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AGRICULTURAL DEVELOPMENT IN IRAN: EVALUATION
OF STATE PLANNING AND POLICIES IN RELATION TO
AGRICULTURE.

IOWA STATE UNIVERSITY, PH.D., 1979

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Agricultural development in Iran: evaluation of state planning and policies in relation to agriculture

by

Farhad Rezazadeh

A Dissertation Submitted to the Graduate Faculty in Partial Fulfillment of The Requirements for the Degree of

DOCTOR OF PHILOSOPHY

Major: Agricultural Economics

Approved:

Signature was redacted for privacy.

In Charge of Major Work

Signature was redacted for privacy.

For the Major Department

Signature was redacted for privacy.

For the Graduate College

Iowa State University
Ames, Iowa
1979

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<td>Agricultural Cooperative Bank of Iran</td>
</tr>
<tr>
<td>ADBI</td>
<td>Agricultural Development Bank of Iran</td>
</tr>
<tr>
<td>CENTO</td>
<td>Central Treaty Organization</td>
</tr>
<tr>
<td>FAO</td>
<td>Food and Agriculture Organization of the United Nations</td>
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<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
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<tr>
<td>GNP</td>
<td>Gross National Product</td>
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<tr>
<td>IBRD</td>
<td>International Bank for Reconstruction and Development (Also known as BIRD or World Bank)</td>
</tr>
<tr>
<td>ILO</td>
<td>International Labor Organization</td>
</tr>
<tr>
<td>OPEC</td>
<td>Organization of Petroleum Exporting Countries</td>
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<tr>
<td>PBO</td>
<td>Plan and Budget Organization of Iran</td>
</tr>
<tr>
<td>SCI</td>
<td>Statistical Center of Iran</td>
</tr>
<tr>
<td>UN</td>
<td>United Nations</td>
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<tr>
<td>UNESCO</td>
<td>United Nations Educational, Scientific and Cultural Organization</td>
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<tr>
<td>USAID</td>
<td>United States Agency for Agricultural Development</td>
</tr>
<tr>
<td>USDA</td>
<td>United States Department of Agriculture</td>
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LIST OF EQUIVALENTS

Currency

80 Rials = U.S. $1.00 prior to 1973
75 Rials = U.S. $1.00 after January 1973

Calendar

There is approximately 621 years difference between the Iranian and Gregorian calendars. The first day of each year in the Iranian calendar is equivalent to March 21 in the Gregorian calendar. Thus, the first day of 1350 is equivalent to March 21, 1971. Throughout this work all Iranian dates are converted to Gregorian years.

Metric Measures

1 meter = 1.1 yards
1 kilometer = 5/8 mile
1 hectare = 2.5 acres
1 kilogram = 2.5 lb.
1 metric ton = 2200 lb.
1 cubic meter (cbm) = 1.31 cubic yards
<table>
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<th>Term</th>
<th>Description</th>
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<tr>
<td>Boneh</td>
<td>Traditional collective production unit (production cooperative)</td>
</tr>
<tr>
<td>Bozorg-Malik</td>
<td>Large landlord usually owning more than one village or its equivalent</td>
</tr>
<tr>
<td>Deh</td>
<td>Iranian village</td>
</tr>
<tr>
<td>Ghanat</td>
<td>Traditional underground conduit and system of irrigation</td>
</tr>
<tr>
<td>Khurdeh-Malik</td>
<td>Medium sized landowner owning less than one village or its equivalent</td>
</tr>
<tr>
<td>Khushneshin</td>
<td>Landless peasants and squatters</td>
</tr>
<tr>
<td>Majiis</td>
<td>Iranian parliament</td>
</tr>
<tr>
<td>Malik</td>
<td>Landlord</td>
</tr>
<tr>
<td>Ostan</td>
<td>Regional administrative unit (the province)</td>
</tr>
<tr>
<td>Saheb-nasgh</td>
<td>Peasant who has root rights to the land</td>
</tr>
<tr>
<td>Shahrestan</td>
<td>Administrative units within the province (the country)</td>
</tr>
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16. Other
MAP OF IRAN: TYPES OF AGRICULTURAL REGIONS

Legend

- Otten boundaries
- Agricultural region boundaries
- Newly exploited areas
- Intensive rotations
- Cultivated areas of the North Zagros
- Regions of scattered cultivated areas in the Zagros and Central Khorasan
- North western cereal growing zone
- Regions of marginal cultivated areas around the desert and
CHAPTER 1
INTRODUCTION

The post World War II era has witnessed various modern economic theories regarding the development of developing countries. One common feature of most of these theories is their emphasis on industrialization and the consequent neglect of the agriculture. Prominant among these are the growth stage theories crowned by the Rostowian doctrine of the "leading sector" and its variants. The Rostowian concept of development stages is important to the students of economic development both because of its influence on the U.S. policy toward developing countries and because of its adoption and application by the many of the respective governments of these countries. Another common feature of economic theories of development is their emphasis on the role of the government in the process of economic development. Governments of these countries are often viewed as modernizers and a viable force in the transformation of the society.

The oil producing countries and especially Iran provide an interesting case and test ground for the accuracy of above notions, for it is in Iran that we can witness their practical application. The large Iranian oil revenues have led many economists to suggest that petro-dollars by removing the financial constraints to development have opened the door to a new era, the Golden Era, of development and progress for Iran. Such notions, despite the warnings by
few economists about the emerging "oil for arms" and "oil for food" policy, have particularly found prominence after the 1973 OPEC agreement and the consequent price increases which substantially increased the oil revenues.

Hence Iran has been singled out as one of the few countries which is experiencing rapid economic development by the merit of its immense oil revenues and the Shah's White Revolution. The oil euphoria has been so overwhelming that some economists have even gone as far as putting Iran in par with advanced European countries giving credence to the Shah's claims that by the end of the twentieth century Iran will be ranked among the top six advanced countries of the world both in terms of political and economic strength.

The purpose of this dissertation is to examine the performance and prospects of the agricultural sector in Iran. Two particular propositions underly the main thesis of this study: (1) the pursuit of the economic growth theories with their particular emphasis on industrialization has led to the economic anarchy and instability of the Iranian economy and the poor performance of the agricultural sector; (2) governments in developing countries do not necessarily play a positive role in the development and the transformation of the society and can often become a deterrent to modernization.

The study is conducted by examining and analyzing the nature of the Iranian agriculture and government planning and policies in relation to this sector. Chapter 1 provides a brief review and a critical analysis of economic theories of development as well as
identifying those which were pursued in Iran. Chapter 2 provides a background to the Iranian agricultural resources and production. Geography and climate, human, land, and water resources, and the major crops of the Iranian agriculture are among the topics discussed in this chapter. Chapter 3 provides an overview of the Iranian economy, its growth and performance, and role of the oil industry both in terms of its impact on the GNP as well as government development strategies. Also discussed in Chapter 3 are various government plans, its allocation of resources among the major sectors, and its objectives and priorities within the agricultural sector.

Chapter 4 examines various government reform measures regarding the structure of farming and their objectives and accomplishments. Particular attention is given to the Iranian Land Reform (1962-71), its impact on landownership, rural population, and the size of farms. Other government programs regarding farm organizations, distribution of credit, and infrastructure are also discussed in Chapter 4.

Chapter 5 examines the performance of the agricultural sector. Among topics discussed are government production targets and growth rates and their actual realization; supply and distribution of agricultural inputs and its impact on production; and the increasing gap between the domestic supply and demand and the government's import policies.

Chapter 6 attempts to analyze government pricing policies, minimum price guarantees and its impact on production, and government
purchasing programs and performance of agricultural output. Chapter 7 examines other general government objectives in the agricultural sector and their actual realization. These include distribution of income, agricultural services and education, and health and nutrition. Chapter 8 provides the concluding remarks as well as exploring the future prospects of the rural sector.

Economic Theories of Agricultural Development

To a great extent the history of the development of mankind has been the history of economic development and much of the societal changes and transformations find their roots in such development.

The early main technical innovations such as crude stone tools, then melting of metals, and domestication of grains and farm animals led to the increased production above the subsistence level and provided the basis for settlements in ever larger communities and sufficient surplus for some to assume artistic, intellectual, secular and non-secular roles. The later developments brought about mainly by the Industrial Revolution and the formation of nation states led to drastic changes and transformations never experienced before.

Not all nations, however, experienced the same technological developments and transformations. While some countries were totally untouched by it and remained in a mainly feudal and primitive agricultural state, others felt its magnitude and intensity in a quite uneven manner.
This contradictory and asymmetrical progress of civilization through economic development led to the apparent income disparity not only among classes within a state, but also among the nation states themselves. The rapidly growing population and the prevalent starvation and hunger in some countries raised many questions as to the ability of the economy of these countries and their primitive agricultural sector to provide sufficient food for the subsistence of the population. This question of survival could not only be restricted to the said countries but posed a threat for the advanced countries as well.

The post World War II era marked a significant change in the attitude and concern of the developed countries toward the "less developed." Various economic theories of development were formulated and plans and programs were launched for the economic advancement of these countries. In fact the term economic development has only become popular since the second World War and was first applied to the countries which had recently acquired their de jure or de facto independence from western powers.

As the new concept of economic development spread among academic circles, scholarly attention concentrated on the process of such development in the western countries and the lessons which could be drawn from it for the present problems.

The striking contrast discovered was the dominance of the non-agricultural sectors in the developed countries and agriculture
in the less developed. Based on this observation, the logical inference was that development requires the rapid industrialization or the development of the non-agricultural industries. Hence the central emphasis of the early development plans and theories was the expansion and growth of the industries, largely ignoring agriculture.

We shall briefly review some of these theories and provide a critique of them. The purpose, however, is not to discover the "right" theory of development, but to reach a better understanding of different approaches to development and to outline those which were applied in Iran.

**Stage theories**

Among these theories probably the most influential was Rostow's growth stage theory. The detailed description and critique of this theory seems essential at this point for several reasons: (a) Rostow's theories are perhaps the best representation of the prevalent development theories during this period; (b) Rostow's theories were very influential in the formulation of U.S. foreign aid policies as well as the development plans and policies of the developing countries; and (c) Rostow's theories appear to be the growth strategy followed by the Iranian government.

The underlying premise in Rostow's theory is that "it is possible to identify all societies, in their economic dimensions, as lying within one of five categories: the traditional society,
the preconditions for take-off, the take-off, the drive to maturity, and the age of high mass consumption."\(^3\)

Rostow provides the following description of the take-off stage: "Take-off is defined as requiring all three of the following related conditions: (1) a rise in the rate of productive investment, from, say, five percent or less to over 10 percent of national income (or net national product); (2) the development of one or more substantial manufacturing sectors, with a high rate of growth; (3) the existence or quick emergence of a political, social and institutional framework which exploits the impulses to expansion in the modern sector and the potential external economy effects of the take-off and gives growth an on-going character."\(^4\)

The maturation stage is the following stage whereby the growth process is considered as self-sustainable.\(^5\) However, Rostow does not provide a scientific analysis as to why a society moves from one stage to another or more specifically: what are the necessary and sufficient preconditions for transition from a traditional phase to a take-off stage? He provides a description of take-off, but does not discuss the forces which bring about the required conditions for it. Nor does he provide a scientific explanation or documentation as to why he thinks these conditions as well as changes are universal for all countries. His best description of the causes is that "the idea spreads not merely that economic progress is possible, but that economic progress is a necessary
condition for some other purpose, judged to be good; be it national dignity, private profit, the general welfare....New types of enterprising men come forward--in the private economy, in government, or both--willing to mobilize savings and to take risks in pursuit of profit or modernization." Hence the key emphasis is on the "spread of idea" that economic progress is possible as well as necessary, leading men and governments to take risk for profit or modernization.

Furthermore, Rostow equates growth with development with extensive reliance on statistical growth figures as the indicators for development without any regard for how the fruits of this growth are percolated down to the masses of people, or effect the development and modernization of rural life and the sustenance of massive migratory population to the urban centers. He envisages similar pattern of growth for all countries. The policy implication of this is that in order to develop, all developing countries must go through the same growth process as those experienced by the developed countries. This can be achieved through foreign aid and investment as well as the export of technology and know-how by the industrial countries.

There are several variations of the Rostowian stage theory. The modifications and revisions, however, do not alter the essence of theory, but rather seek to find ways and means through which the development can proceed as prescribed. What shall be done, for
instance, if the productive investment falls short of the suggested 10 percent of national income, or if the institutional framework is not suitable for the expansion of the modern sector? Some try to incorporate the concept of redistribution of income emphasizing growth with redistribution. Others still provide a growth stage theory which emphasize agriculture. The latter, however, pioneered by Perkins and Witt, Mellor and Johnston, Hill and Mosher, brought forth the significant role that agricultural development can play in the overall development.

Economic theories of dualism

In a movement away from "fundamental industrialization" or rapid industrialization, the dual economy approach outlined mainly in the works of Fei and Ranis and later Jorgenson were developed.

According to Fei and Ranis, the economies of the developing countries are "characterized by the coexistence of two sectors: a relatively large and overwhelmingly stagnant subsistence agricultural sector in which institutional forces determine the wage rate, and a relatively small but growing commercialized industrial sector in which competitive conditions obtain in the input markets." In this model the agricultural sector is characterized by four elements: (1) disguised unemployment and underemployment; (2) zero marginal productivity of labor; (3) an institutionally determined wage rate for agricultural labor; and (4) fixed amount of land. Under these conditions and at the early stages of development, the
authors assume that a substantial amount of labor can be transferred from the subsistence sector to the commercialized industrial sector without affecting the agricultural output. In this sense the transfer of labor from the subsistence to the nonsubsistence sector constitutes an agricultural surplus. Furthermore, additional surpluses can be extracted from the subsistence sector as the productivity in agriculture increases.

Jorgenson's model by dropping the assumption of zero marginal productivity of labor and institutionally determined wage rate in the agricultural sector assumes that the withdrawal of labor from the subsistence sector will decrease the agricultural production and therefore, create the problem of maintaining the growing urban population. Thus the transfer of labor and capital accumulation cannot take place without major technological changes in the agricultural sector. Of course Jorgenson's model does not account for the increases in the population and hence the labor force.

Although the two models lead to different conclusions, it appears that the fundamental question which should be resolved is not whether transfer of labor will affect agricultural output, but rather how this surplus can be extracted even if assumed redundant. Furthermore, both models treat increase in productivity in agriculture as having no effect on demand for "resource inputs other than labor intensive capital improvements such as land reclamation and development. The production of technical change in agriculture is itself, however, a relatively capital intensive
activity, particularly, when one considers the human investment involved." Finally, regardless of whether the requirement is change in technology, dampening of population growth, or any other changes, it is apparent that its degree of success depends very much on the effectiveness of government programs and policies. This is a point which we shall return to shortly and discuss in more detail.

**High return input model**

High return input model here is referred to the approach developed by Theodore W. Schultz. Professor Schultz assumes the peasants in traditional societies as rational and efficient. What is lacking is a "body of useful knowledge which has made it possible for the advanced countries to produce for their own use factors that are technically superior to those employed elsewhere." This would imply that in order to transform a traditional agricultural sector into a productive source of economic growth investment should be made in areas of research and education to produce new technical knowledge.

Holding Schultz assumptions as valid, the model still "does not explain how economic conditions induce the development and adaption of an efficient set of technologies for a particular society." Furthermore, since generally research and education are largely financed by the government, its supply will depend on the effectiveness of government development programs and policies.
This latter point has been taken for granted by many economists. While different approaches to development have been suggested, it appears that there has been a general consensus regarding the role of government. As early as 1943, the economists have stressed that the government should play a major role in the growth process. In 1947 Professor Mendelbaum pointed out:

"The theory of State initiated and financed expansion of demand is by now so undisputed, and there are so many historical precedent to confirm it, that more need not be said, at the present stage, about this starting point. We assume that this method will be chosen whenever the need for industrialization is so strongly felt that slow changes and exclusive reliance upon private initiative no longer suffice....Even apart from the U.S.S.R. there are many instances in the recent history of industrialization where the assumption by the State of entrepreneurial functions has accelerated the modernization of equipment and reduced the disadvantages which formerly characterized the position of backward countries."16

A 1970 publication of the United Nations Industrial Development Organization makes somewhat similar comments:

"Planning has become an essential and integral part of industrial development programs, for market forces by themselves, cannot overcome the deepseated structural rigidities in the economies of developing countries....Today the need for some degree of economic planning is universally recognized. It is, of course, an integral part of the economy of the Soviet Union and the other centrally planned countries."17

This has been emphasized by Rostow, Buchanan, Williams and Viner as well as receiving the blessing of the post-Stalin Soviet leadership under the title of "Non-Capitalist Road," and the present Chinese leadership.18 But these references to the state role have been made with no consideration of the nature of the government itself. The example of Soviet Union is given without considering
the nature of the state and the prevalent conditions in these countries, or whether these governments can duplicate the Soviet experience. Thus it appears that the emphasis on the state role rests on the presupposition that the state is also capable of fulfilling the task.

