the mean values of the scale of use of herbicide and/or insecticides are not equal and that the slope is positive and larger than zero, is accepted. The Pearson correlation coefficient of the linear regression is \( r = 0.1575 \) statistically significant with a one tail test probability of \( P < 0.0005 \). Higher order trends were not found to be significant, and were rejected at an F ratio of 1.1029, with a probability level of \( P = 0.3539 \). The correlation ratio ETA is 0.1719 and will represent the standardized regression coefficient of the following equation expressed in standard scores: \( Y \) score = \( 0.1719(X) \), when the intercept \( A \) is zero, \( Y \) the predicted score mean value of the scale of use of herbicides and/or insecticides, and \( X \) the degrees of commoditization (category or type of agrarian
production system). The proportion of variability of \(Y\) accounted for by a change in \(X\), expressed by ETA squared, is 2.96 percent.

29. The alternative hypothesis that the slope of the linear regression is positive and larger than zero is accepted with a Pearson correlation coefficient of \(r = 0.1097\) statistically significant at a probability level of \(P < 0.0005\). Higher order trends were also found to be significant; however the linear component of the relationship represented 30.2 percent of the variation. The correlation ratio ETA is 0.1996 and will represent the standardized regression coefficient of the following equation expressed in standard scores: \(Y\) score = 0.1996\(X\), when the intercept \(A\) is zero, \(Y\) the predicted value of the mean score on the scale of technological level of type of seed used in the first crop of the farms and \(Z\) the degree of commoditization (category or type of agrarian production system). The proportion of variability of \(Y\) accounted for by change in \(X\) expressed by ETA squared is 3.98 percent.

30. The alternative hypothesis that the means are not equal and that the slope of the distribution of the means is positive and larger than zero is accepted. The linear regression presented a Pearson correlation coefficient of \(r = 0.1654\), statistically significant with one tail test probability of \(P < 0.0005\). Higher order trends were also significant; however, the linear component of the relationship accounted for 53.8 percent of the variation. The correlation ratio ETA is 0.2253\(X\), when the intercept \(A\) is zero, \(Y\) the predicted score of the mean value on the scale of technological level of combined production practices adopted on the farms, and \(X\) the degree of commoditization (category or type of agrarian production system). The proportion of variability of \(Y\) accounted for by a change in \(X\) expressed by ETA squared is 5.0 percent.

31. The high level of adoption of the agricultural technological practices does not contradict the lower level of technological mechanization of the production unit of the simple commodity farm workers as shown by the results of the test of Hypothesis 2.1. Each hypothesis identifies different dimensions of technology.
32. The alternative hypothesis that the producers do not have knowledge of the same number of organizations and the slope of the distribution of their mean scores is positive and larger than zero is accepted. The slope of the linear regression is identified by a Pearson correlation coefficient of $r = 0.1088$, statistically significant with a one tail test probability level of $P < 0.0005$. Higher order trends were not found to be statistically significant and rejected at a probability of $P = 0.1888$. The correlation ratio ETA is 0.1340 and will represent the standardized regression coefficient of the following equation expressed in standard scores: $Y \text{ score} = 0.1340(X)$, when the intercept $A$ is zero, $Y$ being the predicted score of the mean number of organizations the producers have knowledge of that exist in their communities; and $(X)$ being the degree of commoditization (category or type of agrarian production system). The proportion of variability of $(Y)$ accounted for by a change in $(X)$ expressed by ETA squared is 1.79 percent.

33. The alternative hypothesis that the mean number of organizations of producers are members of, are not equal and that the slope of the distribution of these mean scores is positive and larger than zero is accepted. The slope of the linear regression was identified by a Pearson correlation coefficient of $r = 0.1257$ statistically significant, with a one tail test probability level of $P < 0.0005$. Higher order trends were not found to be significant and rejected at a probability level of $P = 0.4072$. The correlation ratio ETA is 0.1405 and will represent the standardized regression coefficient of the following equation expressed in standard scores: $Y \text{ score} = 0.1405(X)$, when the intercept $A$ is zero, $Y$ the predicted mean score of membership in organizations of the community, and $(X)$ the degree of commoditization (category or type of agrarian production system). The proportion of variability of $(Y)$, accounted for by a change in $(X)$, expressed by ETA squared is 1.97 percent.

34. The slope of the linear regression of the mean scores of group participation is positive as hypothesized with a Pearson correlation coefficient of $r = 0.1230$, statistically significant with a one tail test probability of $P < 0.0005$. Higher order trends were not found to be significant, with a probability level
of $P = 0.2570$, and were rejected. The correlation ratio $\eta^2$ is 0.1428, and will represent the standardized regression coefficient of the following equation expressed in standard scores: $Y \text{ score} = 0.1428(X)$, when the intercept $A$ is zero, $Y$ the predicted mean score on the scale of combined effects of both cognitive and membership participation, and $X$ the degree of commoditization (category or type of agrarian production system). The proportion of variability of $(Y)$, accounted for by a change in $(X)$, expressed by $\eta^2$ squared, is 2.04 percent.

35. The alternative hypothesis that the slope of the linear regression is positive and larger than zero is accepted. The Pearson correlation coefficient $r = 0.1268$, statistically significant with a one tail test probability of $P < 0.0005$. Higher order trends were not found to be significant and rejected with an $F$ score of 1.2110 at a significance level of $P = 0.3044$. The correlation ratio $\eta^2$ is 0.1444 and will represent the standardized regression coefficient of the following equation expressed in standard scores: $Y \text{ score} = 0.1444(X)$, when the intercept $A$ is zero, $Y$ the predicted score of the mean number of years of residence in the community, and $X$ the degree of commoditization (category or type of agrarian production system). The proportion of variability of $(Y)$, accounted for by a change in $(X)$, expressed by $\eta^2$ squared is 2.09 percent.

36. The alternative hypothesis, that the slope of the linear regression is positive and larger than zero, is accepted. The Pearson correlation coefficient $r = 0.1782$ is statistically significant with a one tail test probability of $P < 0.0005$. Higher order trends were not found to be significant, scoring only an $F$ ratio of 0.7856, with a probability level of $P = 0.5346$. The correlation ratio $\eta^2$ is 0.1866 and will represent the standardized regression coefficient of the following equation, expressed in standard scores: $Y \text{ score} = 0.1866(X)$, when the intercept $A$ is zero, $Y$ the predicted mean literacy rate, and $X$ the degree of commoditization (type or category of agrarian production system). The proportion of variability of $(Y)$, accounted for by a change in $(X)$, expressed by $\eta^2$ squared is 3.48 percent.