All of the above approaches imply one or more of the following:

1. Development can be achieved through the export of technology.
2. Development can be achieved through the pursuit of similar growth process experienced in the industrial countries.
3. View governments and the ruling class of developing countries as "modernizers" and capable of devising programs and policies for the development of the country.

However, decades of practical experience demonstrates that neither technology nor economies of industrial societies can be simply transferred to developing countries in such a magnitude and ways that will result in drastic and substantial transformation and modernization of the country. Even if we assume this possible, we must make a further assumption that the governments of these countries, considered as major transferers, can fulfill the task.

But many limitations to development stem from the exogenous variables to development process, namely, the political, cultural, and institutional barriers which must be considered. Hence the development of agriculture does not only require the knowledge of conditions which can cause the increase in output and productivity,
but also institutions as well as political and cultural atmosphere which are conductive for such a progress.

This has been recognized by some economists for some time.

For instance, Professor Earl Heady has pointed out:

"The knowledge is already at hand, theoretically and practically, in explaining the development of agriculture. The variables which are important to the process are rather obvious, and those which should be manipulated, aside from other restraining forces, are intuitively evident....What is less obvious is how to overcome the political, cultural, intellectual, and similar restraints, largely exogenous to the agricultural development process, which prevent 'getting on with the job'....The mysteries of agricultural development are small indeed. More mysterious and complex are the 'outside' policy, planning, political, and cultural process which provide restraints to appropriate changes in the 'growth variables' or policies which relate to agriculture."  

Professors John Brewster and Gunner Myrdal have paid considerable attention to the problems of institutional constraints. The result of their studies lead to the conclusion that institutional constraints represent the major barriers to technical change and agricultural modernization.  

The realization of institutional constraints as development barriers was said to be one of the basic premises of the U.S. agricultural development and technical assistance programs in the 1950's and early 1960's. Institutional reforms in the land tenure, marketing, and credit systems received top priority and the Alliance for Progress in Latin America as well as similar programs in other parts of the world, including Iran, were launched for the same purpose.

But the land reform programs and similar measures in essence must rest on the initial hypothesis that the governments of these
countries, largely represented by feudal and semifeudal classes, are capable of changing the very institutions that maintain them.

For instance, in a study of land reform programs under the Alliance for Progress, Professor Ernest Feder concludes:

"The best visible result of the Alliance seems to be the enactment of a large number of land reform laws, which have become effective instruments not for carrying out large scale reforms but for stalling them."^{21}

Similar conclusions were reached by Professor Kusum Nair regarding land reform programs in India:

"...though since 1947, India has enacted perhaps more land reform legislation than any other country in the world, it has not succeeded in changing in any essentials the power pattern, the deep economic disparities, nor the traditional hierarchical nature of intergroup relationships which govern the economic life of village society."^{22}

Similar results were observed in Philippine:

"In 1903 only 0.8 percent of the population owned 35 percent of the total farm area. Fifty years later, a lesser percentage of people owned more lands. In 1953, only 0.36 percent owned 41.5 percent of total farm land....As of 1968, there were about 10,764 landlords listed by provincial assessors as owning from 50 hectares to more than 1,000 hectares of agricultural land....The total area of their landholdings could easily come to 3,000,000 hectares or a little below 50 percent of the total agricultural area of the country today."^{23}

Such efforts in Iran, as it shall be demonstrated later, have been nothing more than attempts to consolidate the power position of the ruling elite.

The realization of the significance of exogenous variables and the failure of traditional growth theories has led to the formulation of dependency theories initiated and propagated by the
economists and social scientists of the developing countries themselves. A pioneer in this area was Theotonio dos Santos who outlined the following requirements for a new development theory:

"1. The theory of development must analyze the process of development in its various historical and concrete manifestations.
2. It must extract, through such a historical analysis, the general law of development of the societies it chooses to investigate.
3. In formulating these laws, development theory must take into account the internal contradictions of the process, abandoning any formalistic attempt to reduce it to a unilinear transition from one type of society to another." 

The central thesis of dependency theories is that the government and the economic systems of developing countries are dependent upon the western powers and capital. But in order to reach a conclusion, the dependency theorists must reach a corollary conclusion that developing countries are capitalist and engaged in capitalist production. Indeed, the dependency theories consider the problem of underdevelopment as a consequence of the development of a particular form of dependent capitalism:

"Underdevelopment, far from constituting a state of backwardness prior to capitalism, is rather a consequence and a particular form of capitalist development known as dependent capitalism. The process under consideration...is a case of the formation of a certain type of internal structure conditioned by international relationship of dependence." 

But the study of development of capitalism in various countries clearly demonstrates that the prerequisite for the development of capital growth is capital accumulation and circulation as well as drastic transformation of the agricultural sector, and that without
capitalist production in the agricultural sector and application of new technology and machinery such transformation is not possible. Thus the dependency theories confuse feudal or semifeudal economies along with some capitalistic features with a capitalist economy and go as far as even suggesting that agricultural production in some developing countries is under capitalist production.\textsuperscript{26}

The brief review of the economic theories of development above bring to light the greater need for the incorporation and consideration of exogenous variables. The attempt was made to demonstrate that theories of development which do not consider these constraints as the real problems of development cannot be used as a guide to development. The purpose here, however, is not to reach a consensus on a "right" theory of development or provide a set of axioms and taxonomies with several concrete hypotheses. As it was mentioned earlier, the traditional theories of growth, namely, the Rostowian concept of development, were applied in Iran. It is also believed that various institutional as well as political and cultural barriers hamper the process of development. It is indeed the application of traditional theories and technical approaches to development along with the presence and significance of these external factors which make Iran an interesting case to study. This is supplemented by the fact that unlike most other developing countries, Iran is in a most advantageous position to overcome its problems and establish a progressive modern
society. This is largely due to the abundance of its various natural resources, large amount of oil revenue, and a relatively small population. Hence, if "economic miracles" could happen, Iran should have been the most likely place for it.

It is also believed that the study of these outside variables---agricultural planning and policies, political and cultural factors---provide us with a better understanding of some of the real problems and restraints to appropriate changes essential for agricultural development.

Thus the intent in the following chapters is to examine the nature and magnitude of some of the problems which impede the process of development in agriculture. The central focus will be the examination of the process of agricultural development in Iran and the evaluation of the government's goals and objectives and their realization in relation to agriculture.
The growth stage theories are nothing new. There had been several non-maxian growth stage theories prior to Rostow's. Among these, the most prominent were the stage theories of Friedrich List classifying growth into five stages of savage, pastoral, agricultural, agricultural-manufacturing, and agricultural-manufacturing-commercial, and several variations of it provided by the German Historical School; and then Fisher's concept of primary, secondary, and tertiary production developed in 1930's. See Joseph A. Schumpeter, History of Economic Analysis (New York: Oxford University Press, 1954) and Bert F. Hoselitz, "Theories of Stages of Economic Growth," in Theories of Economic Growth, ed. Bert F. Hoselitz (Glencoe, Illinois: Free Press, 1960). I have chosen Rostow's theory as a point of departure for the reasons explained above.

Although there is some doubt as to whether the Iranian Government adhered to any particular growth theory, Professor Lovbroek provides convincing evidence that they pursued Rostow's growth strategy and several variations of it. See Asbjorn Lovbroek, "State Interventionism, Industrial Growth and Planning in Iran," (Ph.D. dissertation, University of Oslo, 1977), p. 3 and Chapter 3.


25. Ibid., p. 76.

26. Dependency theories have been criticized on various grounds. For a comprehensive review of this see Lovbroek, op. cit., pp. 8-26; and Colin Leys, "Underdevelopment and Dependency: Critical Notes," Journal of Contemporary Asia 7 (March 1977):80-102. Different versions of dependency theories found a considerable following among the opposition in Iran but they have also been severely criticized and rejected by various elements and groups within the same opposition.
CHAPTER 2
AGRICULTURAL RESOURCES AND PRODUCTION

Geography and Climate

Iran, the fourth largest country in Asia, is comprised of approximately 1,648,000 square kilometers (628 thousand square miles) bordered on the north by the U.S.S.R.; on the south by the Persian Gulf; on the east by Pakistan and Afghanistan; and on the west by Turkey and Iraq. The country is divided into 23 provinces and territories.

The Iranian topography is represented by mountainous regions, flat farming plains, deep green valleys, and arid deserts. The mountainous region is composed of two chains of mountains: The Zangros range which stretches from the northwestern part of the country down to the south with very high peaks that play a significant role in determining the rainfall distribution; and the Alborz range which stretches from the northwest to the northeast creating a natural wall between the Caspian Sea region and the rest of the country. Part of the northern Zagros enjoys a considerable amount of rainfall and vegetation whereas the southern region of it is mainly barren. The area in the northern part of the Alborz range flanked by the Caspian Sea is covered with vegetation and forests. The deserts cover a portion of central Iran and the area in central east stretching to the south. The Persian Gulf lowlands stretch from the southwest to the southeast.
The drainage system of the country is related to the rainfall which is mainly determined by the mountain ranges. Thus, in the north where there is a high level of precipitation, there are many small rivers and mountain streams which flow into the Caspian Sea; and in the south and southwest there are relatively smaller numbers of rivers which flow into the Persian Gulf. The widest river is the Karoun River which is the only navigable river in Iran. It rises from the Zagros and flows south through the fertile plains of Khuzestan to the Persian Gulf. The longest river is Sefid-Rud which flows into the Caspian Sea.²

Most of the rainfall occurs in winter and in the northern and western regions. The southern and eastern areas receive little rainfall and constitute the arid regions covering two-thirds of the country. Aside from the northern and western zones which enjoy high precipitation, agriculture in most other areas depends on the supply of irrigation water. Consequently the supply of irrigation water has always been a main factor in determining land use and agricultural productivity.

Resources

Iran is the second largest oil producing country in the world. Its known oil reserves are estimated at 10.3 percent of the total known oil reserves of the world. The first oil concession was granted to a British subject, William D'Arcy in 1901 for a period of 60 years. In 1910 an income tax law was established in Iran
which led the company, wishing to be exempt from taxation, to secure a new concession which also extended the length of concession for another 32 years. The 1950-53 period witnessed the nationalization of the oil industry by the popular government of Dr. Mussadeq. This led to the British economic embargo of Iran and the eventual overthrow of Mussadeq's government in an August 1953 CIA supported coup. A new agreement was signed in 1954 which formed an international consortium with Americans (40%), British (40%), Dutch (16%), and French (4%) as participant members. Presently, Iran produces about 6 million barrels of oil daily and the oil reserves are assumed to run out by the end of the century. The 1973-74 increase in the price of oil increased the Iranian oil revenues from $5 to $23 billion. Present oil revenues of Iran is estimated at $22 billion per annum. The Iranian oil industry itself presents an interesting case to study since the industry, after 50 years of commercial production, is still an "enclave industry" and has not played the role of a "leading sector" in Iran.³

Iran is also believed to enjoy one of the largest gas reserves in the world. The known reserves of natural gas are estimated to constitute about 17 percent of the total known reserves in the world. For many years, due to lack of concern and technology, the gas was simply burned. Eventually in 1966 an agreement was signed with the Soviet Union for the export of gas. Part of the agreement was the construction of a gas pipeline from southern oil fields to the Soviet border.
The abundance of gas and oil reserves does not mean, however, that there has been a low cost of energy in Iran. In the early years, though Iran was one of the largest oil exporting countries in the world, due to lack of roads and adequate means of transportation and storage, most of the gasoline and kerosene oil in northern Iran was supplied by the Soviet Union at a lower price. Presently the domestic price of a gallon of gasoline is about the same as in the U.S.

There are also large deposits of coal in Iran in various parts of the country, but there is only surface mining and the coal production is not mechanized. Furthermore, there is the abundance of other minerals such as iron ore, copper, lead, zinc, manganese, iron oxide, chromite, and gold in Iran but the exploitation of these have been relatively minor. The copper deposits are assumed to be relatively large and only second to gas and oil in terms of importance. Total copper reserves are estimated at one billion tons and it is believed that its full exploitation could make Iran a major copper producing and exporting country in the world.

Population

The population of Iran in 1978 is estimated at 35 million. The rural population is estimated at about 53 percent. The rural population lives in approximately 66,000 villages.

Historically the distribution of population has depended upon the supply of water. Consequently, the well watered areas are
relatively populated while the desert regions contain a limited population. The national average is about 15 people per square kilometer. However, this figure is as high as 75 persons per square kilometer in well-watered regions and as low as a few in the drylands.\(^6\)

There has been a rapid increase in the growth rate of the population since the second World War. This has been especially significant during the past decade. The present population growth rate is approximately 3.15 percent annually (see Table 2.1).

There has been significant migration from the rural to urban areas in recent years (see Table 2.2). This has been partially due to lack of employment in the agricultural sector and the seasonal nature of agricultural production. The slums in the cities are full of newly arrived peasants seeking employment. Many of these are small peasant producers who must work in off season periods. Seasonal unemployment and underemployment are very high and widespread. Considering the share of agriculture in GNP, the size of the labor force engaged in agriculture is very high. In 1971 agriculture contributed 17.9 percent to the GNP and employed 47.1 percent of the labor force.\(^7\)

Water and Land Resources

The average annual rainfall in Iran over the past five years is about 300 milimeters. But the level of precipitation varies throughout the country (see Table 2.3). Portions of the central
Table 2.1. Annual compounded rates of population growth, 1900-1976\(^a\)

<table>
<thead>
<tr>
<th>Period</th>
<th>Urban</th>
<th>Rural</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1900-26</td>
<td>0.08</td>
<td>0.08</td>
<td>0.08</td>
</tr>
<tr>
<td>1927-34</td>
<td>1.50</td>
<td>1.50</td>
<td>1.50</td>
</tr>
<tr>
<td>1935-40</td>
<td>2.30</td>
<td>1.30</td>
<td>1.50</td>
</tr>
<tr>
<td>1941-56</td>
<td>4.40</td>
<td>1.40</td>
<td>2.20</td>
</tr>
<tr>
<td>1956-70</td>
<td>5.30</td>
<td>1.70</td>
<td>2.90</td>
</tr>
<tr>
<td>1970-76</td>
<td>n.a.(^b)</td>
<td>n.a.</td>
<td>3.15</td>
</tr>
</tbody>
</table>


\(^b\)Data not available.
Table 2.2. Urban and rural share of population, selected years

<table>
<thead>
<tr>
<th>Year</th>
<th>Urban</th>
<th>Rural</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1901</td>
<td>21.0%</td>
<td>79.0%</td>
<td>100%</td>
</tr>
<tr>
<td>1940</td>
<td>22.0</td>
<td>78.0</td>
<td>100</td>
</tr>
<tr>
<td>1956</td>
<td>31.0</td>
<td>69.0</td>
<td>100</td>
</tr>
<tr>
<td>1966</td>
<td>39.0</td>
<td>61.0</td>
<td>100</td>
</tr>
<tr>
<td>1972</td>
<td>43.0</td>
<td>57.0</td>
<td>100</td>
</tr>
<tr>
<td>1974</td>
<td>43.8</td>
<td>56.2</td>
<td>100</td>
</tr>
<tr>
<td>1975</td>
<td>44.1</td>
<td>55.9</td>
<td>100</td>
</tr>
<tr>
<td>1977</td>
<td>47.0</td>
<td>53.0</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 2.3. Average rainfall in various cities of Iran, 1975

<table>
<thead>
<tr>
<th>City</th>
<th>Rainfall (millimeters)</th>
<th>City</th>
<th>Rainfall (millimeters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NORTH</td>
<td></td>
<td>SOUTH</td>
<td></td>
</tr>
<tr>
<td>Rasht</td>
<td>1700</td>
<td>Ahvaz</td>
<td>342</td>
</tr>
<tr>
<td>Pahlavi</td>
<td>2460</td>
<td>Kerman</td>
<td>180</td>
</tr>
<tr>
<td>Babelsar</td>
<td>969</td>
<td>Bandar Abass</td>
<td>351</td>
</tr>
<tr>
<td>Tabriz</td>
<td>243</td>
<td>Boshahr</td>
<td>331</td>
</tr>
<tr>
<td>Mashhad</td>
<td>286</td>
<td>Behbahan</td>
<td>160</td>
</tr>
<tr>
<td>CENTRAL</td>
<td></td>
<td>WEST</td>
<td></td>
</tr>
<tr>
<td>Tehran</td>
<td>220</td>
<td>Kermanshah</td>
<td>529</td>
</tr>
<tr>
<td>Esfahan</td>
<td>172</td>
<td>Hamedan</td>
<td>297</td>
</tr>
<tr>
<td>Yazd</td>
<td>81</td>
<td>Khoramabad</td>
<td>125</td>
</tr>
<tr>
<td>Semnan</td>
<td>125</td>
<td>EAST</td>
<td></td>
</tr>
<tr>
<td>Shiraz</td>
<td>456</td>
<td>Zahedan</td>
<td>97</td>
</tr>
</tbody>
</table>

and southwestern part of the country hardly see any rain. Most of the rainfall occurs in northern and western provinces.

Due to insufficient rainfall in many parts of the country, most of the farming depends on irrigation. Historically this has been accomplished through the ancient ghanat system. The ghanats are subterranean tunnels which bring the underground water to the surface. They are built by constructing series of shafts with decreasing depth and an underground conduit which connects them. The slope of the conduit is less than the ground surface causing the tapped water to be discharged above ground at the point where the two slopes meet. The flow of water is continuous and as the result a significant portion of the water is wasted.

The construction of ghanats are very expensive and have historically been built by the landlords. This control over the supply of water has traditionally given the landlords a greater power and influence over the peasantry and production. Presently there are about 3500 ghanats (some believed to be 70 kilometers long and 500 meters deep) in Iran bringing to surface near 10 billion cubic meters of water annually and irrigating about 800 thousand hectares of land (see Table 2.4).

Another form of irrigation is through water wells. There are presently about 15000 wells with an estimated capacity of 10 billion cubic meters irrigating near 820 thousand hectares of land. There are also various dams which were constructed at an expense of $0.8
Table 2.4. Irrigated land area, 1972 (million hectares)\(^{a}\)

<table>
<thead>
<tr>
<th>System of irrigation</th>
<th>Amount of land</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Full irrigation</strong></td>
<td></td>
</tr>
<tr>
<td>Wells</td>
<td>0.82</td>
</tr>
<tr>
<td>New canals</td>
<td>0.13</td>
</tr>
<tr>
<td>Traditional canals</td>
<td>0.55</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>1.50</td>
</tr>
<tr>
<td><strong>Partial irrigation</strong></td>
<td></td>
</tr>
<tr>
<td>River diversions</td>
<td>1.30</td>
</tr>
<tr>
<td>Ghanats</td>
<td>0.80</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>2.10</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>3.60</td>
</tr>
</tbody>
</table>

billion with the objective of eventually irrigating over one million hectares of farming land. Although the government claims that it has reached this objective, the amount of land irrigated by the large scale as well as the small modern diversion dams does not exceed 800 thousand hectares.

The total irrigated land is about 3.6 million hectares. But due to the inefficient system of irrigation and water use, about half of the captured water (some 30 billion cubic meters) for irrigation is lost in conveyance and operation.

The total land area in Iran is approximately 165 million hectares. About half of this are deserts and wasteland. Near 40 million hectares (41 percent) is potentially arable provided that adequate water is available. But due to inadequate water supply only 16 million hectares are potentially cultivable--of which about 11 million hectares receive sufficient rainfall and the remainder is irrigated. Not all of this 16 million hectares, however, is cultivated. In 1971 only 8.7 million hectares were cultivated. The cultivable lands are mostly in northern regions stretching south to Khuzestan and Fars provinces.

Major Crops

Iranian agriculture consists mainly of crop production. The main crops are wheat, barley, and rice (see Table
2.5).* These are also important in terms of value, constituting between 35 to 40 percent of total value of agricultural production. Wheat is the primary crop and is produced on approximately 50 percent of the total cropped area. It serves as the staple food, mostly bread, and provides about half of the calorie intake of the population.

Barley has a low priority mainly due to its low price value and usually the inferior land is allocated for its production. It is mainly used for feed purposes. Rice constitutes part of the diet of most people particularly in central and northern regions. The area under cultivation for rice is relatively insignificant, but in terms of value it is a very important crop. Other cereals such as corn, sorghum and oats are also produced in Iran but these are insignificant both in terms of output and land utilization.

Among the "industrial crops" sugar beets, sugar cane, tobacco and cotton are the most important items. Most sugar beet production takes place in northeastern province of Khorasan on irrigated

*There is a great deal of discrepancy in the data released by the Iranian government. For instance, different government sources give as many as eight different figures regarding the output of wheat. Some of these are released by the same agency in the same year. The figures quoted in Table 2.5 for rice production in 1971 (877 thousand tons) contradict the data made available to the author by the Ministry of Agriculture (697 thousand tons) and the figures quoted in the Bank Markazi Iran publication (1050 thousand tons) which ironically gives the Ministry of Agriculture as its source. As it can be seen there is a discrepancy of 350 thousand tons or near 50 percent in the data released by the same source.
Table 2.5. Agricultural output and cultivated land, 1971 (thousand tons and hectares)\textsuperscript{a}

<table>
<thead>
<tr>
<th>Crop</th>
<th>Output</th>
<th>Cultivated land</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cereals</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wheat</td>
<td>3712</td>
<td>5565</td>
</tr>
<tr>
<td>Barley</td>
<td>851</td>
<td>1446</td>
</tr>
<tr>
<td>Rice</td>
<td>877</td>
<td>344</td>
</tr>
<tr>
<td><strong>Industrial crops</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sugar beets</td>
<td>3772</td>
<td>150</td>
</tr>
<tr>
<td>Sugar cane</td>
<td>578</td>
<td>5</td>
</tr>
<tr>
<td>Tobacco</td>
<td>16</td>
<td>19</td>
</tr>
<tr>
<td>Oilseeds</td>
<td>54</td>
<td>76</td>
</tr>
<tr>
<td>Cotton (upland)</td>
<td>466</td>
<td>307</td>
</tr>
<tr>
<td><strong>Vegetables</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potatoes</td>
<td>158</td>
<td>n.a.\textsuperscript{b}</td>
</tr>
<tr>
<td>Onions</td>
<td>109</td>
<td>n.a.</td>
</tr>
<tr>
<td>Tomatoes</td>
<td>130</td>
<td>n.a.</td>
</tr>
<tr>
<td>Other vegetables</td>
<td>198</td>
<td>n.a.</td>
</tr>
<tr>
<td>Pulses</td>
<td>102</td>
<td>n.a.</td>
</tr>
<tr>
<td>Tea</td>
<td>38</td>
<td>30</td>
</tr>
</tbody>
</table>


\textsuperscript{b}Data not available.
The yield per hectare is very low due to inadequate irrigation, inferior production methods, and pest damage. Both tobacco and tea are produced in Iran for domestic consumption though due to the inferior quality of the Iranian tea some tea is imported for the purpose of blending. Tobacco is produced mainly in the northern provinces of Western Azarbaijan and Gilan. Tea is produced only in Gilan because of its high level of annual rainfall.

The most significant cash crop in Iran is cotton which is also the only crop exported in a significant amount. There are two types of cotton produced in Iran but over 90 percent of total production is the Vesh or upland cotton. Cotton is mainly produced in the Gorgan plain on large mechanized farms and in rotation with wheat.

There are various types of vegetables grown in Iran. The most important of these are potatoes, onions, and tomatoes. Also melons and cucumbers are produced in large quantities. In fact, these with bread (and sometimes with Iranian cheese similar to feta cheese) constitute the main diet of the lower class families.

There are also variety of fruits and nuts produced in Iran. The most important among these are citrus fruits (mostly lime and lemon) grown mainly in the northern region by the Caspian Sea and the southern province of Pars; apples, grapes, cherries, peaches, pomegranates, plums, and figs; and dates which with bread constitute
the main staple food of people in the Persian Gulf area and are grown in the same region. Dates are also the only fruit which is exported in a significant quantity.\textsuperscript{19}

Pulses and oilseeds are grown almost everywhere in Iran. The major pulses are chick peas and lentiles. Chick peas constituted over 60 percent of total pulses produced in 1974.\textsuperscript{20} Most of the oilseeds produced are sunflower seeds. It accounts for over 60 percent of total oilseeds production.\textsuperscript{21}
FOOTNOTES


2Ibid.


5This is a very rough estimate obtained based on the last available data (33.4 million in 1975) and the population growth rate.

6Statistical Yearbook of Iran, 1975, op. cit., p. 31.

7This figure represents the employed force above ten years of age. In 1971 the total employed force was estimated at 7.3 million. The share of the three sectors were as following: agriculture 47.1 percent; industry 26.2 percent; and services 26.7 percent. Plan and Budget Organization, Selected Statistics, 1972 (Tehran: Plan Organization, 1973), pp. 18-19; and Statistical Yearbook of Iran, 1976, op. cit., p. 541. Some non-Iranian writers give different figures for agricultural labor force. Oddvar Aresvik, for instance, indicates that the share of agriculture in GNP in 1971 was 16.5 and the labor force engaged in agriculture 35.6 percent. These figures, however, do not correspond with various Iranian statistical publications and Aresvik does not give his source. He in fact provides contradictory data with no indication of the sources. Nevertheless, even Aresvik's figures clearly indicate that the labor force engaged in agriculture is very high relative to agriculture's share in GNP. See Oddvar Aresvik, The Agricultural Development of Iran (New York: Praeger, 1976), pp. 13, 26.


9Selected Statistics, 1972, op. cit., p. 73.


12. Based on the data given in *Statistical Yearbook of Iran, 1976* *op. cit.*, pp. 227-32.


15. Ibid.

16. Ibid.

17. Ibid., p. 211.

18. Ibid., p. 232.

19. Ibid., p. 234.

20. Ibid., pp. 216-17.

21. Ibid.
CHAPTER 3
GOVERNMENT PLANS AND POLICIES

The Economy: An Overview

Over the past decade Iran has experienced a substantially high rate of economic growth. Table 3.1 shows the GNP in current and constant prices as well as the oil revenues for the 1966-76 period. As Table 3.1 illustrates, the annual growth rate in current prices has continuously been over 10 percent and has reached as high as 72 percent in 1974. The growth rate in constant prices which provides a more accurate measure has been near or above 10 percent for the same period.

Table 3.1 also indicates that the growth in GNP has been accompanied by rapid growth rate in oil revenues. In fact, the 1966-76 period can be divided into two phases. The first phase 1966-72 is characterized by substantial rate of growth in both GNP and oil revenues in current prices. During this period the annual rate of growth in oil revenues was relatively greater than the GNP. The second phase, 1973-76 period, is marked by an extremely high rate of growth in both GNP and oil revenues in current prices. As before, the drastic increases in the GNP is largely due to the drastic increases in the oil revenues which was caused by the 1973 OPEC agreement and the unilateral increase in oil prices.

As the difference between GNP in current and constant prices show, this growth has been accompanied by high rate of inflation. In 1966-72 period, a high rate of inflation was relatively lower than the succeeding phase. Table 3.2 shows the official cost of living index
### Table 3.1 GNP in Current and Constant 1959 Prices and Oil Revenues (1966 - 1976) (Billion Rials)

<table>
<thead>
<tr>
<th>Year</th>
<th>GNP (current)</th>
<th>Annual rate of growth (%)</th>
<th>GNP (constant)</th>
<th>Annual rate of growth (%)</th>
<th>Oil Revenues</th>
<th>Annual rate of growth (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1966</td>
<td>503.6</td>
<td>10.3</td>
<td>461.8</td>
<td>--</td>
<td>57.3</td>
<td>--</td>
</tr>
<tr>
<td>1967</td>
<td>556.5</td>
<td>10.5</td>
<td>513.8</td>
<td>11.3</td>
<td>67.8</td>
<td>18.3</td>
</tr>
<tr>
<td>1968</td>
<td>629.4</td>
<td>13.1</td>
<td>569.4</td>
<td>10.8</td>
<td>73.0</td>
<td>7.7</td>
</tr>
<tr>
<td>1969</td>
<td>704.2</td>
<td>11.9</td>
<td>621.6</td>
<td>9.2</td>
<td>84.8</td>
<td>16.2</td>
</tr>
<tr>
<td>1970</td>
<td>798.2</td>
<td>13.3</td>
<td>689.7</td>
<td>11.0</td>
<td>98.5</td>
<td>16.2</td>
</tr>
<tr>
<td>1971</td>
<td>962.7</td>
<td>20.6</td>
<td>757.9</td>
<td>9.9</td>
<td>163.6</td>
<td>66.0</td>
</tr>
<tr>
<td>1972</td>
<td>1227.7</td>
<td>32.5</td>
<td>905.8</td>
<td>19.5</td>
<td>201.2</td>
<td>23.0</td>
</tr>
<tr>
<td>1973</td>
<td>1824.7</td>
<td>48.6</td>
<td>1028.9</td>
<td>13.6</td>
<td>298.0</td>
<td>48.0</td>
</tr>
<tr>
<td>1974</td>
<td>3149.6</td>
<td>72.6</td>
<td>1181.0</td>
<td>14.8</td>
<td>1305.0</td>
<td>338.0</td>
</tr>
<tr>
<td>1975</td>
<td>3573.0</td>
<td>13.4</td>
<td>1335.7</td>
<td>13.1</td>
<td>1302.2</td>
<td>0.2</td>
</tr>
<tr>
<td>1976</td>
<td>4684.0</td>
<td>31.0</td>
<td>1535.6</td>
<td>15.0</td>
<td>1534.0</td>
<td>17.8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>General Index</td>
<td>94.3</td>
<td>95.1</td>
<td>96.6</td>
<td>100.0</td>
<td>101.5</td>
<td>107.1</td>
<td>113.8</td>
<td>126.1</td>
<td>146.5</td>
<td>160.5</td>
<td>187.5</td>
</tr>
<tr>
<td>Food</td>
<td>96.1</td>
<td>96.6</td>
<td>97.6</td>
<td>100.0</td>
<td>100.4</td>
<td>110.1</td>
<td>117.2</td>
<td>127.0</td>
<td>151.3</td>
<td>161.5</td>
<td>181.0</td>
</tr>
<tr>
<td>Clothing</td>
<td>97.8</td>
<td>97.5</td>
<td>97.8</td>
<td>100.0</td>
<td>102.4</td>
<td>105.7</td>
<td>111.5</td>
<td>129.5</td>
<td>145.6</td>
<td>157.2</td>
<td>176.2</td>
</tr>
<tr>
<td>Housing</td>
<td>85.0</td>
<td>87.5</td>
<td>89.1</td>
<td>100.0</td>
<td>104.6</td>
<td>107.6</td>
<td>116.8</td>
<td>137.3</td>
<td>164.1</td>
<td>204.8</td>
<td>262.6</td>
</tr>
<tr>
<td>Household items</td>
<td>87.0</td>
<td>87.7</td>
<td>94.2</td>
<td>100.0</td>
<td>102.0</td>
<td>103.1</td>
<td>113.3</td>
<td>144.0</td>
<td>171.3</td>
<td>204.2</td>
<td>221.3</td>
</tr>
</tbody>
</table>


^bComputed by the author based on data in Statistical Yearbook of Iran, 1977, p. 617.
and its main components. While with the Iranian Standards the 1966-69 period shows a relatively low rate of increase in the general index and the increases in 1969-72 period can still be considered as low, the 1973-76 is marked by very rapid increases. Prices of some of the goods and services like housing and household items have more than doubled in a matter of a few years.

Note that Table 3.2 is based on official data. Unofficially, however, Iran has always experienced double digit rate of inflation sometimes exceeding 50 percent. Only in early 1978 did the government begin to admit some higher rates than those previously announced. In February 1978, the Iranian Prime Minister, Jamshid Amuzegar announced inflation in excess of 31 percent.¹

As Table 3.1 demonstrates, oil plays a very significant role in the Iranian economy and has been the major contributing sector to the GNP and its acute growth performance. Table 3.3 shows the absolute contribution of oil as well as its relative share in both current and deflated GNP. As it is evident, the share of the oil sector in the GNP has continuously risen reaching a high proportion of 44.1 percent in 1974. Table 3.3 also indicates that this increase has only reached its extreme magnitude during the second phase.