37. The alternative hypothesis, that the mean rates of access to formal education are not equal and that the slope of the linear regression of the mean rates is
positive and larger than zero, is accepted. The Pearson correlation coefficient \( r = 0.2137 \) is statistically significant with a one tail test probability level of \( P < 0.0005 \). Higher order trends were not significance and rejected with an F ratio of only 0.3141 at a probability level of \( P = 0.8687 \). The correlation ratio ETA is 0.2165 and will represent the standardized regression coefficient of the following equation expressed in standard scores: \( Y \) score = 0.2165(X), when the intercept A is zero, \( Y \) the predicted mean score of rate of access to formal education, and \( X \) the degree of commoditization (category or type of agrarian production system). The proportion of variability of \( (Y) \), accounted for by a change of \( (X) \), expressed by ETA squared, is 4.69 percent.

38. The alternative hypothesis, that the slope of the linear regression is positive and larger than zero, is accepted. The Pearson correlation coefficient is \( r = 0.1881 \) statistically significant with a one tail test probability of \( P < 0.0005 \). Higher order trends were found not to be significant and rejected with an F ratio of 1.6821 only significant at a probability of \( P = 0.1519 \). The correlation ratio ETA is 0.2047, and will represent the standardized regression coefficient of the following equation expressed in standard scores: \( Y \) score = 0.2047(X), when the intercept A is zero, \( Y \) the predicted score of the mean number of years of formal education of the head of household, and \( X \) the degree of commoditization (type or category of agrarian production system). The proportion of variability of \( (Y) \), accounted for by a change in \( (X) \), expressed by ETA squared, is 4.19 percent.

39. The alternative hypothesis, that the slope of the linear regression is positive and larger than zero, is accepted. The Pearson correlation coefficient is \( r = 0.1181 \) statistically significant with a one tail test probability of \( P < 0.0005 \). Higher order trends were found to be significant; however, the linear component of the relationship accounted for 50.46 percent of the variation. The correlation coefficient ETA is 0.1663 and will represent the standard scores: \( Y \) score = 0.1663(X), when the intercept A is zero, \( Y \) the predicted mean score on the scale of the number, and type of printed media read by the head of household, and \( X \) the degree of commoditization (type or category of agrarian production system). The proportion of variability of \( (Y) \), accounted for by a change of \( (X) \),
expressed by ETA squared, is 2.76 percent.

40. The alternative hypothesis, that states that the slope of the distribution of the mean scores of quality of the dwellings is positive and larger than zero, is accepted. The Pearson correlation coefficient $r < 0.1167$ is statistically significant, with a one tail test probability of $P < 0.0005$. Higher order trends were found to be significant, with an $F$ ratio of 2.8587 at a probability level of $P = 0.226$. However, the linear component of the trend accounted for 54.7 percent of the standardized regression coefficient of the following equation expressed in standard scores: $Y = 1577(X)$, when the intercept $A$ is zero, $Y$ the predicted mean score of quality of housing, and $X$ the degree of commoditization (type of category of agrarian production system). The proportion of variability of $(Y)$ accounted for by a change in $(X)$, expressed by ETA squared is 2.49 percent.

41. The alternative hypothesis, that the slope of the linear regression is positive and larger than zero, is accepted. The Pearson correlation coefficient $r = 0.1293$ is statistically significant, with a one tail test probability of $P < 0.0005$. Higher order trends were found not to be significant and were rejected with an $F$ ratio of 2.3582, at a probability level of $P = 0.0519$. The correlation ratio ETA is 0.1612 and will represent the standardized regression coefficient of the following equation expressed in standard scores: $Y = 0.1612(X)$, when the intercept $A$ is zero, $Y$ the predicted mean score of the quality of housing scale by conditions of the dwellings, and $X$ the degree of commoditization (category) or type of agrarian production system). The proportion of variability of $(Y)$, accounted for by the change of $(X)$, expressed by ETA squared, is 2.60 percent.

42. The alternative hypothesis, that the slope of the distribution is negative and smaller than zero, is accepted. The Pearson correlation coefficient is $r = -0.0831$, statistically significant with a one tail test probability of $P = 0.004$. Higher order trends were found not to be significant and rejected, with an $F$ ratio of 1.8969, at a probability level of $P = 0.1088$. The correlation ratio ETA is 0.1203 and will represent the standardized regression coefficient of the following equation expressed in standard scores: $Y = -0.1203(X)$, when the intercept $A$ is zero, $Y$ the predicted score of the mean scale value of quality of lighting, and $X$ the degree of commoditization (type or
category) of agrarian production system). The proportion of variability of (Y), accounted for by a change of (X), is 1.45 percent.

43. The alternative hypothesis, that the slope of the distribution of the mean number of rooms of the producers is positive and larger than zero, is accepted. The Pearson correlation coefficient is \( r = 0.1219 \), statistically significant with a one tail test probability level of \( P < 0.0005 \). Higher order trends were found to be significant. However, the linear component of the relationship accounted for 58.4 percent of the variation. The correlation ratio ETA is 0.1596 and will represent the standardized regression coefficient of the following equation expressed in standard scores. \( Y \) score = 0.1596(X), when the intercept \( A \) is zero, \( Y \) the predicted score of the mean number of rooms, and \( X \) the degree of commoditization (type of category of agrarian production system). The proportion of variability of (Y), accounted for by a change in (X), expressed by ETA squared, is 2.55 percent.

44. The alternative hypothesis, that the slope of the distribution of the mean number of bedrooms of the producers categories is positive and larger than zero, is accepted. The Pearson correlation coefficient = 0.1586 is statistically significant, with a one tail test probability of \( P < 0.0005 \). Higher order trends were found not to be significant and rejected with an F ratio of 0.6045 at a probability of \( P = 0.6595 \). The correlation ratio ETA is 0.1659 and will represent the standardized regression coefficient of the following equation expressed in standard scores: \( Y \) score = 0.1659(X), when the intercept \( A \) is zero, \( Y \) the predicted score of the mean number of bedrooms and \( X \) the degree of commoditization (type or category of agrarian production system). The proportion of variability of (Y), accounted for by a change of (X), expressed by ETA squared, is 2.75 percent.

45. The alternative hypothesis, that the slope of the distribution of the mean values of access to refrigerators and/or kitchens is positive and larger than zero, is accepted. The Pearson correlations coefficient is \( r = 0.0819 \), statistically significant with a one tail test probability level of \( P = 0.005 \). Higher order trends were found not to be significant and rejected with an F ratio of 2.1866 at a probability level of \( P = 0.0686 \). The correlation ratio ETA is
0.1241 and will represent the standardized regression coefficient of the following equation expressed in standard scores: \( Y \) score = 0.1241(X), when the intercept \( A \) is zero, \( Y \) the predicted mean score of access to household appliances, and \( X \) the degree of commoditization (category or type of agrarian production system). The proportion of variability of \( Y \) accounted for by a change of \( X \), expressed by ETA squared, is 1.54 percent.