Table 3.4 substantiates the above findings as well as comparing the oil sector to three major sectors. The data in Table 3.4 points out two major changes: (1) oil as the least important contributing sector in 1967 has become the dominant sector claiming as high as 45.8
### Table 3.3 Value Added in Oil in Current and Constant Prices (1966-1976) (Billions of Rials)

<table>
<thead>
<tr>
<th>Year</th>
<th>GNP (current)</th>
<th>Value added oil</th>
<th>Ratio (%)</th>
<th>GNP (constant)</th>
<th>Value added oil</th>
<th>Ratio (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1966</td>
<td>503.6</td>
<td>60.8</td>
<td>12.1</td>
<td>461.8</td>
<td>68.6</td>
<td>14.9</td>
</tr>
<tr>
<td>1967</td>
<td>556.5</td>
<td>71.5</td>
<td>12.8</td>
<td>513.8</td>
<td>80.8</td>
<td>15.7</td>
</tr>
<tr>
<td>1968</td>
<td>629.4</td>
<td>82.7</td>
<td>13.1</td>
<td>567.4</td>
<td>92.4</td>
<td>16.2</td>
</tr>
<tr>
<td>1969</td>
<td>704.2</td>
<td>95.3</td>
<td>13.5</td>
<td>621.6</td>
<td>105.4</td>
<td>17.0</td>
</tr>
<tr>
<td>1970</td>
<td>798.2</td>
<td>144.3</td>
<td>14.3</td>
<td>689.7</td>
<td>121.4</td>
<td>17.6</td>
</tr>
<tr>
<td>1971</td>
<td>962.7</td>
<td>180.3</td>
<td>18.7</td>
<td>757.9</td>
<td>142.1</td>
<td>18.7</td>
</tr>
<tr>
<td>1972</td>
<td>1227.7</td>
<td>206.8</td>
<td>16.8</td>
<td>905.8</td>
<td>149.5</td>
<td>16.5</td>
</tr>
<tr>
<td>1973</td>
<td>1824.7</td>
<td>531.6</td>
<td>29.1</td>
<td>1028.9</td>
<td>165.0</td>
<td>16.0</td>
</tr>
<tr>
<td>1974</td>
<td>3149.6</td>
<td>1388.0</td>
<td>44.1</td>
<td>1181.0</td>
<td>166.8</td>
<td>14.1</td>
</tr>
<tr>
<td>1975</td>
<td>3573.0</td>
<td>1311.7</td>
<td>36.7</td>
<td>1335.7</td>
<td>148.3</td>
<td>11.0</td>
</tr>
<tr>
<td>1976</td>
<td>4684.0</td>
<td>1741.4</td>
<td>37.2</td>
<td>1535.6</td>
<td>160.0</td>
<td>10.4</td>
</tr>
</tbody>
</table>


^Estimated and computed by the author.
Table 3.4. Contribution of the main sectors to the GNP (1967-1976)\(^a\)

<table>
<thead>
<tr>
<th>Year</th>
<th>Agriculture %</th>
<th>Oil %</th>
<th>Mine &amp; Industry %</th>
<th>Services %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1967</td>
<td>23.1</td>
<td>15.5</td>
<td>20.1</td>
<td>38.0</td>
</tr>
<tr>
<td>1968</td>
<td>22.2</td>
<td>15.9</td>
<td>20.7</td>
<td>38.7</td>
</tr>
<tr>
<td>1969</td>
<td>20.9</td>
<td>16.8</td>
<td>21.2</td>
<td>38.6</td>
</tr>
<tr>
<td>1970</td>
<td>20.0</td>
<td>17.5</td>
<td>21.0</td>
<td>39.2</td>
</tr>
<tr>
<td>1971</td>
<td>17.8</td>
<td>22.0</td>
<td>20.6</td>
<td>37.6</td>
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<tr>
<td>1972</td>
<td>16.3</td>
<td>21.4</td>
<td>20.0</td>
<td>38.7</td>
</tr>
<tr>
<td>1973</td>
<td>12.8</td>
<td>32.2</td>
<td>18.2</td>
<td>34.5</td>
</tr>
<tr>
<td>1974</td>
<td>9.6</td>
<td>45.8</td>
<td>13.9</td>
<td>28.3</td>
</tr>
<tr>
<td>1975</td>
<td>9.3</td>
<td>38.5</td>
<td>17.4</td>
<td>32.1</td>
</tr>
<tr>
<td>1976</td>
<td>9.2</td>
<td>37.1</td>
<td>20.0</td>
<td>31.3</td>
</tr>
</tbody>
</table>

percent of the GNP in 1974; and (2) agriculture's share of the GNP has diminished on sustained basis constituting only 9.2 percent of the GNP in 1976.

The above brief general review of the Iranian economy clearly demonstrates that the Iranian economy is an oil-dependent economy and that its continued growth has required a sustained growth in the oil industry. But what is more important is that the Iranian oil industry has not played the role of the leading sector. Unfortunately, inquiry into this aspect of the economy and the related government policies is beyond the limitations of this study, and we shall only examine its impact beared by the agricultural sector.

The increased oil revenues have removed all financial constraints for the development of the country as well as providing Iran an easy access to foreign exchange. This provided the Iranian government various policy alternatives for the utilization of the oil revenues: (1) continue to rely on the oil revenues as a main source of exchange for imported goods; (2) encourage the development of other sectors to the extent that domestic production at least satisfy domestic demand; (3) emphasize the development of other sectors with export objectives.

The first alternative has been the policy pursued by the Iranian government. As Table 3.5 demonstrates, the imports have assumed leviathan proportions, rising from $544 million in 1959 to $12.5 billion in 1976. The last two columns in Table 3.5 give the increase in non-oil exports and the ratio of non-oil exports to imports. This
Table 3.5. Ratio of Non-Oil Exports and Total Imports of Goods and Services (1959-1976) (Millions of Dollars)

<table>
<thead>
<tr>
<th>Year</th>
<th>Imports</th>
<th>Annual growth rate (%)</th>
<th>Non-oil exports</th>
<th>Non-oil exports/imports ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1959</td>
<td>544.2</td>
<td>--</td>
<td>102.7</td>
<td>18.9</td>
</tr>
<tr>
<td>1960</td>
<td>688.3</td>
<td>26.5</td>
<td>111.5</td>
<td>16.2</td>
</tr>
<tr>
<td>1961</td>
<td>616.6</td>
<td>-10.4</td>
<td>127.9</td>
<td>20.7</td>
</tr>
<tr>
<td>1962</td>
<td>547.6</td>
<td>-11.2</td>
<td>114.7</td>
<td>20.9</td>
</tr>
<tr>
<td>1963</td>
<td>513.5</td>
<td>-6.2</td>
<td>128.2</td>
<td>25.0</td>
</tr>
<tr>
<td>1964</td>
<td>742.3</td>
<td>45.6</td>
<td>153.1</td>
<td>20.6</td>
</tr>
<tr>
<td>1965</td>
<td>898.4</td>
<td>21.0</td>
<td>180.8</td>
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</tr>
<tr>
<td>1966</td>
<td>963.7</td>
<td>7.3</td>
<td>157.5</td>
<td>16.3</td>
</tr>
<tr>
<td>1967</td>
<td>1,190.3</td>
<td>23.5</td>
<td>181.8</td>
<td>15.3</td>
</tr>
<tr>
<td>1968</td>
<td>1,389.2</td>
<td>16.7</td>
<td>216.9</td>
<td>15.6</td>
</tr>
<tr>
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<td>244.7</td>
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<tr>
<td>1970</td>
<td>1,676.6</td>
<td>7.8</td>
<td>277.9</td>
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<td>1971</td>
<td>2,060.9</td>
<td>22.9</td>
<td>334.6</td>
<td>16.2</td>
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<tr>
<td>1972</td>
<td>2,570.4</td>
<td>27.4</td>
<td>439.8</td>
<td>17.1</td>
</tr>
<tr>
<td>1973</td>
<td>3,737.1</td>
<td>45.4</td>
<td>634.7</td>
<td>17.0</td>
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<td>1974</td>
<td>6,614.0</td>
<td>77.0</td>
<td>581.5</td>
<td>8.8</td>
</tr>
<tr>
<td>1975</td>
<td>11,696.0</td>
<td>76.8</td>
<td>592.2</td>
<td>5.1</td>
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<tr>
<td>1976</td>
<td>12,567.0</td>
<td>7.4</td>
<td>517.7</td>
<td>4.1</td>
</tr>
</tbody>
</table>

Sources: Bank Markazi Iran, Annual Report and Balance Sheet, various issues.

Computed by the author.
ratio is indicative of the Iranian non-oil exports' capability to finance the imports. According to this data, non-oil exports have always paid for a small portion of the import bill. But what is more important is that this ratio has drastically decreased over the 1959-76 period. While during 1959-65 the non-oil exports were capable of financing about 20 percent of the imports, the post 1965 period experienced a substantial diminish, accelerated after 1973, to a mere 4.1 percent.

This policy had had grave consequences for agriculture, one dimension of which was the total neglect of this sector accompanied by escalating reliance on import of agricultural goods which grew at even a higher rate than the annual rate of growth in total imports. This aspect of the government policy will be examined in Chapter 5.

Government Planning and Programs

One aspect of government policies and state intervention is reflected in its development planning first initiated in 1949. By 1978 five plans were completed, the first two of which were seven year plans and the remainder each covered a five year period. Part of the oil revenues were assigned to the Plan Organization established in 1949 for the purpose of planning and development. Table 3.6 shows the amount of planned and actual investment during the first four plans. As Table 3.6 shows the total actual investment fell short of the total planned investment during the first three plans (data
Table 3.6. Plan organization public investment under the four development plans (1949-1973) (millions of dollars)$^a$

<table>
<thead>
<tr>
<th>Sectors</th>
<th>First plan (1949-55)</th>
<th></th>
<th>Second plan (1956-62)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Planned</td>
<td>%</td>
<td>Actual</td>
<td>%</td>
</tr>
<tr>
<td>Agric. &amp; irrig.</td>
<td>97.13</td>
<td>27.7</td>
<td>13.33</td>
<td>19.6</td>
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<tr>
<td>Trans. &amp; comm.</td>
<td>102.75</td>
<td>29.3</td>
<td>20.06</td>
<td>29.5</td>
</tr>
<tr>
<td>Ind. &amp; mines</td>
<td>70.83</td>
<td>20.2</td>
<td>31.96</td>
<td>47.0</td>
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<tr>
<td>Regional development</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Social welfare</td>
<td>79.96</td>
<td>22.8</td>
<td>2.65</td>
<td>3.9</td>
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<tr>
<td>Fuel &amp; energy</td>
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<td>--</td>
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<td>--</td>
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<td>Manpower</td>
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<tr>
<td>Housing</td>
<td>--</td>
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<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Others</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Total</td>
<td>350.67</td>
<td>100.0</td>
<td>68.00</td>
<td>100.0</td>
</tr>
</tbody>
</table>


$^b$Includes both public and private investment.
<table>
<thead>
<tr>
<th></th>
<th>Third plan (1962-67)</th>
<th></th>
<th>Fourth plan (1968-73)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Planned   %</td>
<td>Actual   %</td>
<td>Planned   %</td>
</tr>
<tr>
<td>653.33</td>
<td>21.3</td>
<td>630.67   23.1</td>
<td>886.00   8.2</td>
</tr>
<tr>
<td>746.67</td>
<td>24.3</td>
<td>717.33   26.3</td>
<td>1853.30  17.2</td>
</tr>
<tr>
<td>360.00</td>
<td>11.7</td>
<td>228.00   8.4</td>
<td>2773.63  25.5</td>
</tr>
<tr>
<td>93.33</td>
<td>3.1</td>
<td>96.00    3.5</td>
<td>416.71   3.8</td>
</tr>
<tr>
<td>412.00</td>
<td>13.5</td>
<td>409.33   15.0</td>
<td>1105.44  10.2</td>
</tr>
<tr>
<td>553.33</td>
<td>18.0</td>
<td>426.67   15.6</td>
<td>2602.13  23.9</td>
</tr>
<tr>
<td>48.00</td>
<td>1.6</td>
<td>37.33    1.4</td>
<td>24.12    0.2</td>
</tr>
<tr>
<td>189.33</td>
<td>6.2</td>
<td>162.67   6.0</td>
<td>1159.06  10.7</td>
</tr>
<tr>
<td>10.67</td>
<td>0.3</td>
<td>20.00    0.7</td>
<td>33.50    0.3</td>
</tr>
<tr>
<td>3066.66</td>
<td>100.0</td>
<td>2728.00  100.0</td>
<td>10853.90 100.0</td>
</tr>
</tbody>
</table>
for actual investment under the fourth plan is not available), although some changes in terms of investment allocation between different sectors can be observed. But what is more important in this study is the identification of priorities and the analysis of government objectives as well as the concrete results. Hence the rest of this chapter is devoted to a brief review of different plans.

The First Plan

The First Plan (1949-55) called for a total of 21 billion Rials ($656 million) of public expenditure. Seventy percent of plan revenues were to be derived from oil revenues and foreign loans. The First Plan failed to achieve most of its targets. In fact, only 20 percent of originally planned government expenditures were actually spent. Of this, near 40 percent of government expenditure, or 29.5 percent of Plan Organization's actual investment were allocated to transportation and communication. The actual investment in agriculture was $13.3 million or less than 14 percent of the planned investment.

The Second Plan

The Second Plan (1956-62), similar to the first was a non-comprehensive plan in the sense that "it did not mention the private sector, nor did it include the total activities of the public sector." The actual investment under the Second Plan was about $978.5 million or approximately 84 percent of the total planned investment of $1160
million. In the agricultural sector the actual investment was $217.24 or 87 percent of the planned investment. At first glance those figures point out remarkable achievements, but such notions would soon fade away once we consider the government objectives and priorities in agriculture and their actual realization.

First, it should be noted that during the Second Plan, the rate of inflation was at approximately 45 percent, which once accounted for, would greatly increase the gap between the planned and actual investment.

Second, the consideration of government's choice of priorities in agriculture for the allocation of capital and the measures undertaken toward the actualization of agricultural development goals show that such priorities and policies had had little impact on agricultural production or even the realization of the stated goals. According to the Second Plan, the government goals were raising production, improving and increasing exports, and the development of agriculture. To accomplish these broad and abstract objectives, priorities were given to the construction of large showy dams. Two large dams, Karaj and Sefid Rud, were constructed at the cost of $150 million (over half of total actual investment in agriculture) which according to World Crops "had almost no detectable influence on agricultural production." But this question of priority is only one aspect of the problem. The other is that even though the priority was given to the construction of
dams, today after fifteen years, the total planned irrigation of the surrounding lands have not been accomplished and the Karaj dam has been redesigned as a water-supply dam for Tehran.6

Perhaps the most outstanding characteristic of the Second Plan was its non-planning, void of any economic comprehension and analysis. As Professor Looney points out, "from an economic standpoint, because it was divorced from economic analysis (for example, rates of return, cost-benefit analysis), the Second Plan must be considered a disaster."7 In 1962 when the Second Plan folded, the real GNP per capita was approximately the same as in 1939.8

The Third Plan

The Third Plan (1962-67) was perhaps the first attempt toward a comprehensive planning. Total planned public investment was $3066.7 million. The actual investment amounted to $2728 million or 89 percent of the planned investment. The investment in agriculture was about $630.7 million or 23 percent of the total actual investment. The government's objectives in agriculture were again outlined in broad and abstract terms: (1) increasing output to support overall growth; (2) improving the level of rural life; and (3) improving the distribution of income.9 Increase in production with export objectives is no longer explicitly mentioned.

But the highlight of the Third Plan was the launching of the Shah's White Revolution, one of the main components of which was the Iranian
Land Reform. All together, the White Revolution is composed of Nineteen Principles, some of which were proclaimed during the Fourth and Fifth Plans:

1. The abolition of peasant-landlord tenure system and distribution of land.
2. Nationalization of all forests.
3. Sale of shares of government-owned industries to private corporations and landlords as a form of payment for the distributed lands.
4. Profit-sharing arrangements in the industries covering up to 20 percent of net corporate earnings as an incentive to increase labor productivity.
5. Right to vote for women.
6. Creation of Literacy Corps from conscripted high school graduates.
10. Nationalization of water resources.
11. Reconstruction and development of the country.
12. Reforms in areas of education and administration.
13. Share participation of the public in industrial institutions.
14. Reform against profiteering and corruption.
15. Free education.
16. Free food for children under two years of age.

17. Establishment of a social security system.

18. Establishment of control over land prices.


Many of these principles, especially principles 11-19, did not go beyond the stage of proclamation. Of those that were actually implemented and fall within the scope of this study were land reform (1962-71) and accompanying measures which spread over both Third and Fourth Plans. Different aspects of the White Revolution as it relates to agriculture will be examined in the following chapters.

The Fourth Plan

Table 3.6 shows the planned investment under the Fourth Plan (1968-73), but no concrete data regarding the actual investment has yet been released by the government. The Fourth Plan marks the beginning of a greater neglect of the agricultural sector and increased dependency on foreign imports. As Table 3.6 indicates only 8.2 percent of total planned investment (includes private sector) was assigned to agriculture compared to 21.3 percent under the Third Plan. Again the objectives of increased production and exports, distribution of income, and improving rural life were outlined for the agricultural sector. The growth target in agriculture was set at five percent per annum.

But the actual average annual growth rate in agriculture was between 2 to 2.5 percent which was lower than the rate of growth in
population for the same period. Net import of agricultural goods increased from approximately 1.3 billion Rials at the beginning of the Fourth Plan to about 8.5 billion Rials at the end.\textsuperscript{11} Chapter 5 will examine the production targets in agriculture and their actual realization.

The Fifth Plan

The launching of the Fifth Plan (1973-78) coincided with the drastic increase in the oil revenues and hence the revision of the original plan. Table 3.7 shows the planned distribution of government credits during the Fifth Plan. Approximately 45 percent of total credits is allocated to general and military affairs. Credits to agriculture and natural resources amounted to 369.44 billion Rials, slightly below 6 percent of the total credits, which again points out the low priority assigned to this sector.