46. The alternative hypothesis, that the distribution of the mean scores of access to a radio and/or a television set is positive and larger than zero, is accepted. The Pearson correlation coefficient is \( r = 0.1133 \) statistically significant with a one tail test probability level of \( P < 0.0005 \). Higher order trends were not significant and rejected with an F ratio of 1.1931 and a probability level of \( P = 0.3122 \). The correlation ratio ETA is 0.1325 and will represent the standardized regression coefficient of the following equation expressed in standard scores: \( Y \) score = 0.1325(X), when the intercept is zero, \( Y \) the predicted mean score of access to a radio and/or a television set, and \( X \) the degrees of commoditization (category or type of agrarian production system). The proportion of variability of \( Y \), accounted for by a change in \( X \), expressed by ETA squared, is 1.76 percent.

47. The alternative hypothesis, that the slope of the distribution of the mean scores of type of cooking fuel is positive and larger than zero, is accepted. The Pearson correlation coefficient \( r = 0.0687 \) is statistically significant with a one tail test probability level of \( P = 0.015 \). Higher order trends were not significant and rejected, with an F ratio of 1.6075 and a probability level of \( P = 0.1702 \). The correlation ratio ETA is 0.1056 and will represent the standardized regression coefficient in the following equation expressed in standard scores: \( Y \) score = 0.1056(X), when the Intercept \( A \) is zero, \( Y \) the predicted mean scale score of type of cooking fuel and \( X \) the degree of commoditization (category or type of agrarian production system). The proportion of variability of \( Y \), accounted for by a change in \( X \), expressed by ETA squared is 1.11 percent.

48. Higher order trends were also not significant with an F ratio of 1.7602 and a probability level of \( P = 0.1347 \).
49. Higher order trends were not significant, either with an F ratio of 1.6362 or a probability level of P = 0.1629.

50. The alternative hypothesis that the likelihood of male headed households increases as commoditization increases, and that the slope of the distribution of means scores for male gender is positive and larger than zero is accepted. The Pearson correlation coefficient is r = 0.1073 statistically significant with a one tail test probability level of P < 0.0005. Higher order trends were found to be statistically significant with an F ratio of 2.9548 at a probability level of P = 0.0192, however, the linear component of the relationship accounted for 49.7 percent of the variation. The correlation ratio ETA is 0.1523 and will represent the standardized regression coefficient of the following equation expressed in standard scores: Y score = 0.1523(X), when the intercept A is zero, Y the predicted mean score of gender of the head of household, and X the degree of commoditization category or type of agrarian production system). The proportion of variability of (Y), accounted for by a change of (X), expressed by ETA squared, is 2.32 percent.

51. The results of the test show the rejection of the null hypothesis that the variables are statistically independent. The goodness to fit test scored a chi-square value of X^2 = 112.32 at K - 1 = 5 degrees of freedom, statistically significant at a probability level of P < 0.001).

52. Higher order trends were tested not to be statistically significant with an F ratio of 2.1862 at a probability level of only P = 0.0686. The results suggest that the distribution would resemble a bell-shaped slope with higher mean number of family members scores in the middle categories of the simple commodity farmers, and simple commodity farm workers, with smaller averages in both extremes, that of the capitalist and peasant types of producers. The direction of the slope, in any case, is positive and the Pearson correlation coefficient = 0.0348 is in the hypothesized senses, even if it was not statistically significant only achieving through a one tail test a probability level of P = 0.136.

53. The hypothesis of linearity failed to be accepted. Higher order trends, on the contrary, did test to be statistically significant, with an F ratio of 2.7630,
at a probability level of $F = 0.0265$. If the trend would have been confirmed as significant, the characteristic of the relationship would have been best represented by a higher order equation. The shape of the higher order relationship follows the same distribution previously identified with regard to the average number of persons in the families.

54. The alternative hypothesis, that the slope of the linear regression of the mean scores of head of households contribution to family income is positive and larger than zero, is accepted. The Pearson correlation coefficient is $r = 0.1240$, statistically significant with a one tail test probability level of $F < .0005$. The correlation ratio ETA is $0.1569$ and will represent the standardized regression coefficient of the following equation expressed in standard scores: $Y$ score $= 0.1569(X)$, when the intercept $A$ is zero, $Y$ the predicted mean score of contribution of the head of household to the family income, and $X$ the degree of commoditization (category or type of agrarian production system). The proportion of variability of $(Y)$ accounted for by a change of $(X)$ expressed by ETA squared is $2.46$ percent.

55. The null hypothesis, that the goodness-of-fit test will not reject that the observed frequencies of the capitalist employees are within random fluctuation of the expected frequencies and the computed chi-square is smaller than the critical value of the chi-square at a probability of $P = 0.05$, was rejected. The computed chi-square was found to be $X^2 = 22.2407$ statistically significant at a probability level of $P < 0.001$. The alternative hypothesis is accepted. The alternative hypothesis stated that the observed frequencies are not within random fluctuations of the expected frequencies and that the category of employment in the permanent labor market is significantly higher for the capitalist employees than their participation in either the seasonal or occasional labor markets.

56. The null hypothesis, that the observed frequency of capitalist employees' households that participate in the permanent labor market, is equal to the other producer types households and that the frequencies are equal to the expected frequencies, failed to be rejected. The chi-square of the distribution is $X^2 = 5.7613$ at 2 degrees of freedom statistically significant at a probability level of $P = 0.0559$ smaller the preestablished level of significance of $P =$
0.05, the alternative hypothesis was not accepted. The alternative hypothesis, that the observed frequency of cases of households of capitalist employees would be higher that the observed frequency of cases of household of simple commodity farm workers and the semi-proletarian peasant households, failed to be accepted.

57. The null hypothesis, that the observed frequencies of all types of producers in the four types of labor markets was equal and that they correspond to their expected frequencies in each labor market, was rejected. The computer chi-square of the distribution is $X^2 = 18.12280$ at 6 degrees of freedom, statistically significant at a probability level of $P = 0.0059$. The alternative hypothesis is accepted, the independent variable WORKER and the dependent variable TRABAJO are statistically dependent.

58. The null hypothesis, that the observed frequencies of all the producers in the urban-nonagricultural labor market were equal and that these corresponded to their expected frequencies, was rejected. The computed chi-square scored $X^2 = 18.12280$, statistically significant at a probability level of $P = 0.0059$, with 6 degrees of freedom. The independent variable WORKER and the dependent variable TRABAJO are statistically dependent, and thus, accepting the alternative hypothesis is accepted.