Similar to other plans, top priority was given to the growth of the GNP, with the oil industry as the major contributing sector and a target average annual growth rate of 51.5 percent. (See Table 3.8.) The planned average annual rate of growth for agriculture was set at 7 percent, and once again increasing production, better distribution of income, and improvement of rural life are outlined as the main objectives.
Table 3.7. Distribution of government credits for the Fifth Plan (1973-1978) (billions of Rials)\textsuperscript{a}

<table>
<thead>
<tr>
<th>Subject</th>
<th>Current credit for maintenance of operational status quo (1)</th>
<th>Development credits</th>
<th>Grand total 5 = (1 + 4)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fixed (2)</td>
<td>Non-fixed (3)</td>
<td>Total (4) = (2 + 3)</td>
</tr>
<tr>
<td>Econ. affairs (total)</td>
<td>131.85</td>
<td>85.93</td>
<td>1997.40</td>
</tr>
<tr>
<td>Agric. &amp; natural resources</td>
<td>72.70</td>
<td>59.89</td>
<td>296.74</td>
</tr>
<tr>
<td>Ind. &amp; mines</td>
<td>13.00</td>
<td>6.31</td>
<td>420.45</td>
</tr>
<tr>
<td>Trans. &amp; comm.</td>
<td>25.60</td>
<td>--</td>
<td>400.00</td>
</tr>
<tr>
<td>Oil &amp; gas</td>
<td>--</td>
<td>384.14</td>
<td>384.00</td>
</tr>
<tr>
<td>Water resources &amp; electricity</td>
<td>5.57</td>
<td>9.83</td>
<td>409.07</td>
</tr>
<tr>
<td>Others</td>
<td>14.93</td>
<td>9.90</td>
<td>87.14</td>
</tr>
<tr>
<td>Social affairs (total)</td>
<td>369.12</td>
<td>384.89</td>
<td>940.96</td>
</tr>
<tr>
<td>Education</td>
<td>216.80</td>
<td>205.57</td>
<td>334.44</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>---------</td>
<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td>Pub. health, medical service &amp; nutrition</td>
<td>76.63</td>
<td>42.50</td>
<td>117.61</td>
</tr>
<tr>
<td>Urban development</td>
<td>1.40</td>
<td>45.00</td>
<td>3.60</td>
</tr>
<tr>
<td>Rural development</td>
<td>4.60</td>
<td>60.00</td>
<td>1.80</td>
</tr>
<tr>
<td>Housing</td>
<td>--</td>
<td>230.00</td>
<td>--</td>
</tr>
<tr>
<td>Others</td>
<td>69.69</td>
<td>49.70</td>
<td>56.31</td>
</tr>
<tr>
<td>General affairs (total)</td>
<td>402.90</td>
<td>380.56</td>
<td>49.86</td>
</tr>
<tr>
<td>Military affairs (total)</td>
<td>1968.70</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>GRAND TOTAL</td>
<td>2872.57</td>
<td>2848.10</td>
<td>520.60</td>
</tr>
</tbody>
</table>

*Source: Plan and Budget Organization of Iran, *Iran's Fifth National Development Plan (1973-78, Revised)* (Tehran: Plan Organization, 1975).*
Table 3.8. Fifth Plan's Sectoral Targets, 1973-78 (Billions of Rials, 1972 Prices)\(^{a}\)

<table>
<thead>
<tr>
<th>Sectors</th>
<th>1972</th>
<th>1977</th>
<th>Average annual growth rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>201.1</td>
<td>282.1</td>
<td>7.0</td>
</tr>
<tr>
<td>Oil</td>
<td>216.5</td>
<td>1712.0</td>
<td>51.5</td>
</tr>
<tr>
<td>Industry &amp; Mining</td>
<td>274.4</td>
<td>566.0</td>
<td>18.0</td>
</tr>
<tr>
<td>Services</td>
<td>445.8</td>
<td>953.9</td>
<td>16.4</td>
</tr>
<tr>
<td>Gross Domestic Product</td>
<td>1110.8</td>
<td>3514.0</td>
<td>25.9</td>
</tr>
</tbody>
</table>

No concrete data allowing for the analysis of the sectoral performance and the actual realization of the government's objectives during the Fifth Plan has been released by the government. The last available data covers the 1976 period. In fact due to 1977-78 uprisings and political events in Iran the Plan Organization and the Ministry of Agriculture have actually been inoperative for a good part of this period.

However, based on the available data from various sources, some indications regarding the actual performance of the government can be envisaged. Table 3.9 shows the planned and actual distribution of fixed capital formation under the Fifth Plan. The planned figures include both public and private sectors for the 1973-78 period, but the actual figures are only for the public sector over the 1973-76 period. As Table 3.9 clearly demonstrates, the total actual fixed capital formation by the public sector (1036.4 billion Rials) for the first three years of the Fifth Plan is about one-third of the planned 3,118.6 billion Rials. In the area of agriculture only 79.9 billion Rials of the planned 176.9 billion Rials (45 percent) were actually realized. This and other data regarding agricultural production for 1973-76 period (see Chapter 5) indicate that the target average annual growth rate of 7 percent for agriculture, as well as other sectors, could not be met during the Fifth Plan.
Table 3.9. Fifth Plan’s planned and actual distribution of fixed capital formation (1973-78) (billions of Rials)\textsuperscript{a}

<table>
<thead>
<tr>
<th>Subject</th>
<th>Planned (1973-78)</th>
<th>Actual (1973-76)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Public sector</td>
<td>Private sector</td>
</tr>
<tr>
<td>Public affairs (total)</td>
<td>380.6</td>
<td>--</td>
</tr>
<tr>
<td>Social affairs (total)</td>
<td>591.5</td>
<td>694.9</td>
</tr>
<tr>
<td>Education</td>
<td>126.8</td>
<td>4.8</td>
</tr>
<tr>
<td>Health</td>
<td>42.0</td>
<td>3.7</td>
</tr>
<tr>
<td>Urban development</td>
<td>73.5</td>
<td>--</td>
</tr>
<tr>
<td>Rural development</td>
<td>60.0</td>
<td>--</td>
</tr>
<tr>
<td>Housing</td>
<td>240.0</td>
<td>685.0</td>
</tr>
<tr>
<td>Social welfare</td>
<td>9.0</td>
<td>--</td>
</tr>
<tr>
<td>Others</td>
<td>40.2</td>
<td>1.4</td>
</tr>
<tr>
<td>Economic affairs (total)</td>
<td>2146.5</td>
<td>885.4</td>
</tr>
<tr>
<td>Sector</td>
<td>First Year</td>
<td>Second Year</td>
</tr>
<tr>
<td>------------------------------</td>
<td>------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Agric. &amp; natural resources</td>
<td>176.9</td>
<td>132.4</td>
</tr>
<tr>
<td>Water &amp; electricity</td>
<td>472.7</td>
<td>4.0</td>
</tr>
<tr>
<td>Industry &amp; mines</td>
<td>338.9</td>
<td>507.5</td>
</tr>
<tr>
<td>Oil &amp; gas</td>
<td>656.0</td>
<td>135.3</td>
</tr>
<tr>
<td>Transportation</td>
<td>402.2</td>
<td>90.0</td>
</tr>
<tr>
<td>Others</td>
<td>99.8</td>
<td>16.2</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>3118.6</strong></td>
<td><strong>1580.3</strong></td>
</tr>
</tbody>
</table>

Sources: Plan and Budget Organization of Iran, *Iran's Fifth National Development Plan (1973-78, Revised)* (Tehran: Plan Organization, 1975); and Bank Markazi Iran, *Annual Reports and Balance Sheet*, various issues.
Summary

This chapter has provided an overview of the Iranian economy as well as a brief review of the Iranian government's planning and policies. It has been demonstrated that over the past decade the Iranian economy has experienced a very high rate of growth, largely due to the oil industry, accompanied by continuous neglect and diminishing importance of the agricultural sector and a greater reliance on the import of agricultural products. Such results in agriculture are the reflection of government plans and policies concerning agriculture and its choice of priorities not only within different sectors but also among different development alternatives and opportunities within agriculture. Chapters 4 and 7 will examine the specifics of government plans, programs, and policies as they relate to agriculture.
FOOTNOTES


7 Looney, *op. cit.*., p. 48.


9 Baldwin, *op. cit.*, p. 76.


CHAPTER 4
WHITE REVOLUTION AND THE FARMING STRUCTURE

Land Reform

Prior to land reform in 1962, the Iranian agricultural system was controlled through the vertical landlord-tenant relationship pattern. Table 4.1 shows the categories of land ownership in 1960.

Table 4.1. Categories of land ownership, 1960\(^a, b\)

<table>
<thead>
<tr>
<th>Proprietors</th>
<th>No. of villages</th>
<th>Total area (hectares)</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>State land &amp; crown estates</td>
<td>2500</td>
<td>800</td>
<td>5</td>
</tr>
<tr>
<td>Endowed land owned by religious institutions</td>
<td>7500</td>
<td>2400</td>
<td>15</td>
</tr>
<tr>
<td>Large private estates</td>
<td>32500</td>
<td>10400</td>
<td>65</td>
</tr>
<tr>
<td>Peasant ownership</td>
<td>7500</td>
<td>2400</td>
<td>15</td>
</tr>
<tr>
<td>Total</td>
<td>50000</td>
<td>16000</td>
<td>100</td>
</tr>
</tbody>
</table>


\(^b\)Note: Estimates of number of villages ranged from 40 to 55 thousand. Iran Almanac of 1965 classifies only 39,295 villages. According to its classification, number of whole villages owned by the crown and state are 2,947 and endowed villages 713. *Iran Almanac and Book of Facts* (Tehran: Echo, 1965), p. 520.

As Table 4.1 indicates 65 percent of land was owned by large landlords as compared to 15 percent owned by small proprietors.
At the time of the land reform the rural population constituted nearly 85 percent of the total population inhabiting about 50 thousand villages. This population could be divided into two classes: land owning and landless whose characteristics are outlined below.

1. Landless class

   a) Peasants with contracts. Crop-sharing
   
   peasants who were handed a plot of land based on a verbal or written contract for a specified or unspecified period of time. The division of output was based on the ownership of five "factors of production:" land, labor, water, seed, and implements. Since the majority of these peasants could provide only labor, their share of crop usually amounted to one-fifth of the total output. Only an estimated 10 percent of the peasants could provide seed or implements or owned their own oxen.

   b) Peasants without contracts. Non-tenant
   
   peasants who constituted nearly 40 percent of rural population. They were paid in cash or kind and could be dismissed at will. An estimated 15 percent of the agricultural manpower were squatters who were only employed during certain seasons.

2. Landowning class

   a) Large landlords (Bozorg-Malik). These were large feudal landlords who owned from one fertile village up to 100
villages. Almost all of them were absentee landlords, mostly living in Tehran, and holding high government positions or seats in the Iranian Parliament (Majlis). The private estates of the Shah himself amounted to 812 whole villages, 443 of which were in the province of Mazandaran.

b) **Medium landlords** (Khurdeh-Malik). They owned part of a village or fragments of different villages. Most of them lived in cities and worked their farms through local supervisors.

c) **Small proprietors.** They owned about 15 percent of the land and could be further classified into poor and well-to-do peasants. The well-to-do peasants constituted a sizable portion of this category (224,000 or about 12 percent). They owned between 10 to 12 hectares of land, an average of 11.8 heads of cattle and some draft animals and implements. Some poor peasants lacked livestock, draft animals or implements. Due to the high cost of irrigation and ghanat construction and maintenance, the small proprietors were mainly non-existent in areas where water was in short supply and most of them were concentrated in the province of Gilan or the fringes of Karun River in Khuzestan.

The land reform was launched in 1962. It stated the following as its main goals: (1) destroy feudalism by breaking large landholdings;
(2) create a better distribution of income and improve the standards of living; (3) increase agricultural production and the peasants' per capita income.\(^3\)

The first stage of land reform provided for the sale of land owned by large absentee landlords to the peasants. Each owner was given the privilege of retaining one village of his choice and selling the rest to the government. The payment to the landlord was to take place over a 15 year period at 6 percent interest. The lands were then sold to the peasants based on a 15 year installment plan at slightly over 10 percent interest and administration cost.

Since this law applied only to individuals, most landlords avoided distribution by transferring the title of their villages to their children or relatives. Despite such loopholes, an estimated 13 to 15 thousand villages, but of inferior lands, and some 700 thousand families were affected.\(^4\) The land was allocated to sitting farmer-tenants in such a way as to preserve the existing cultivation pattern and field layout of villages and joining newly established cooperatives was made mandatory for those who had received land.\(^5\) Despite the minute accomplishments, signs of optimism or perhaps justification ran very high. On Farmers' Day the Shah promised between 20 to 30 hectares of land to each farmer and claimed that Iran had gone "farther than some socialist countries like Sweden and Norway."\(^6\)

The second stage of reform was initiated in 1964 which provided the landlords five different alternatives:\(^7\)
1. Rent the land to the peasants on the basis of the average net income of the past three years for a period of 30 years subject to five year revisions.

2. Sell the land to the peasants, retaining a section equal to the share of the crop formerly received by the landlord.

3. Sell the land to the peasants at a mutually agreed price.

4. By mutual agreement set up a joint stock company with the peasants, with the landlord's share in the company to be equal to his former share of the crop.

5. Sell his share to the government to be resold to the peasants on terms equal to those of the first stage.

This stage which was even more conservative than the first stage did not aim at the distribution of land, but rather intended to maintain the existing situation. Alternatives 2 and 4 were based on previous cropsharing relationships which the government itself had declared feudal. The second stage, as Professor Keddi noted, appeared to be:

"...a regularization of the existing situation than any profound reform. Particularly where leases revisable every five years are chosen, the landlord loses nothing and gains a government enforced lease, while in the other alternatives (except no. 5) the peasant may lose as much as he gains."
In 1967 at the end of the second stage, the government claimed that over 2.5 million families were affected* by it, but only 3,202 landlords chose to sell their land whereas 232 thousand of them decided upon leasing their lands (see Table 4.2). In fact, only "10 percent of families had received all or part of the land which they farmed."  

Table 4.2. Distribution of options under the second stage of land reform^, b  

<table>
<thead>
<tr>
<th>Second stage options</th>
<th>No. of landlords</th>
<th>No. of families</th>
<th>% of families</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leased land</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Endowed lands</td>
<td>9,521^c</td>
<td>173,104</td>
<td>10.6</td>
</tr>
<tr>
<td>b) Private lands</td>
<td>232,366</td>
<td>1,243,961</td>
<td>76.3</td>
</tr>
<tr>
<td>Sale to tenants</td>
<td>3,202</td>
<td>55,953</td>
<td>3.4</td>
</tr>
<tr>
<td>Division on crop-share basis</td>
<td>25,359</td>
<td>157,598</td>
<td>9.7</td>
</tr>
<tr>
<td>Total^d</td>
<td>270,448</td>
<td>1,630,616</td>
<td>100.0</td>
</tr>
</tbody>
</table>


^Note: Some tenants sold their root rights to the landlords and became agricultural workers.

^These are number of properties since endowed lands were owned by religious institution and not individual landlords.

^dComputed by the author.

*The term "affected" is very ambiguous. No concrete data about how all of these 2.5 million families were affected is given. Apparently, 793,871 landlords who worked their own lands are included in this figure. Approximately 2083 villages were classified as orchards and 1225 as mechanized. These were exempted from distribution. But since exemption could also mean the application of the law, the owners of these lands could have been presumed affected by the law.
Realizing its failure, the third stage of reform 1967-71 was launched which reduced the above alternatives to selling or division, but the government has not released any concrete data regarding the third stage. One important aspect of this stage of reform was the emphasis on mechanization and the creation of farm corporations and cooperatives for the consolidation of the fragmented landholdings.

The land reform proclaimed completed in 1971, exempted various areas from the reform. These included mechanized farms (1225 units), orchards (2083 villages) and villages of those landlords which had no sharecroppers. Furthermore, although some tribal leaders who owned vast amounts of land were affected by the reform, the program by and large made no provisions for the pastoralists.

Secondly, land reform in the most part distributed land to those peasants who were tenants with root rights. Most of the poor peasants received no land and continued to work as agricultural laborers or migrated to the urban centers to begin a new life as unskilled workers. As Professor Keddi noted:

"The landless laborers and tenants who owned no tools of production, and who made up 40-50% of the village population, by and large got no land, and have been continuing their migration to the cities, where their position often remains marginal...."

It should be noted that landless peasants or Khoshneshins had no root rights called nasgh, and land reform could not be applied to them. But some of these lived on landlord's land and had residence or space right. The landlord hired them on daily basis whenever needed, but could not evict them without buying their space right (their huts). Land reform led to the eviction of these peasants and
hastened their migration to the cities. Furthermore, the second stage allowed for the sale of root rights by the tenant peasants to the landlord. Once the root right was sold, the tenant could not receive land and became agricultural laborers. There were 13,374 tenant farmers (saheb-nasgh) that sold their root rights. This figure is not shown in Table 4.2.