59. The Tukey test of comparison between group means at a statistical significance level of $P = 0.05$ identified that the capitalist producers presented significantly higher mean number of hours worked in comparison to the simple commodity and peasant producers that work. Table 19.51 presents the results of the Tukey test by which the 27.1734 mean number of hours by the capitalist producers was significantly higher than the 21.1038 hours worked by the simple commodity producers. Also, the capitalist producers scored significantly higher mean number of hours worked the previous week in relation to the 19.4236 mean numbers of hours registered by the peasant producers that work.

60. Even if some laborers are full time employees, the nonlaborer labor market is almost exclusively formed in the agricultural sector by permanent workers, with regard to the category of agrarian producers.
61. The null hypothesis, that the observed frequencies of each type of producer that participates in off-farm work are equal in their participation in the nonlaborer job market, was rejected. The computed chi-square $X^2 = 6.12821$, with 2 degrees of freedom scored to be statistically significant at a probability level of $P = 0.0467$. The alternative hypothesis, that the independent variable WORKER and the dependent variable JOBCAT2 are statistically dependent, is accepted.

62. The null hypothesis, that the observed frequencies of each producer type that participated in off-farm work has the same number of households without any member in the laborers job market and that their expected frequencies were equal to their observed frequencies in this distribution, was rejected. The computed chi-square $X^2 = 10.55468$ at 2 degrees of freedom scored a level of statistical significance of a probability of $P = 0.0051$. The alternative hypothesis, that states that the independent variable WORKER and the dependent variable JOBCAT1 are statistically dependent, is accepted.

63. The null hypothesis, that the observed frequencies of number of households for each type of producer category is equal in each type of labor market, is rejected. The observed frequencies of the distribution of cases in each type of labor market is not equal to the expected frequency. The chi-square test $X^2 = 7.95131$ at 2 degrees of freedom, is statistically significant at a probability level of $P = 0.0188$. The alternative hypothesis, that the independent variable WORKER and that the dependent variable LABORMKT are statistically dependent, is accepted.

64. The null hypothesis, that stated that the observed frequencies of each type of producer would be the same as the expected frequency of participation in the different types of labor markets, was rejected. The high concentration of simple commodity farm workers in the occasional, day-to-day labor market registered in the sample, presented a chi-square $X^2 = 9.233153942$ statistically significant at a probability level of $P < 0.01$. The alternative hypothesis, that the independent variable WORKER and the dependent variable EMPLEO are statistically dependent, is accepted.

65. The null hypothesis, that the observed frequencies of participation of the producer types would be equal to
their expected frequencies in the occasional labor market and within random fluctuations, was rejected. The alternative hypothesis, that the independent variable WORKER and the dependent variable OCCASW are statistically dependent, is accepted. The significantly higher observed frequency of simple commodity farm workers in the occasional labor market was tested by the goodness to fit test scoring a chi-square of $X^2 = 11.4000$ statistically significant at a probability level of $P < 0.01$ with 2 degrees of freedom.

66. The null hypothesis, that the observed frequency of number of family members employed in the occasional labor market for each type of producer would be equal to the expected frequencies, was rejected. The alternative hypothesis, that states that the independent variable WORKER and the dependent variable FAMOCWK are statistically dependent, is accepted. The significantly higher number of family members registered by the simple commodity farm workers in the employment of the occasional labor force was tested by a chi-square test that scored $X^2 = 19.33247$, with 4 degrees of freedom, statistically significant at a probability level of $P = 0.0007$.

67. The slope of the linear regression, identified by the Pearson correlation coefficient, is negative as hypothesized and not equal to zero, as hypothesized with an $r = -0.1357$, statistically significant with a one tail test probability level of $P < 0.0005$. The alternative hypothesis is accepted that the slope of the distribution of the mean number of family members in the producer households that participate in the occasional labor market is negative and not equal to zero, identifying that the relationship has a linear component. Higher order trends were also found to be significant; however, the linear component of the relationship accounted for 61.1 percent of the variation. The correlation ratio ETA is 0.1736 and will represent the standardized regression coefficient of the following equation expressed in standard scores: $Y \text{ score} = 0.1736(X)$, when the intercept is zero, $Y$ the predicted mean score of number of family members working in the occasional labor market, and $X$ the degree of commoditization of the production types with household members that participate in off-farm work (categories or types of agrarian production systems). The proportion of variability of $(Y)$, accounted for by a change in $(X)$, expressed by ETA squared, is 3.01 percent.
68. The null hypothesis, that the mean number of households in each category of producers with at least one member employed in the occasional labor force are equal, was rejected. The test of between group mean differences among producer type households scored an F ratio of 12.6516, statistically significant at a probability level of $P < 0.00005$.

69. The Tukey test of mean comparison among different groups at a significance level of probability of $P = 0.05$ identified that the simple commodity and peasant producers registered statistically significant higher mean number of households with at least one family member in the occasional work force in relation to the capitalist producer type.

70. The null hypothesis, that the independent variable WORKER which identifies the types of producer households that participate in off-farm work, and the dependent variable TRABAJO are statistically independent, was rejected. The observed frequencies did not correspond within random fluctuations of the expected frequencies and the registered high number of simple commodity farm worker households participating in the occasional labor market is accepted as a characteristic of the population of producers, based on the significance test of independence of chi-square. The chi-square test score $X^2 = 18.12280$ statistically significant at a probability level of $P = 0.0059$, with 6 degrees of freedom. The alternative hypothesis, that the independent variable WORKER and the dependent variable TRABAJO are statistically dependent, is acceptable.

71. The null hypothesis, that was observed frequencies of each type of producer household is equal in its participation in the seasonal labor market, failed to be rejected. The chi-square test that scored a $X^2 = 9.27123$ with four degrees of freedom is statistically significant only at a probability level of $P = 0.0547$. The chi-square was not equal or smaller to the preestablished level of significance of $P = 0.05$, thus the results could not be accepted as characteristic of the population of semi-proletarian producers. The null hypothesis, that the independent variable WORKER and the dependent variable EMPLEO are statistically independent, failed to be rejected.

72. The null hypothesis, that the independent variable WORKER and the dependent variable SEASW are
statistically independent, was rejected. The alternative hypothesis, that these variables are statistically dependent, is accepted. The sample results that identified the semi-proletarian peasant with higher observed frequencies in number of households with one, two, or more family members employed in seasonal work were statistically significant. The chi-square test score of $X^2 = 10.25454$, with 4 degrees of freedom statistically significant at a probability level of $P = 0.0364$.

73. The null hypothesis, that the observed frequencies of each producer type household would be equal to the expected frequencies and that the independent variable WORKER and the dependent variable SEASONAL are statistically independent, was rejected. The findings are that semi-proletarian peasants' households have a significant higher number of households with at least one family member employed in the seasonal labor force, in comparison to the capitalist employee type and the simple commodity farm worker type. The sample results will be used to characterize the population of the semi-proletarian peasant category based on the significant results of the chi-square test. The computed chi-square $X^2 = 8.91468$, with two degrees of freedom, is statistically significant at a probability level of $P = 0.0116$.

74. The slope of the linear regression was negative and not equal to zero. The Pearson correlation coefficient is $r = -0.1349$ statistically significant with a one tail test probability level of $P < 0.0005$. The alternative hypothesis is accepted; the best fit of the trend of the data is a simple linear equation with a negative slope. Higher order trends were found not to be significant and scored an $F$ ratio of $0.0030$, with a probability of $P = 0.9562$. The correlation ratio ETA is 0.1349 and will represent the standardized regression coefficient of the following equation expressed in standard scores: $Y$ score = $0.1349(X)$, when the intercept A is zero, ($Y$) the predicted mean number of family members that work in the seasonal labor market and ($X$) the degree of commoditization of the producers that participate in off-farm work (category or type of agrarian production system). The proportion of variability of ($Y$) accounted for by a change in ($X$) expressed by ETA squared is 1.82 percent.

75. The null hypothesis, that the independent variable WORKER and the dependent variable TRABAJO are
statistically independent and that the observed
frequencies of each producer type was equal with regard
to participation of households in the seasonal labor
market, was rejected. The distribution of all the
producer households that participate in off-farm work
according to type of labor markets scored a significant
chi-square test. The computed chi-square $X^2 = 18.12280$
at 6 degrees of freedom is statistically significant at
a probability level of $P = 0.0059$. The alternative
hypothesis, that the type of producer system to which
the household with off-farm work participation belongs
to, is statistically dependent to the type of labor
market they participate in, is accepted.

76. The null hypothesis, that the logistic regression
coefficients beta ($\beta$) are equal to zero and thus equal
to each other ($\beta_1 = \beta_2 = \beta_3 = \beta_4 = 0$) was rejected.
The alternative hypothesis that at least one logistic
regression coefficient is not equal to zero and that
$\beta_1 > 0$, $\beta_3 < 0$, and $\beta_4 > 0$, is accepted. The model
chi-square $X^2 = 26.84$ with 4 degrees of freedom is
statistically significant at a probability level of $P < 0.00005$.

77. The findings of the model when applied to the capital­
ist heads of households (Table 22.2.1) show that the
null hypothesis which stated that the beta logit
regression coefficients are equal to zero, failed to be
rejected. The model chi-square was 1.87 when 4 degrees
of freedom not statistically significant with a
probability level of only $P = 0.7596$. The alternative
hypothesis, that at least one beta logit regression
coefficient is different from zero, is not accepted.

78. The findings of the model when applied to the peasant
heads of households did prove to fit as shown in Table
22.2.2. The null hypothesis, that the beta logit
regression coefficients are equal to zero, was
rejected. The model chi-square was 9.68 with a 4
degree of freedom statistically significant at a
probability level of $P = 0.0463$. However, the
alternative hypothesis that stated that $\beta_1 > 0$, $\beta_2 < 0$,
$\beta_3 < 0$, and $\beta_4 > 0$ was not confirmed and thus cannot be
accepted. The results of the test of the model of
prediction of the peasant heads of households labor
force participation identified the following
relationship among the independent variables with
regard to the dependent variable WORK: $\beta_1 < 0$, $\beta_2 < 0$,
$\beta_3 < 0$, and $\beta_4 < 0$. 
79. The null hypothesis, that the independent variable **WORKER**, which identifies the households of producers that participate in off-farm work and the dependent variable **JOBCAT1** were statistically independent was rejected. The chi-square $X^2 = 10.55468$ with 2 degrees of freedom scored to be statistically significant at a probability level of $P = 0.0051$. The alternative hypothesis, that the simple commodity farm workers presented higher labor force participation in the laborers' job markets in comparison to both the capitalist employees households and the semi-proletarian peasant households, is accepted.

80. The null hypothesis, that the independent variable **WORKER**, which identifies the heads of households that participate in off-farm work by their type of production system and the dependent variable (**OFFMWK**) are statistically independent, was rejected. The chi-square $X^2 = 21.30097$ with 4 degrees of freedom, of the test of the model, is statistically significant at a probability level of $P < 0.01$. The alternative hypothesis, that states that the simple commodity farm worker presented higher observed frequencies in increasing numbers of labor markets in comparison to both the capitalist employees or the semi-proletarian peasants is accepted.

81. The null hypothesis, that the beta logit regression coefficient of **MZTODO** is equal to zero, was rejected. The chi-square test scored an $X^2$ of 8.39 which is statistically significant at a probability level of $P = 0.0038$. The alternative hypothesis, that the beta logit regression coefficient of **MZTODO** is negative and smaller than zero, is accepted. The Pearson correlation coefficient of the linear equation is as hypothesized, negative $r = -0.112$. The beta logit regression coefficient register is equal to $B2 = -0.51274299$ (see Table 22.1).

82. The null hypothesis, that the beta logit regression coefficient of **EDJEFE** is equal to zero, was rejected. The chi-square test of the relationship scored an $X^2 = 5.23$, statistically significant at a probability level of $P = 0.0222$. The alternative hypothesis, that the beta logit regression coefficient **EDJEFE** is positive and larger than zero, is accepted. The Pearson correlation coefficient of the linear equation is positive, $r = 0.080$. The beta logit regression coefficient is equal to $B1 = 0.25504072$. 

83. The null hypothesis, that the beta logit regression coefficient of "TECH" is equal to zero, was rejected. The chi-square test of the relation scored an $X^2 = 4.89$, statistically significant at a probability level of $P = 0.0270$. The alternative hypothesis, that the beta logit regression coefficient of "TECH" is negative and smaller than zero, is accepted. The Pearson correlation coefficient of the linear equation is as hypothesized, negative, $r = -0.075$. The beta logit regression coefficient registered is equal to $B3 = -0.27817578$.

84. The null hypothesis, that the beta logit regression coefficient of "PERDEP" is equal to zero, failed to be rejected. The chi-square test of the relationship scored an $X^2 = 0.39$ which is not statistically significant, only achieving a probability level of $P = 0.5310$. The alternative hypothesis, that the beta logit regression coefficient of "PERDEP" is positive and larger than zero, is not accepted.
Chapter VII Endnotes

1. The stratification system revealed by the typology is consistent with Blau's (1977, p. 73) fifth axiom that states: "The status distribution is positively skewed so that the mean is above the median and the single mode is below it."