Thirdly, land reform did not drastically change the previous power relationship in the village since it did not: (1) aim at complete distribution of vast amounts of land owned by large landlords; and (2) based the leasing of land and later its division on the traditional sharecropping order. As Professor Khamsi pointed out, the government faced two major alternatives:

"The first, which would have served the interest of the peasantry, was to nationalize all landed property, or, somewhat less drastically, to hand over all large estates to the cultivators, with minimal compensation payments to landowners. Capitalist farming would then have unfolded on this basis. Since such a reform would have swept aside all the remnants of the feudal past, the growth of agricultural production would have probably been much more rapid in the long run. The second was to make concessions to the land hunger of peasantry without really reducing the power of large landowners; to prepare the way for capitalist farming without totally uprooting the vestiges of feudalism. Not surprisingly, this was the path which the regime, after some wavering, chose to follow."13

Furthermore, where the power of large landlords was reduced, the reform by the merits of its land distribution and in the absence of an adequate credit system, allowed a small class of wealthy middlemen to fill the vacuum left by the large absentee landlords and take their place as village's
Presently, these prosperous proprietors along with various government agents and reform bureaucrats control most of the socio-economic activities of the village. One could conclude that the government now has a much stronger foothold in the rural areas and this may have been one of the primary political motivations for land reform.

Fourthly, land reform did not greatly affect the distribution of income and living standards of the majority of rural population. The traditional disparities remained and "no redistribution or levelling of the existing disparities between different classes of peasants took place." This we shall discuss in detail in Chapter 7.

Finally, lands were distributed without any cadastral surveys. In most villages, documents and diagrams of land ownership layouts were non-existent. Each ownership was defined in terms of adjoining lands and natural signs such as trees or rocks. At the outset of reform it was felt that no cadastral surveys were necessary. Later problems and confusions brought about a promise by the government to undertake such surveys, a promise which still remains to be fulfilled.

The Structure of Iranian Agriculture
After the Land Reform

The structure of Iranian agriculture before and after land reform are shown in Tables 4.3 and 4.4.
Table 4.3. Structure of Iranian Agriculture Before Land Reform (1960)\textsuperscript{a, b}

<table>
<thead>
<tr>
<th>Categories of exploiters and land ownership</th>
<th>No. of rural families (1000)</th>
<th>Rural population (1000)</th>
<th>Farm area (1000 hectares)</th>
<th>Percent of farm acres</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Large</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Over 100 hectares</td>
<td>6.81</td>
<td>40.06</td>
<td>991</td>
<td>8.7</td>
</tr>
<tr>
<td><strong>Medium</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50 to under 100</td>
<td>15.07</td>
<td>94.27</td>
<td>564</td>
<td>5.0</td>
</tr>
<tr>
<td>10 to under 50</td>
<td>338.46</td>
<td>1,941.65</td>
<td>5,263</td>
<td>46.4</td>
</tr>
<tr>
<td>Subtotal</td>
<td>360.34</td>
<td>2,075.98</td>
<td>6,818</td>
<td>60.1</td>
</tr>
<tr>
<td><strong>Small</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 to under 10</td>
<td>352.64</td>
<td>1,859.54</td>
<td>2,413</td>
<td>21.2</td>
</tr>
<tr>
<td>3 to under 5</td>
<td>272.50</td>
<td>1,412.85</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 to under 3</td>
<td>468.67</td>
<td>2,333.33</td>
<td>2,125</td>
<td>18.7</td>
</tr>
<tr>
<td>under 1</td>
<td>480.02</td>
<td>2,185.80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subtotal</td>
<td>1,573.83</td>
<td>7,791.52</td>
<td>4,538</td>
<td>39.9</td>
</tr>
<tr>
<td><strong>Without land</strong></td>
<td>1,284.30</td>
<td>5,563.35</td>
<td>---</td>
<td>--</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>3,218.46</td>
<td>15,430.83</td>
<td>11,356</td>
<td>100.0</td>
</tr>
</tbody>
</table>


\textsuperscript{b}Note: All figures are rounded. No farm area data regarding the specific categories under 5 hectares are available. However, total area of farms below 5 hectares was estimated at 2,125 thousand hectares or 18.7 percent of total farm areas. All of the figures in Table 4.4 are computed by the author based on fragmented data given in sources below.
Table 4.4. Structure of Iranian Agriculture After Land Reform (1972)*

<table>
<thead>
<tr>
<th>Categories of exploiters &amp; farm size</th>
<th>Families or farms (1000)</th>
<th>Rural population (1000)</th>
<th>Farm acres (1000 ha)</th>
<th>Percent</th>
<th>Share of gross output percent</th>
<th>Share of marked output percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>over 100 hectares</td>
<td>7</td>
<td>36</td>
<td>1,810</td>
<td>12</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Medium</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>51 - 100</td>
<td>10</td>
<td>52</td>
<td>700</td>
<td>4</td>
<td>36</td>
<td></td>
</tr>
<tr>
<td>11 - 50</td>
<td>394</td>
<td>2,048</td>
<td>7,030</td>
<td>12</td>
<td>46</td>
<td></td>
</tr>
<tr>
<td>Subtotal</td>
<td>411</td>
<td>2,136</td>
<td>9,540</td>
<td>12</td>
<td>62</td>
<td></td>
</tr>
<tr>
<td>Small</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 - 10</td>
<td>434</td>
<td>2,257</td>
<td>3,180</td>
<td>13</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>3 - 5</td>
<td>545</td>
<td>2,834</td>
<td>1,810</td>
<td>16</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>1 - 2</td>
<td>342</td>
<td>1,778</td>
<td>490</td>
<td>10</td>
<td>3</td>
<td>19</td>
</tr>
<tr>
<td>under 1</td>
<td>801</td>
<td>4,165</td>
<td>300</td>
<td>23</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Subtotal</td>
<td>2,122</td>
<td>11,034</td>
<td>5,780</td>
<td>84</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>Pastoralists</td>
<td>100</td>
<td>600</td>
<td>3</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Without land</td>
<td>790</td>
<td>4,119</td>
<td>23</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>3,423</td>
<td>17,889</td>
<td>15,330</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Comparison of the two tables leads to the following observations:

1. There has been no significant change in total area held by relatively small number of families. For farms over 100 hectares, in 1960 only 6.81 thousand families held 8.7 percent of total farm area, whereas this has increased to 7,000 and 12 percent respectively. In 1960 the average size of farm per family within this category was 145 hectares, but this increased to 258 hectares in 1972. No significant change has occurred with respect to medium size farms.

2. There has been a greater fragmentation of land. In 1960, 18.7 percent of total farm areas were composed of farms below five hectares owned by approximately 1.22 million families, whereas in 1972 farms below six hectares constituted 17 percent and were owned by 1.69 million families. This has been especially significant with respect to farms below one hectar where the number of families owning this size of land increased from 480 to 801 thousands.

3. There has been a significant reduction in the number of families classified as landless peasants. Since the landless peasants did not receive any land, this change gives some indication as to the magnitude of the migration to urban centers within this class of rural population.

4. There were approximately 600 thousand more families with land in 1972 than in 1960 (1.93 million in 1960, 2.53 million in 1972).
Table 4.4 illustrates the present structure of the Iranian agriculture. It indicates that a great majority of farms in Iran are small farms below eleven hectares. The following classification can be derived from data in Table 4.4: 84 percent of farms are below 11 hectares; 67 percent below six hectares; 45 percent under two hectares; and 32 percent less than one hectare. It is evident that the majority of these farms are not large enough to provide sufficient output for the maintenance of families farming them. Consequently, a large number of these farmers must work in the cities during off-season periods. The comparison of share of gross and marketed farm output by small farms indicates that while 41 percent of gross output is produced in small farms, only 19 percent of the total marketed output is provided by them. Moreover, farms above six hectares account for a sizable portion of this marketed output. This clearly shows the subsistence nature of agricultural production on small farms and that production is mainly for own consumption and not cash sales.

Furthermore, while the large farms comprise 12 percent of the total farm land, they only provide six percent of the gross output. In fact, medium sized farms are the main source of domestic food supply to the urban centers and provide over 70 percent of the marketed output.

The subsistence nature of agricultural production in small farms becomes even more evident when the following characteristics are also considered.
1. Aside from being small, the small farms are usually fragmented into several smaller plots. Farms below 10 or even a few hectares are frequently divided into smaller plots separated from one another.

2. Fragmentation of small farms makes efficient irrigation and application of machinery expensive and difficult.

3. Only a limited portion of small farms are irrigated. Among the small farms, the total irrigated lands do not exceed 25 percent of the total farm land and in many cases the irrigation is only partial irrigation.

4. For this class of farms ghanats and springs are the main source of water supply. Since the flow of water is continuous there is a considerable amount of water wasted (see Chapter 2). Furthermore, due to the installation of deep wells and poor maintenance, the level of water has continuously dropped. The peasants accuse the landlords who traditionally maintained the ghanats, for negligence and poor maintenance. According to government sources, 25 percent of ghanats, 10 percent of hand made wells, and 8 percent of springs have gone dry.

Indeed, it is estimated that about "80 percent of the nations farm families are engaged in traditional agriculture at a subsistence or semisubsistence level." Productivity is far below potential and farms too small to provide surplus beyond family consumption. Table 4.5 shows the approximate size of the farm necessary for a target income of $500 per person.
### Table 4.5. Approximate size of farms required to meet a target income of $500 per person\(^a, b\)

<table>
<thead>
<tr>
<th>Type of farm</th>
<th>Present practices (hectares)</th>
<th>Improved practices (hectares)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dryland cereal farm</td>
<td>70.0</td>
<td>40.0</td>
</tr>
<tr>
<td>Partly irrigated field-crop farm</td>
<td>9.0</td>
<td>5.0</td>
</tr>
<tr>
<td>Intensively irrigated field-crop farm</td>
<td>5.0</td>
<td>3.30</td>
</tr>
<tr>
<td>Rice farm</td>
<td>2.5</td>
<td>1.50</td>
</tr>
<tr>
<td>Orchard</td>
<td>0.6</td>
<td>0.35</td>
</tr>
</tbody>
</table>


\(^b\) Note: Table is based on forecasted world prices for 1980 in terms of 1975 constant dollars.

\(^c\) Allocation of farm land to different crops are as follows: 60% wheat, 30% sugar beets or similar crops, and 10% fallow for partly irrigated farms; and 90% sugar beets, vegetables or similar crops, and 10% fallow for intensively irrigated farms.

Several conclusions can be drawn from the data in Table 4.5.

1. Majority of small farms cannot provide for sufficient output to meet the $500 target income. With the problems of irrigation and water supply mentioned above, many of the
small farms can only undertake the first two types of
farming which require a greater amount of land.
2. $500 target income cannot be met by many small farmers
without employment in cities during off-season periods.
3. In most cases, the change in existing practices can reduce
the size of required land by 45 percent. But according to
Professor Aresvik, even if productivity was "raised by
improving supply of irrigation water and/or better farming
practices, many farm units in Iran would still be too small
to achieve the minimum levels of income within the next
decade."19

Supplementary Measures:
Farm Organizations

Concomitant with land reform, various concepts regarding farm
organization were also introduced in Iran. Presently there are four
basic models of farm organizations in Iran: rural cooperatives, agro­
businesses, farm corporations, and production cooperatives. There
are also a considerable number of independent commercial farms
which produce a large portion of the marketed output.

Rural cooperatives

Many cooperative societies were organized as a supplementary
measure to land reform. Membership in cooperatives was made
mandatory for land recipients although others could also join. The
main function of cooperatives was to make credit and inputs available to the members and establish consumer cooperative shops. Initially, each cooperative covered several villages with an average membership of approximately 200. The managing directors were appointed by the government from local residents. The cooperatives were consolidated in 1969-72 period, each covering an average of a dozen villages. By the end of 1976 there were 2,886 cooperatives with 2.8 million members (see Table 4.6).

Rural cooperatives do not play a significant role in Iranian agriculture. This is even true regarding credit and inputs, which shall be discussed separately, demonstrated by the many problems of productivity and finance. The agricultural output marketed by rural cooperatives is below one percent.

Farm corporations

The concept of farm corporations was introduced in order to deal with the problem of fragmented landholding. Farm corporations were established based on large scale amalgamation of small farms. Membership in corporations was made mandatory, including all landholders, regardless of whether they received land through land reform. Farmers were to turn over their land and receive corporation shares proportional to their landholding. Each farmer receives wages for his labor and dividend for his shareholdings. They are given 0.1 hectare for their private use. By the end of 1976 there were 89 such
<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of cooperatives</td>
<td>8236</td>
<td>8388</td>
<td>8102</td>
<td>8298</td>
<td>8450</td>
<td>8361</td>
<td>2717</td>
<td>2847</td>
<td>2858</td>
<td>2886</td>
</tr>
<tr>
<td>No. of members (thousands)</td>
<td>1087</td>
<td>1260</td>
<td>1400</td>
<td>1606</td>
<td>1854</td>
<td>2065</td>
<td>2263</td>
<td>2488</td>
<td>2685</td>
<td>2868</td>
</tr>
<tr>
<td>Total capital (million rials)</td>
<td>1270</td>
<td>1639</td>
<td>1984</td>
<td>2379</td>
<td>2769</td>
<td>3329</td>
<td>3857</td>
<td>4677</td>
<td>5690</td>
<td>2075</td>
</tr>
</tbody>
</table>


^Includes consolidation.
corporations covering 8,130 villages and over 318 thousand hectares of cultivating land (see Table 4.7). During 1969-76 period the highest dividend per share was 3,401 Rials ($45.45) in 1974 and the lowest 225 Rials ($3.00) in 1972. But these figures do not tell us anything about family income since the government has not released any data regarding the distribution of corporation shares.

Unfortunately studies regarding farm corporations are very few and do not go beyond the surface. They are based on visits to one or two showcase farm corporations mainly in Fars Province and do not attempt to investigate the long term effects. One reason for this is the absence of any concrete data regarding corporations. Inquiries should be made concerning the impact of farm corporations on rural population, production, income, and income distribution.

It has been argued that farm corporations have created a viable unit of production from fragmented lands, and in many instances have increased productivity through mechanization and professional management. But the program has created some serious problems with grave consequences.

Firstly, no option was given to those who did not want to join the corporation. Once the establishment of a farm corporation was decided, all landholding farmers were forced to join or sell their lands. This has caused a great deal of resentment. A 1970 study conducted by Kenneth Platt for AID concludes:

"Charges of coercion to farm corporations are common...One observer of long experience in the land reform field, after
<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of farm corporations</td>
<td>20</td>
<td>19</td>
<td>27</td>
<td>43</td>
<td>65</td>
<td>65</td>
<td>85</td>
<td>89</td>
</tr>
<tr>
<td>No. of villages</td>
<td>109</td>
<td>109</td>
<td>157</td>
<td>327</td>
<td>525</td>
<td>525</td>
<td>778</td>
<td>813</td>
</tr>
<tr>
<td>Cultivating land area (100 hectares)^C</td>
<td>77.6</td>
<td>77.6</td>
<td>99.4</td>
<td>169.9</td>
<td>231.7</td>
<td>231.7</td>
<td>310.0</td>
<td>318.7</td>
</tr>
<tr>
<td>Area cultivated (1000 hectares)</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>87</td>
<td>87</td>
<td>132</td>
<td>130</td>
</tr>
<tr>
<td>No. of shareholders (1000 persons)</td>
<td>6.2</td>
<td>6.2</td>
<td>8.7</td>
<td>15.2</td>
<td>22.8</td>
<td>22.8</td>
<td>32.5</td>
<td>33.7</td>
</tr>
<tr>
<td>No. of shares held by government individuals (1000 shares)^D</td>
<td>269</td>
<td>269</td>
<td>383</td>
<td>685</td>
<td>307</td>
<td>307</td>
<td>1381</td>
<td>1420</td>
</tr>
<tr>
<td>Gross revenue (million Rials)</td>
<td>n.a.</td>
<td>n.a.</td>
<td>496</td>
<td>797</td>
<td>1767</td>
<td>2918</td>
<td>3345</td>
<td>n.a.</td>
</tr>
<tr>
<td>Cost (million Rials)</td>
<td>n.a.</td>
<td>n.a.</td>
<td>312</td>
<td>522</td>
<td>1065</td>
<td>1874</td>
<td>2359</td>
<td>n.a.</td>
</tr>
<tr>
<td>Net profit (million Rials)</td>
<td>n.a.</td>
<td>n.a.</td>
<td>185</td>
<td>175</td>
<td>702</td>
<td>1044</td>
<td>986</td>
<td>n.a.</td>
</tr>
<tr>
<td>Dividend per share (Rials)(^e)</td>
<td>n.a.</td>
<td>n.a.</td>
<td>483</td>
<td>255</td>
<td>2287</td>
<td>3401</td>
<td>714</td>
<td>n.a.</td>
</tr>
</tbody>
</table>


\(^b\)Note: Many of the figures are rounded by the author. The reliability of these figures, especially monetary figures, is below average. For instance, net profit for 1972 given by Statistical Yearbook is 275 million Rials and the one given by 1977 Statistical Yearbook is 175 million Rials. Both yearbooks were published by Plan Organization.

\(^c\)Corporation region covers a much larger area.

\(^d\)Government shares in 1969 and 1970 were 40,648 and 1971 and 1972 period 40,847 and 44,012 respectively. Government shares increased drastically in the following years but no exact data have been released.