2. For Blau (1977, p. 194), "Technological advances may well be essential for the development of the division of labor, because the technical improvements in methods of work raise labor productivity and free manpower for diverse pursuits and for the training needed for specialized work." According to Blau (1977), this has been precisely the case in agriculture where technological progress, from digging sticks and hoes to harvesting combines and artificial fertilizers, has furthered the division of labor.

3. Consistent with Blau's theorem (1977, p. 214), that "rising levels of education and qualification promote an advanced division of labor." I shall search to explain the higher rank of the capitalist employee type with regard to the concentration of landed property as a consequence correlated with their higher educational achievement. The capitalist employee is affected in its process of division of labor by an increasingly advanced form identified as specialization, which requires substantial training and higher education. The other lower status producers are mainly affected by a process of division of labor known as routinization, as illustrated by the mass-production methods in place in the banana plantation enclaves, or in the coffee plantations. Routinization, at least in part, concurs with a labor force that has little training and low education.

4. Landed property, as the principal means of production, has been proven to distinguish the producers of the typology. If Peter L. Berger's (1986, p. 215) proposition that: "There can be no effective market economy without private ownership of the means of production" is true, then the amount concentrated of those means of production would also explain which producers will use to their advantage more effectively the market economy.

5. Comparing the three main categories of producers shows that only the capitalist concentrate a significantly greater amount of land than both the simple commodity
and peasant producers. The results were confirmed by a Scheffe test (P > .05).

6. The findings are supported by the studies of Blau (1977, p. 194) that also concurs that "The consequent increasing routinization of work in industry contributes to the increasing mechanization of work. For the more routinized work has become, the easier it is to have it done by machines. Routinization creates the conditions that enable work organizations to mechanize."

7. The abundant supply of unskilled rural labor makes it very unlikely that any producer would have great difficulty in obtaining this type of worker. Identifying a manpower problem in agriculture becomes an indicator of advanced levels of mechanization. The ninth proposition will address this dimension.

8. The results were confirmed using the Scheffé test (P > .05).

9. The Duncan test (P > .05) confirms that the means of these three groups were significantly different.

10. In the case of the only three groups of producers—capitalist, simple commodity, and peasant producers the Duncan test (P > .05) identifies that the capitalist producers definitely present significantly higher export orientation scores than both the simple commodity and peasant producers.

11. Collapsing the typology of the three main types, the Duncan test (P = 0.05) confirms that the capitalist producers present the highest specialization in export market orientation of the two major farm activities, and that their mean scores are significantly different than the peasant producers. Also, the simple commodity producers show mean scores in export orientation of their production significantly higher than the peasant producers. However, the larger average scores of the capitalist were not found to be significantly different from those of the simple commodity producers.

12. It has been proven that specialization of production toward the international exports corresponds directly to degrees of commoditization of the producer type. If Peter L. Berger's (1986, p. 213) proposition, that "The inclusion of a Third World country within the international capitalist system tends to favor its
economic development," is true, then the producer types that present a greater insertion into that system would present in their own production systems the effects that favor their economic development. Economic development will be advanced by greater production capacity.

13. However, even in a collapsed typology of the three main types of producers, as revealed by the Duncan test (P > .05), only the capitalist and simple commodity producer present a significantly different mean number of fowls.

14. The producers that distinctly present a significantly higher average number of horses than both the simple commodity and peasant producers are the capitalist producers as confirmed by the Duncan test (P > .05).

15. For Blau (1977, p. 225), "Power must be conceptualized as a property of social positions and their incumbents...." The types of power which I am referring to is the power derived from the concentration of economic resources. The Importance of economic power is highlighted by Blau (1977, p. 224) stating, "The great significance of economic resources, as a base of power, is that they are of interest to all people because they are generalized means for a great variety of ends...." It is my contention that the concentration of institutional services for production of the farms is a result of the inequality of the distribution of power among the producers of the Pacifico Sur Region of Costa Rica.

16. The application of the Duncan test (P > .05) confirms that the capitalist farmers, were significantly higher than both simple commodity and peasant farmers. The Duncan test also revealed that the simple commodity and peasant farmers have significantly different means.

17. Blau (1977), in discussing the concept of power, disagrees with both Marx and Dahrendorf's dichotomous conception of class, either based on wealth, as for Marx's, or on authority, as for Dahrendorf. For Blau (1977, p. 232), power should be conceived not as dichotomously expressed quality of either having or not having a property (wealth, authority, or technical assistance), but disposing of a property that "varies by degrees," a gradation that varies by degree, indicating a graduated parameter instead of a nominal one.
18. The Duncan test \((P > .05)\) confirms that each of the three producer types is significantly different from each other.

19. The findings of the investigation are consistent with Peter M. Blau's (1977, p. 242) propositions that state: "The concentration of power increases the insulation of the lower class from higher strata," and the other proposition for which "The consolidation of different forms of power increases the insulation of the lower class from higher strata."

20. The Tukey test \((P > .05)\) that the capitalist producers have a significantly higher average number of farmers with checking accounts than either the simple commodity or peasant producer. Also, the simple commodity producers present a significantly higher mean score than the peasants.

21. The Duncan test \((P > .05)\) identifies that the capitalist producers presented the highest average of producers with savings accounts, and were significantly higher than the simple commodity and peasant producers.

22. Distinguishing, however, between the three types of producer, both the Tukey and Duncan tests, at a \(P = 0.05\) level of significance only, differentiate the capitalist producers and the simple commodity producers from the peasants. The test does not find a significant difference between the capitalist and simple commodity producers.

23. Both the Duncan and Tukey tests \((P > .05)\) identify that the capitalist producers register a higher average number of hours worked by their heads of households, in contrast to the simple commodity and peasant producers. The Scheffé test \((P > .05)\) also confirms our findings.

24. Both simple commodity and peasant producers, by definition, do not hire outside labor to work on their farms, the responses of these producers may reflect their perception of the employment opportunities available in their area, rather than their actual obstacles in the contracting of labor. However, the differences in the mean scores of simple commodity and peasant producers are not statistically significant. The collapsed typology of the three main producer categories tested by the Duncan procedure \((P > .05)\) only presented the capitalist producers with
significantly different and higher means in comparison to both the simple commodity and peasant farmers.

25. The rationale of the capitalist agricultural enterprise is stated by Blau (1977, p. 193) to be guided by "...the nature of the output, supplying criteria for defining efficiency, and creating budget constraints to minimize labor cost.... These conditions are likely to result in an extensive division of labor, particularly in the form of much routinization to reduce labor cost, unless substituting machines for routine workers can reduce labor cost still more."

26. Both the Scheffe and the Duncan tests (P > .05) identified that the collapsed typology of the three main types of producers by degrees of commoditization, distinguish with significant higher average number of producer that used fertilizer, both the capitalist and simple commodity producers from the peasant producers. However, the capitalist and simple commodity producer do not present significant different mean numbers of users of this technological innovation between each other.

27. The Scheffe test (P > .05) identified that capitalist producers presented statistically significant higher mean scores of the scale of use of herbicides and/or insecticides, in comparison to peasant producers. In addition, the application of the Duncan test (P > .05) reveal also both categories of simple commodity producers have significant higher use of herbicides and/or insecticides than each of the peasant producers. However, capitalist and simple commodity producers did not present significant differences among each other or within their categories.

28. As confirmed by the application of the Duncan test (P > .05), both simple commodity and capitalist producers did not present statistically different mean scores in comparison to each other. However, both simple commodity and capitalist producers presented statistically significant higher mean scores in seed use in relation to the peasant producer.

29. However, the Scheffe's test, applied to the collapsed typology of three types of producer categories identified at a significance level of P = 0.05, showed that both the capitalist and simple commodity producers presented significantly higher average scale scores in comparison to the peasant producers.
30. Berger (1986, p. 213) states, "The superior productive power of capitalism, as manifested in the advanced industrial societies of the West, continues to manifest itself wherever the global capitalist system has intruded."

31. Berger (1986, p. 211) presents the following proposition: "In Western societies and in most societies elsewhere, technological modernization and economic growth, if they persist over time, first cause a sharp increase in income and wealth inequalities, then a sharp decline in these inequalities, and then a relatively stable plateau."

32. As I shall present when discussing the findings of the sixteenth proposition, the redistribution policies of the state (for example, those that subsidize public health services) do reverse the inequality of the lowest segments of the population of producers in contrast with other indicators not affected by these intervention policies.

33. Blau presents the basic propositions that were confirmed by the analysis of the findings of this research. Blau's (1977, p. 214) proposition states: "The advancing division of labor increases the probability of social relations among different occupations that integrate them in society." The implication of the proposition is that in the opposite situation, under conditions of inequality in occupational status, social associations would be depressed.

34. For Blau (1977, p. 214) "Ceteris paribus, inequality in occupational status depresses the social associations among different occupations and thus their integration." The implications of this proposition are that groups of producers affected by advancing forms of division of labor would present high levels of participation in social associations, and that the groups with lower or negligible membership in social associations must be affected by some other type of division of labor process, which would be less advanced.

35. The Scheffé test, at a probability level of significance of $P = 0.05$, identifies that the collapsed typology would present the capitalist producers with a significantly higher mean score in comparison to both the peasants and simple commodity producers. The
Duncan test confirmed the findings of the Scheffe's procedure; the difference between peasant and simple commodity producers were not statistically significant.

36. The Duncan test, at the level of significance of $P = 0.05$, reveals that the capitalist producers present a higher average membership score in groups than both the simple commodity and peasant producers, and that the simple commodity producers are significantly differentiated with higher average number of organizations they participate in, with relation to the peasant producers.

37. The Duncan test applies to the collapsed typology of the three main production systems distinguishes at a probability level of significance of $P = 0.05$ only the capitalist producers in comparison to both peasant and simple commodity producer types.

38. The consequences of this state of status distance is pointed out by Blau's (1977, p. 43) axiom that states: "The prevalence of associations declines with increasing status distance."

39. According to Blau's (1977, p. 43) theorem, that "Social mobility promotes intergroup relations," and Blau's (1977, p. 44) other theorem that "Higher rates of mobility between groups promote high rates of association between their nonmobile, as well as their mobile members."

40. Following Blau's (1977, p. 74) theorem, which states that "Increasing rates of vertical mobility reduce the salience of status for social intercourse," I shall precise in the following propositions the state of the saliency of status in this region, infer the role played by vertical social mobility, and estimate its impact on the existing social structure.

41. Both the Scheffe and Duncan test, at a level of significance of $P = 0.05$, identify that in the three-category typology, the capitalist producers would present a significantly higher mean number of years of residence in their communities in comparison to both the simple commodity and peasant producers. However, the simple commodity and peasant producers, even if following the expected rank decreasing order, did not present significantly different mean years of residence in their communities.
42. The contrast test presented a pooled variance estimate with a T value of 2.883 at 990 degrees of freedom statistically significant at a T probability of $P = 0.004$.

43. Following Blau (1977, p. 105) that writes: "The axiom that superior status entails superior social resources (A-12) implies the theorem that consolidated (little intersecting) graduated parameters enhance inequality (T-15.3), because largely coinciding differences in various resources increase the overall difference in resources."

44. Blau (1977, p. 105) illustrates the case of correlated parameters of inequality writing: "Persons who are highly educated and affluent have greater social resources than those who are only highly educated or only affluent, and people take this into account in their relations."

45. The saliency of communication can be appreciated from the two following propositions advanced by Blau (1977, p. 214). The first states, "The division of labor depends on opportunities for communication," and the second, "Opportunities for communication and association promote the division of labor." However, here again, these opportunities of communications are not of equal access to all producers, and thus, neither are the division of labor consequences equally affecting all the producers alike. As the following test of the hypothesis confirmed, access to education is also access to the possibilities opened by education, which include access to the benefits of cultural participation.

46. The Duncan test of comparison among different group means, at a significance level of $P = 0.05$, identifies that only the capitalist producers presented significantly different means, in relation to both peasants or simple commodity producers. Also, that both the peasants and simple commodity producers did not present significantly different means with regard to each other in sources of printed media read by their heads of households.

47. For Blau (1977, p. 197), the role of education is enhanced because of the following conditions: "It is noteworthy that the correlations of the division of labor with indicators of technological and economic developments, though substantial, are considered lower
than its correlations with industrial development and with the population's education (73). This suggests that the influence of technological and economic developments on the division of labor are largely mediated by the spread of industrialization and by the rising levels of education they make possible."

48. For Blau (1977, p. 213), "In sum, the long-term trends are that the advances in the division of labor that occurs with technological and economic development are accompanied by diminishing inequality in education and in qualifications and probably, after some delay, also in income." The relationship between education and income is mediated by the market as Blau points out (1977, p. 213), "The very fact that the oversupply of superior qualifications depreciates their market value implies that rising levels and declining inequalities in educational qualifications reduce the excess income superior education commands, and thus diminishes become inequality."

49. As stated by Blau’s theorems (1977, p. 125), T-18, T-18.1, and T-18.2, the likelihood of mobility to occur is related to the degree of correlation of graduated parameters of inequality. In fact, for Blau (1977, p. 125), "Consolidated parameters inhibit structural change." The reason being that the effect of consolidated parameters on structural change derives from their effect on vertical mobility.