\(^e\)Computed by the author.
interviewing farmers in eight villages included under three different farm corporations, stated he had found not one farmer who favored them, but only feelings of resentment, frustration and helplessness in their unsuccessful opposition.\textsuperscript{20}

Secondly, farm corporations have reinforced the existing problem of mass migration to the cities where the market cannot absorb them. Since mechanization requires only few workers, many families have been forced to leave the village. Platt, using American Consulate sources indicates that "to make sure they would go, the existing villages were bulldozed away, and in new villages accommodations were built only for the retained workers and their families. The ousted families in many cases were in debt for more than they received for their land equities, so departed in destitute."\textsuperscript{21} Studies undertaken by the research teams of an opposition group show that in Baghain Corporation located in the Province of Kerman as many as 90 percent of the labor force became unemployed. In this region there were 1,046 families and a labor force of over 2,000. One hundred and ten families who owned land received shares ranging from 30 to 453 depending on the size of land relinquished. But the corporation required only 70 permanent workers (180 in harvesting season). In another corporation, Darioush, located in Pars and composed of five villages, only 10 permanent workers (100 - 120 in harvesting season) out of a labor force of 540 were required.\textsuperscript{22}

Thirdly, the corporations have been set up in areas "with the best lands in Iran, with the best water supplies, and where the
farmers already were doing well as individual owner-operations.\textsuperscript{23} Many of the farmers complain that their income was higher before the incorporation.\textsuperscript{24}

Fourthly, since the number of shares were proportional to the size of land, corporations have institutionalized the already existing disparities. Small farmers have no say in decision making (larger landholders also complain that government runs everything). In above mentioned Baghain Corporation, the distribution of shares were as follows: 1.8 percent had over 432 shares each; 7.2 percent over 120; and 92 percent between 30 to 96 shares. In 1972 dividend per share after various deductions was 300 Rials ($4.00) allowing for total dividend of $120 to $384 for the 92 percent who had less than 96 shares. Only those with permanent jobs with corporation could supplement this income with their wages (60 - 90 Rials per day), many of the remaining families had to turn to the cities and seek employment for at least a good part of the year.

Similarly in Dargesin Corporation in Hamedan, 90.5 percent of shareholders had annual dividend income below 9,000 Rials ($120) and some of them indicated that they earn as much as 75 percent of their total income from non-agricultural labor.\textsuperscript{25}

There are many other weaknesses with farm corporations as it is implemented in Iran. These are alienation of farmer from his own land, lack of financial incentives, insecurity, and the problem of landless peasants who are not shareholders.\textsuperscript{26} Finally, farr
corporations provide only a small portion of total agricultural output. Their contribution together with agro-business constitute only 2.4 percent of national prerent surplus (see Table 4.8).

Table 4.8. Contribution to National Prerent Surplus by Different Farm Classes (\$1.00 = 75 Rials)\(^a\)

<table>
<thead>
<tr>
<th>Classes</th>
<th>Rials (million)</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Small</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traditional, rain-fed</td>
<td>4,545</td>
<td>4.1</td>
</tr>
<tr>
<td>Traditional, minimal &amp; partial irrigation</td>
<td>22,987</td>
<td>20.8</td>
</tr>
<tr>
<td>Traditional, full irrigation</td>
<td>19,650</td>
<td>17.7</td>
</tr>
<tr>
<td>Subtotal</td>
<td>47,182</td>
<td>42.6</td>
</tr>
<tr>
<td><strong>Medium</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traditional, rain-fed</td>
<td>7,575</td>
<td>6.8</td>
</tr>
<tr>
<td>Traditional, minimal &amp; partial irrigation</td>
<td>22,988</td>
<td>20.7</td>
</tr>
<tr>
<td>Traditional, full irrigation</td>
<td>19,650</td>
<td>17.7</td>
</tr>
<tr>
<td>Subtotal</td>
<td>50,213</td>
<td>45.2</td>
</tr>
<tr>
<td><strong>Large</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Modern, partially irrigated</td>
<td>9,000</td>
<td>8.1</td>
</tr>
<tr>
<td>Modern, fully irrigated</td>
<td>1,837</td>
<td>1.7</td>
</tr>
<tr>
<td>Corporation and agro-business</td>
<td>2,625</td>
<td>2.4</td>
</tr>
<tr>
<td>Subtotal</td>
<td>13,462</td>
<td>12.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>110,857</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Agro-businesses

As Table 4.8 shows agro-businesses and farm corporations account for very small amount of national prerent surplus. But they take a large share of money allocated to agriculture. According to a report in World Crops, the largest slice of Fourth Plan's agricultural budget, $143 million out of $880 million was allocated "toward the establishment of 34 large agricultural units." Agro-businesses were "established on virgin lands near dams or groundwater projects and their shares are bought by Iranians or foreign farming companies under the Agro-Industrial Act." By the end of Fourth Plan (1973) 60 to 70 thousand hectares were devoted to agro-businesses. The revised Fifth Plan provided for the allocation of 300 thousand hectares of the best irrigated land.

The government cleared the area population, bulldozed villages and local landholders were forced to sell their land. Ministry of Water and Power provided "canals for units down to 100 hectares, and roads down to 1000 hectares. The rest, including minor canalization and the employment of laborers, is left to the companies under a 30-year lease."

The most important project was near Dez dam under the Dez Irrigation Project (DIP). This project initiated under the Third Plan had failed like most other huge dam projects and was turned to agro-businesses under the Fourth Plan. At the beginning large complexes of over 20,000 hectares were considered, but these were
later divided into smaller units. Sixty-eight thousand of the DIP was carved up between six companies, the largest of which were Iran-California; Agro-industries of Iran and America led by an American of Iranian extraction, Hashem Naraghi; and Iran Shellcott. By March 1976 total investment had exceeded $300 million with 45 percent of it provided by Agricultural Development Bank of Iran in loans or equity.31

Some of the agro-business projects did not get off the ground. Agro industries of Iran and America began operation in 1973, but by 1977 the company was in debt and the government claimed mismanagement.32 Similarly, according to Financial Times in June 21, 1976, Shellcott was considering the abandonment of the project. In May 1976, Tehran Economist announced that some of the most important companies were about to dissolve because of continuous loss.33

Aside from disproportionate allocation of money and the failures of agro-business ventures, the projects caused a considerable permanent displacement of the rural population. According to World Crops, "Iran simply does not have the resources to absorb elsewhere the large numbers who will be permanently displaced....Last year one corporation in western Iran lost 50% of its villagers."34

Production cooperatives

Production cooperatives are sometimes considered as a variant of farm corporations.35 But they are quite different in the sense that the farmers retain the ownership of their land and the emphasis
is on polling the resources and adopting communal cropping pattern, cultivation, and marketing. Consequently, production cooperatives do not create and foster the problems of farm corporations.

Actually, communal production, Boneh, was practiced for many centuries in Iran. Under feudal system, Bonehs or communal farming were common place. Several or more tenant families who were given small plots of land by the landlord polled their resources (mainly labor and draft animals) and produced collectively. Land reform led to the dissolution of this traditional system. But in 1971 a production cooperative law was passed for the establishment of production cooperatives. In 1972 six such cooperatives were formed and by 1976 there were 35 production cooperatives covering 214 villages and fields (see Table 4.9).

Table 4.9. Characteristics of production cooperatives

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of cooperatives</td>
<td>6</td>
<td>9</td>
<td>24</td>
<td>34</td>
<td>35</td>
</tr>
<tr>
<td>No. of villages and fields</td>
<td>34</td>
<td>44</td>
<td>126</td>
<td>181</td>
<td>214</td>
</tr>
<tr>
<td>Cultivating land areas (1000 hectares)</td>
<td>6.6</td>
<td>11.2</td>
<td>28.2</td>
<td>46.6</td>
<td>50.6</td>
</tr>
<tr>
<td>No. of land owners (1000 persons)</td>
<td>1.3</td>
<td>2.0</td>
<td>6.6</td>
<td>9.4</td>
<td>9.7</td>
</tr>
</tbody>
</table>


*bNote: Figures are rounded by the author.
Production cooperatives are favored by the farmers and are perhaps the best solution for the problem of fragmented farms provided that technology, credit, infrastructure, and inputs are made available to them.

**Commercial and traditional farms**

As Tables 4.4 and 4.8 indicated, large portions of agricultural output comes from small traditional and medium sized commercial farms (some of commercial farms are very large). The commercial farms are largely mechanized farms and orchards exempted by the land reform law or fertil lands retained by the landlords. Commercial farms hold near 70 percent of the land and provide about 75 percent of the marketed food.

But the future of Iranian agriculture and its progress still depends on whether the small farms and the millions of peasants can escape subsistence farming. Most government programs have not succeeded because of misallocation of funds, selection of priorities within agriculture, mismanagement, and in general lack of a comprehensive development planning for agriculture. The supplementary measures regarding farm organizations have not changed the face of Iranian agriculture. According to Tehran Economist, 85 farm corporations in 1976 accounted for 1.4 percent and 34 production cooperatives .03 percent of total agricultural production.

**Supplementary Measures: Agricultural Credit**

Agricultural credit in Iran is provided by three sources: agricultural credit institutions, commercial banks, and noninstitutional
credit sources. There are two agricultural banks: Agricultural Cooperative Bank of Iran (ACBI) and Agricultural Development Bank of Iran (ADBI). Table 4.10 shows the relative importance of different credit sources in 1963-72 period.

Table 4.10. Relative importance of various sources of agricultural credit (1963 - 1972)\(^a\), \(^b\)

<table>
<thead>
<tr>
<th>Institutions</th>
<th>Amount of credit (billion Rials)</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Agricultural Credit Institutions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agricultural cooperatives</td>
<td>9.0</td>
<td>13.6</td>
</tr>
<tr>
<td>Rural cooperative societies</td>
<td>6.0</td>
<td>9.0</td>
</tr>
<tr>
<td>Agricultural Development Fund</td>
<td>0.4</td>
<td>0.6</td>
</tr>
<tr>
<td>Tea Board</td>
<td>0.1</td>
<td>0.2</td>
</tr>
<tr>
<td>Others</td>
<td>5.0</td>
<td>7.6</td>
</tr>
<tr>
<td>Subtotal</td>
<td>20.5</td>
<td>31.0</td>
</tr>
<tr>
<td>2. Commercial banks</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>13.2</td>
<td>20.0</td>
</tr>
<tr>
<td>3. Noninstitutional credit</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>32.3</td>
<td>49.2</td>
</tr>
<tr>
<td>Total</td>
<td>66.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

\(^a\)Source: FAO, Perspective Study of Agricultural Development for Iran (Rome: FAO, 1974).

\(^b\)Note: Figures are estimated averages.

According to Table 4.10 agricultural credit institutions accounted for 31 percent, commercial banks 20 percent, and noninstitutional
sources 49.2 percent of total agricultural credit. This shows that Iranian farmers, to a great extent, still depend on middlemen and private money lenders for credit. Furthermore, most of the credit provided by agricultural credit institutions are short term loans (see Tables 4.11 and 4.12). As Table 4.11 indicates over 90 percent of ACBI loans during 1966-76 period were under 5,000 Rials ($67 at current exchange rate) and that number of loans over 10,000 Rials ($132) did not exceed five percent. Table 4.12 illustrates credits made available by rural cooperative societies. The average number of loans for 1968-76 were near one million and the average loan for the same period was 11,383 Rials ($152). Unfortunately, based on the available data, only averages could be computed. Nothing is known about credit distribution between short term and long term loans.

Although commercial banks provide about 20 percent of agricultural credit, this is a very insignificant amount of total credits made available by commercial banks to different sectors. In 1969 only 10 percent of total credits by banks went to agriculture and in 1976 this had decreased to 8.9 percent. Moreover, most of this lending to agriculture is in the form of large loans to large agriculturists, merchants, and agro-business.

Furthermore, there are various constraints which limit lending to small farmers:

1. Almost all lendings require collateral security. According to government newspaper, Rustakhiz, the collateral required is
<table>
<thead>
<tr>
<th>Year</th>
<th>Total credit (million Rials)</th>
<th>No. of loans (1000)</th>
<th>No. of loans under 5000 Rials (1000 loans)</th>
<th>%</th>
<th>No. of loans between 5000-10000 Rials (1000 loans)</th>
<th>%</th>
<th>No. of loans over 10,000 Rials (1000 loans)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1966</td>
<td>5,167</td>
<td>250</td>
<td>238</td>
<td>95.4</td>
<td>9</td>
<td>3.7</td>
<td>2</td>
<td>0.09</td>
</tr>
<tr>
<td>1967</td>
<td>5,188</td>
<td>327</td>
<td>312</td>
<td>95.2</td>
<td>12</td>
<td>3.7</td>
<td>3</td>
<td>1.10</td>
</tr>
<tr>
<td>1968</td>
<td>5,290</td>
<td>352</td>
<td>340</td>
<td>96.7</td>
<td>8</td>
<td>2.3</td>
<td>3</td>
<td>1.00</td>
</tr>
<tr>
<td>1969</td>
<td>5,415</td>
<td>350</td>
<td>340</td>
<td>97.2</td>
<td>7</td>
<td>1.9</td>
<td>3</td>
<td>0.09</td>
</tr>
<tr>
<td>1970</td>
<td>8,909</td>
<td>212</td>
<td>199</td>
<td>94.3</td>
<td>3</td>
<td>1.5</td>
<td>9</td>
<td>4.20</td>
</tr>
<tr>
<td>1971</td>
<td>9,582</td>
<td>233</td>
<td>218</td>
<td>93.6</td>
<td>6</td>
<td>2.5</td>
<td>9</td>
<td>3.90</td>
</tr>
<tr>
<td>1972</td>
<td>14,381</td>
<td>263</td>
<td>242</td>
<td>92.4</td>
<td>8</td>
<td>3.0</td>
<td>12</td>
<td>4.60</td>
</tr>
<tr>
<td>1973</td>
<td>19,993</td>
<td>346</td>
<td>225</td>
<td>93.7</td>
<td>12</td>
<td>3.4</td>
<td>10</td>
<td>2.90</td>
</tr>
<tr>
<td>1974</td>
<td>31,116</td>
<td>441</td>
<td>297</td>
<td>89.8</td>
<td>32</td>
<td>7.3</td>
<td>13</td>
<td>2.90</td>
</tr>
<tr>
<td>1975</td>
<td>35,295</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>1976</td>
<td>42,352</td>
<td>327</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
</tbody>
</table>

*Source: Plan and Budget Organization of Iran, Statistical Yearbook of Iran, 1973 and 1977 (Tehran: Plan Organization, 1974 and 1978).*

*Note: Reliability is average. There is discrepancy in figures released by the same source in different years.*

*Data not available.*
Table 4.12. Credit by Rural Cooperative Societies, 1968 - 1976\(^a, b\)

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of loans (1000)</th>
<th>Amount of loans (million Rials)</th>
<th>Average loan (^c) (Rials)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1968</td>
<td>739</td>
<td>5,041</td>
<td>6,821</td>
</tr>
<tr>
<td>1969</td>
<td>844</td>
<td>5,753</td>
<td>6,816</td>
</tr>
<tr>
<td>1970</td>
<td>903</td>
<td>6,314</td>
<td>6,992</td>
</tr>
<tr>
<td>1971</td>
<td>876</td>
<td>6,812</td>
<td>7,776</td>
</tr>
<tr>
<td>1972</td>
<td>1,174</td>
<td>10,072</td>
<td>8,579</td>
</tr>
<tr>
<td>1973</td>
<td>1,251</td>
<td>12,372</td>
<td>9,890</td>
</tr>
<tr>
<td>1974</td>
<td>1,646</td>
<td>19,744</td>
<td>11,995</td>
</tr>
<tr>
<td>1975</td>
<td>1,771</td>
<td>24,723</td>
<td>13,959</td>
</tr>
<tr>
<td>1976</td>
<td>1,522</td>
<td>28,326</td>
<td>18,613</td>
</tr>
<tr>
<td>Average 1968-76</td>
<td>1,076</td>
<td>12,128</td>
<td>11,383</td>
</tr>
</tbody>
</table>


\(^b\)Note: Reliability average.

\(^c\)Computed by the author. Figures are rounded.
sometimes 20 times more than the amount of loan.\textsuperscript{41} This excludes a great majority of small farmers and nearly all of the land recipients who have not yet received titles to their lands from access to institutional and commercial credit.