50. An alternative to self induced structural change will be explored later when proposition sixteen is discussed. Proposition sixteen makes reference to access to health care and indicates the effects of state intervention promoted upward mobility through policies of income redistribution that externally induce structural change as an alternative.

51. In a collapsed typology of the three main producer types, the Duncan test at a probability level of significance of P = 0.05, identifies that the capitalist producers present significantly higher mean quality of housing scores in relation to both the peasant and simple commodity producers.

52. The Duncan test performed on the collapsed typology of the three main producer types at a probability level of P = 0.05 reveals that only the capitalist producers presented a significant lower mean score, and thus a greater likelihood of having access to electric
lighting in comparison to both simple commodity and peasant producers.

53. The Duncan test, at a probability level of significance of $P = 0.05$, reveals that the collapsed three category typology would be significantly differentiated. The capitalist producers would concentrate the highest mean number, with a significantly higher mean, in comparison to the peasant producers. However, the simple commodity producers and the peasant producers would not be significantly differentiated, even if the peasants continue to occupy the lowest rank.

54. The Duncan test, at a significance level of $P = 0.05$, only distinguishes the capitalists producers with a significantly higher mean score in relation to both the simple commodity and peasant producers.

55. In a three-type typology, the Duncan test, at a level of significance of $P = 0.05$, reveals that only the capitalist producers are significantly differentiated. The capitalist producers presented significantly higher mean common score in comparison to both the simple commodity and peasant producers. The last two types were not significantly differentiated with regard to each other.

56. The Duncan test, at a statistical significance level of probability of $P = 0.05$, identifies that in a three-type typology by degrees of commoditization, the capitalist producers significantly differentiate themselves with a higher mean score in comparison with the simple commodity and the peasant producers.

57. The findings are compatible with Blau's (1977, p. 124) proposition that states the reverse situation, "The more graduated parameters intersect, the greater is the status diversity."

58. Consistent with Blau's (1977, p. 125) theoretical proposition, the fact that the health care parameter intersects with the previous inequality parameters studied, contributes to favor social mobility because for Blau, "Intersecting parameters increase social mobility."

59. In fact, according to Blau's (1977, p. 125) proposition, the effects of social mobility left to itself would reverse the tendency of parameters to
Intersect, because "Ceteris paribus, social mobility increases the consolidation of parameters."

60. In support, Berger (1986, p. 214) presents the following proposition based from the Asian experience. "The ease Asian evidence falsifies the thesis that a high degree of state intervention in the economy is incompatible with successful capitalist development."

61. If the nominal parameter of gender intersects with the graduated parameters of inequality, the minority group status of the gender parameter would not be favored, due to an increase in social integration. As pointed out by Blau (1977, p. 124), "The intersection of nominal by graduated parameters integrates groups and strata by raising the rates of social associations among them." However, if instead of intersecting the nominal and graduated parameters of inequality consolidate, the result would be the opposite.

62. The Duncan test, applied to the comparison of capitalist, simple commodity and peasant producers at a statistical significance level of $P = 0.05$, reveals that both simple commodity and capitalist producers have significantly higher male gender composition mean scores in relation to the peasant producers.

63. Blau (1977, p. 125) explains this aggravated confluence of adverse circumstances through the proposition that states: "Consolidated graduated parameters restrict vertical mobility."

64. The added restrictions are deduced from Blau's (1977, p. 42) theorem that states: "Minority groups are more involved in intergroup relations with the majority than the majority is with them." However, because social mobility promotes intergroup relations (Blau, 1977, p. 63), the restrictions on social mobility in the case of female heads of household reduces the likelihood of intergroup relations even more.

65. Even in a collapsed typology of the three principal types of production systems, the Duncan test at a probability level of $P = 0.05$ identifies that the simple commodity producers presented a significantly higher mean number of family members in comparison to the peasant producers. The typology, as conceived by degrees of commoditization, even if collapsed could not hold true its asymmetric and transitivity properties. The conclusion is that average number of family members
does not follow a simple linear relationship with
degrees of commoditization. Only collapsing into a two
category typology, the producers by commodity mediated
reproduction and resistance to commoditization, would
average size of family correspond to commoditization.
However, such a reduction would reduce the typology
from a continuous variable construction to a
dichotomous variable design, precisely contrary of what
my research goals have intended to achieve.

66. The properties of asymmetry and transitivity of the
typology do not hold true even in a collapsed typology
of the three main production systems by degrees of
commoditization. Only collapsing the typology into a
dichotomous commoditization, versus resistance to
commoditization classification, would the higher
averages of number of children differentiate the lower
scores of the peasant producers from the rest.
The typology of the three main producer categories
clearly identifies children in relation to both the
capitalist and peasant producers. The Duncan test, at
a statistical significance of a probability level of \( F = 0.05 \), reveals the higher rank of the simple commodity
producers and their significant differentiation from
both the capitalist and peasant producers.

67. In the case of a three type producer typology by
degrees of commoditization, the Duncan test, as a
significance level of probability of \( P = 0.05 \),
identifies that the highest rank would be held by the
capitalist producers, with significantly higher mean
scores of heads of households that contribute to the
family income, in comparison to both the simple
commodity and peasant producers. Also, the simple
commodity producer type presents significantly higher
mean score in relation to the category or type of
peasant producer.

68. The plantation division of labor resembles Blau’s
189), the hypothesis can be stated as follows "...the
proportion of an organization’s personnel with high
skills and the proportion with low skills are
positively correlated, as both increase with the
advancing division of labor." However, the peasant
producers that participate in seasonal employment share
unevenly in this division of labor, since their form is
what Blau defined as routinization, while the
plantation owners, or administrators, the capitalist employees, specialize in the division of labor by specialization.

69. According to Blau (1977, p. 188). "The two major forms of division of labor are the subdivision of work into repetitive routines, and its subdivision into expert specialties.... However, when jobs are divided into repetitive routines, the training and skills needed to perform them are reduced.... The two forms of the division of labor have opposite consequences for the competence needed to perform work. Routinization lowers and specialization raises the training and skills required of the work force."

70. The first dimension refers to Blau’s (1977, p. 187) concept of repetition among persons and the second dimension refers to the concept of variation among time periods. The craft of the proletarianized simple commodity farm worker is to combine day-to-day off-farm work with its family production process in a repetitive sequence, unevenly with variable time periods of employment, facilitated by her/his qualifications as a laborer to undertake a variety of jobs. The tasks do not vary among persons, since they are performed by the same producers, repetitively, day to day. However, the tasks do vary over time because the simple commodity farm worker is a skilled or semi-skilled laborer able to perform diverse work.
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