2. Due to tight money and excess demand, many farmers with collateral are not able to obtain credit.\textsuperscript{42}

3. There is a great deal of institutional and bureaucratic red tape. The ADBI is situated in Tehran and ACBI does not have branches in most villages. Obtaining loans requires traveling to the Capital and larger cities. According to Rastakhiz sometimes half of the loan goes for travelling expenses.\textsuperscript{43}

According to official figures and Table 4.10, nearly half of the credit is provided by the middlemen and private money lenders (unofficial estimates run higher). Private loans are at high interest rates, sometimes in excess of 40 percent, and often require the purchase of crops at low prices.\textsuperscript{44} According to Professor Khusravi, the financial power of money lenders and middlemen has increased after the land reform,\textsuperscript{45} and that as much as 59 percent of landowning and 79 percent of landless peasants' debts are to private money lenders.\textsuperscript{46}

A study by the Committee on Cooperative Affairs in 1977 indicated that "due to a lack of agricultural loans, farmers were forced to sell their products to money lenders and receive loans in return."\textsuperscript{47}
And in 1978, Rastakhiz reported that due to the failures of central administrators of rural cooperative societies, middlemen were able to make a profit of over 10 billion rials in the citrus fruit market, and that this has led to the bankruptcy of small producers, decrease in domestic production, and the import of 300 thousand tons of citrus fruits.48

**Supplementary Measures: Infrastructure**

There has been a substantial amount of investment in transportation in Iran. During the Fourth Plan (1968-72) 5,700 kilometers of roads unfinished during the Third Plan were completed and 2,610 kilometers of new asphalt roads were constructed.49 But most of these were for interconnecting cities or military purposes. According to Rastakhiz, "two-thirds of Iranian villages have no access to any economic transportation network," and that "due to lack of commercial road, they cannot market their surplus output."50 In 1976, government sources indicated that 19,120 Iranian villages could only be reached with mule.51

This and lack of storage facilities has caused considerable damage to perishable agricultural production. The value of agricultural produce wasted annually has been estimated at one billion dollars.52

**Summary**

Throughout this chapter an attempt was made to evaluate some aspects of the Iranian Government's policies and reform programs.
launched under the Third and Fourth Plans. The results of the study indicate that land reform and accompanying measures have not resolved the Iranian agricultural problems nor have they ameliorated the lot of majority of the landless and landowning peasantry.

Just as in the past, today Iran is still in need of effective land distribution and changes which can set the stage for modernization of agriculture and enable the peasantry to escape the subsistence agricultural production. But such distribution and structural changes cannot and should not be expected from the present government.

Professor Baldwin who took an active part in planning process in Iran sums up the situation as follows:

"Land reform, like so many reforms in Iran, cannot be assessed except in terms of Iranian political behavior. Seen from this perspective, no Iranian land reform is likely to achieve its aims until there have first been much more fundamental changes in the political system than have yet occurred."
FOOTNOTES


4 Plan and Budget Organization of Iran, *Statistical Yearbook of Iran, 1973* (Tehran: Plan Organization, 1974), pp. 296-97. Other sources estimate the number of villages affected as low as 10,000. See Daniel Craig, "The Impact of Land Reform on an Iranian Village," *Middle East Journal* 32 (Summer 1978), p. 144. According to Bharier: "By the end of 1966 it was estimated that about 14,000 villages (about 30 percent of the total) had been wholly or partially distributed to about 520,000 farming families under the 1962 law, with the distribution of village equivalents probably equal to 15 percent of the total number of villages." Bharier, op. cit., p. 138. According to official government newspaper, Rastakhiz, only 587 thousand families received land. See *Rastakhiz*, January 9, 1978, p. 13. In fact data regarding land distribution and recipients cited by the author are on the optimistic side.


6 *Iran Almanac, 1965*, op. cit., p. 528.


10 A 1978 article in Rastakhiz speaks of only two stages and provides figures somewhat consistent with those above. See Rastakhiz, January 9, 1978, p. 13. Professor Safinezhad's research regarding two villages, Talebabad and Kedkan, provide the following information: in Talebabad land was rented to 60 tenants according to second stage and the situation had not changed by 1974; in Kedkan, according to third stage, 30 percent of total output is given to the landlord as rent in kind for land and water. See Javad Safinezhad, Boneh (Tehran: Tuss Publication, 1974), pp. 171-76, 269-70.


13 Khamsi, op. cit., p. 23.


18 Aresvik, Ibid.

19 Ibid., p. 103.


21 Ibid., p. 81.
22. Sazeman Charik-haye Fedayee Khalgh, *Study of Farm Corporations* (n.p.: Cherik-haye Fedayee Khalgh, 1973), pp. 173-82, 143-44. Because of censorship, this book and others by the same organization were published illegally. Some works were published legally although they were censored. Among these the most important works are by Professor Safinezhad. See Javad Safinezhad, H. Keshavarz, and Vida Hajebi, *Socio-Economic Study of Reza Pahlavi Farm Corporation* (Tehran: Tehran University, Institute of Social Research and Study, 1971). Ms. Vida Hajebi was arrested in 1971 for research of "political nature" without permit and was sentenced to seven years imprisonment. She was released in October 1978.


Aresvik, Ibid., p. 115.

Teheran Economist, November 4, 1976.


"Records show that majority of large sums of money given as loan by ADEI go to non-farmers and that many of these are invested outside of the country." Rastakhiz, August 2, 1978, p. 16.

Ibid.


Ibid., August 2, 1978, p. 16.


Khosravi, Ibid.

Ibid., p. 132.


Amuzegar, Ibid., p. 166.


52 Rastakhiz, May 29, 1976, p. 16.

CHAPTER 5
AGRICULTURAL PRODUCTION

The agricultural development in Iran and the performance of the agricultural sector could be evaluated in several ways. One method of evaluation is the examination of agricultural output and its rate of growth as an indication of performance. But changes in output in a given period do not tell us anything about the changes in productivity and per capita output which are a more accurate criteria for evaluation than the output alone.

It should be noted at the outset that the discrepancy and the scarcity of the data largely limits the selection of the criteria for performance of the agricultural sector. Quantative information on the development of the Iranian agriculture prior to 1960's is relatively scarce and generally unreliable, and the official data regarding the more recent years are largely inflated and contradictory. The discrepancy in the official data originating from the same source is sometimes over 60 percent. This is particularly true with regard to the data concerning agricultural output. These limitations, however, aside from making our task more difficult and arduous, do not extensively affect the quality of our inquiry if we utilize several difference criteria for evaluating the performance of the agricultural sector and thereby minimize the chances of inaccuracies in our analysis. Thus the following analysis of the performance of the agricultural sector will examine output; yield of major crops as well as yield according to the size of farms; import of
agricultural commodities; per capita food and agricultural output; and the sectoral as well as subsectoral growth rates for agriculture.

Production of Major Crops

Let us first begin by examining the shares of various subsectors in the Iranian agriculture. Table 5.1 presents these relative shares in agriculture added value for the 1966-73 period. As it is evident, crop production accounts for a lion's share of the total value added. Until 1971, this share was above 70 percent and since then it has remained at about 65 percent. The recognition of this significant share is very important since a large portion of the crop output value added is claimed by the three major cereals, wheat, rice and barley. Thus the performance of the agricultural sector is very much linked to the production of these crops.

Livestock accounts for about 30 percent of the total value added. Its share of the total value added has increased from 26.8 percent in 1966 to 30.3 percent in 1977. Unfortunately data on livestock production is very scarce and thus will not be discussed in detail in this chapter. Forestry and fishery account for a very small percentage of the total value added, and their growth does not significantly affect the overall growth rate of the agricultural production.

Table 5.2 provides production data regarding major agricultural commodities. As Table 5.2 demonstrates the production of major
<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Crop output</td>
<td>71.8</td>
<td>71.7</td>
<td>72.2</td>
<td>72.5</td>
<td>73.3</td>
<td>71.5</td>
<td>67.2</td>
<td>64.1</td>
<td>65.1</td>
<td>62.6</td>
<td>65.1</td>
<td>64.3</td>
</tr>
<tr>
<td>Livestock</td>
<td>26.8</td>
<td>26.1</td>
<td>26.1</td>
<td>25.9</td>
<td>25.2</td>
<td>27.0</td>
<td>30.8</td>
<td>33.0</td>
<td>32.1</td>
<td>34.5</td>
<td>32.4</td>
<td>32.7</td>
</tr>
<tr>
<td>Forestry</td>
<td>1.0</td>
<td>0.7</td>
<td>1.2</td>
<td>1.1</td>
<td>1.0</td>
<td>1.0</td>
<td>1.5</td>
<td>2.3</td>
<td>2.3</td>
<td>2.4</td>
<td>2.0</td>
<td>2.3</td>
</tr>
<tr>
<td>Fishery</td>
<td>0.4</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
<td>0.6</td>
<td>2.5</td>
<td>0.5</td>
<td>0.5</td>
<td>0.7</td>
<td>0.7</td>
</tr>
</tbody>
</table>

Notes:


- Includes games.
Table 5.2. Production of major agricultural commodities, 1963-77 (1000 tons)\textsuperscript{a, b}

<table>
<thead>
<tr>
<th></th>
<th>1963</th>
<th>1964</th>
<th>1965\textsuperscript{c}</th>
<th>1966\textsuperscript{c}</th>
<th>1967</th>
<th>1968</th>
<th>1969</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cereal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wheat</td>
<td>3000</td>
<td>2600</td>
<td>3000</td>
<td>3190</td>
<td>3800</td>
<td>4400</td>
<td>4100</td>
</tr>
<tr>
<td>Barley</td>
<td>740</td>
<td>718</td>
<td>935</td>
<td>1080</td>
<td>1035</td>
<td>1160</td>
<td>1140</td>
</tr>
<tr>
<td>Rice</td>
<td>860</td>
<td>800</td>
<td>845</td>
<td>875</td>
<td>960</td>
<td>980</td>
<td>1020</td>
</tr>
<tr>
<td><strong>Industrial Crops</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cotton</td>
<td>402</td>
<td>389</td>
<td>488</td>
<td>371</td>
<td>378</td>
<td>545</td>
<td>520</td>
</tr>
<tr>
<td>Sugar beets</td>
<td>1191</td>
<td>1028</td>
<td>1411</td>
<td>2280</td>
<td>2830</td>
<td>3410</td>
<td>3480</td>
</tr>
<tr>
<td>Sugar cane</td>
<td>248</td>
<td>292</td>
<td>392</td>
<td>383</td>
<td>430</td>
<td>450</td>
<td>530</td>
</tr>
<tr>
<td>Tobacco</td>
<td>11</td>
<td>19</td>
<td>26</td>
<td>25</td>
<td>22</td>
<td>19</td>
<td>19</td>
</tr>
<tr>
<td>Tea</td>
<td>50</td>
<td>42</td>
<td>50</td>
<td>59</td>
<td>68</td>
<td>81</td>
<td>76</td>
</tr>
<tr>
<td><strong>Vegetables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potatoes</td>
<td>370</td>
<td>380</td>
<td>410</td>
<td>418</td>
<td>420</td>
<td>420</td>
<td>437</td>
</tr>
<tr>
<td>Onions</td>
<td>149</td>
<td>156</td>
<td>167</td>
<td>166</td>
<td>178</td>
<td>187</td>
<td>267</td>
</tr>
<tr>
<td>Tomatoes</td>
<td>160</td>
<td>166</td>
<td>173</td>
<td>187</td>
<td>186</td>
<td>202</td>
<td>210</td>
</tr>
<tr>
<td><strong>Others</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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\textsuperscript{b}Reliability: Average for 1963-72, below average for 1973-77.

\textsuperscript{c}There is a significant discrepancy in data for these years. Data for 1965-66 are deflated and for 1974-1977 are inflated.

\textsuperscript{d}Data not available.
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<td>1105</td>
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<td>80</td>
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<td>380</td>
<td>400</td>
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<td>354</td>
<td>480</td>
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<td>126</td>
<td>287</td>
<td>276</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
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<td>176</td>
<td>197</td>
<td>186</td>
<td>200</td>
<td>204</td>
<td>187</td>
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</table>
crops, particularly the industrial crops has increased since 1963. The annual variations in output partly reflect the fluctuations in weather conditions and the reallocation of land among various crops but are also largely due to the incidence of disease and pests.

The growth rate in production, however, has been relatively slow, sometimes below the rate of growth in population and often below the government targets under different plans. Table 5.3 shows the average growth rate of crop production under different plans. Few significant conclusions can be drawn from the data on this table. First, the average growth rate among major cereals produced has been very slow and in one case negative. This is of great importance once we consider the fact that over 77 percent of the cultivated land is devoted to the production of three major grains; wheat, barley and rice and together they constitute about 40 percent of total value of agricultural production. Second, the growth rate of most crops have generally deteriorated under Fourth and Fifth Plans. This is even true about the industrial crops which enjoyed a very high rate of growth under the Third Plan. The growth rate in both sugar beets and sugar cane have declined drastically since the Third Plan, and the growth rates of both cotton and tobacco are negative under the Fifth Plan.

Increases in output shown in Table 5.2 are largely due to increases in land under cultivation which in some instances grew more rapidly than the growth in output (see Table 5.4). The available
Table 5.3. Average growth rate of crop production under different plans (percents)\(^a\)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
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<td></td>
<td></td>
</tr>
<tr>
<td>Wheat</td>
<td>6.0</td>
<td>1.0</td>
<td>3.9</td>
</tr>
<tr>
<td>Barley</td>
<td>7.2</td>
<td>-2.2</td>
<td>4.0</td>
</tr>
<tr>
<td>Rice</td>
<td>5.7</td>
<td>3.8</td>
<td>3.1</td>
</tr>
<tr>
<td>Industrial Crops</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cotton</td>
<td>3.6</td>
<td>3.9</td>
<td>-2.3</td>
</tr>
<tr>
<td>Sugar beets</td>
<td>24.0</td>
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<td>1.2</td>
</tr>
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<td>7.4</td>
</tr>
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<td>Tea</td>
<td>7.9</td>
<td>2.8</td>
<td>5.7</td>
</tr>
<tr>
<td>Vegetables</td>
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</tr>
<tr>
<td>Potatoes</td>
<td>3.1</td>
<td>-1.2</td>
<td>10.7</td>
</tr>
<tr>
<td>Onions</td>
<td>3.9</td>
<td>7.3</td>
<td>8.7</td>
</tr>
<tr>
<td>Tomatoes</td>
<td>3.8</td>
<td>2.1</td>
<td>n.a.(^b)</td>
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<tr>
<td>Pulses</td>
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<td>8.2</td>
<td>1.2</td>
</tr>
</tbody>
</table>

\(^a\)Source: Bank Markazi Iran.

\(^b\)Data not available.
Table 5.4. Area under cultivation for different agricultural products, 1968-77 (1000 HA)\textsuperscript{a}

<table>
<thead>
<tr>
<th>Years</th>
<th>Wheat</th>
<th>Barley</th>
<th>Rice</th>
<th>Cotton</th>
<th>Sugar beets</th>
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<tbody>
<tr>
<td>1961-65</td>
<td>3580</td>
<td>990</td>
<td>342</td>
<td>280</td>
<td>130</td>
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<tr>
<td>1968</td>
<td>4804</td>
<td>1062</td>
<td>318</td>
<td>340</td>
<td>148</td>
</tr>
<tr>
<td>1969</td>
<td>5100</td>
<td>1200</td>
<td>360</td>
<td>380</td>
<td>153</td>
</tr>
<tr>
<td>1970</td>
<td>5327</td>
<td>1385</td>
<td>484</td>
<td>320</td>
<td>169</td>
</tr>
<tr>
<td>1971</td>
<td>5565</td>
<td>1446</td>
<td>344</td>
<td>307</td>
<td>150</td>
</tr>
<tr>
<td>1972</td>
<td>5469</td>
<td>1519</td>
<td>377</td>
<td>309</td>
<td>146</td>
</tr>
<tr>
<td>1973</td>
<td>6325</td>
<td>1656</td>
<td>338</td>
<td>332</td>
<td>166</td>
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<tr>
<td>1974</td>
<td>5973</td>
<td>1404</td>
<td>353</td>
<td>380</td>
<td>159</td>
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<tr>
<td>1975</td>
<td>5993</td>
<td>1532</td>
<td>461</td>
<td>290</td>
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<td>1976</td>
<td>5631</td>
<td>1481</td>
<td>460</td>
<td>295</td>
<td>198</td>
</tr>
<tr>
<td>1977</td>
<td>6000</td>
<td>1500</td>
<td>460</td>
<td>n.a.\textsuperscript{b}</td>
<td>n.a.</td>
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</table>


\textsuperscript{b}Data not available.
<table>
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<th>Potatoes</th>
<th>Tomatoes</th>
<th>Onion</th>
<th>Pulses</th>
</tr>
</thead>
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<td>16</td>
<td>14</td>
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<td>n.a.</td>
<td>n.a.</td>
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</tr>
<tr>
<td>9</td>
<td>14</td>
<td>55</td>
<td>22</td>
<td>17</td>
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</tr>
<tr>
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<td>n.a.</td>
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<td>22</td>
<td>17</td>
<td>n.a.</td>
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<td>n.a.</td>
<td>65</td>
<td>23</td>
<td>18</td>
<td>n.a.</td>
</tr>
</tbody>
</table>
data for 1961-77 period indicates that the area under cultivation has increased for almost every major crop. Substantial increases can be noted for cereals and sugar beets, both of which have experienced deteriorating rates of growth in output since the Third Plan.

Average Yield for Major Crops

The fact that increases in output are largely due to increases in land area under cultivation can be further substantiated by examining the average yield per hectare for the major crops. Table 5.5 shows the yield per hectare for the major cereals and industrial crops. According to these data increases in output cannot be linked to the introduction of improved technology since over the 1961-77 period the yield per hectare has remained about the same or declined for every crop except sugar beets. The last three columns in Table 5.5 show the 1972-77 average yields for Near East, Latin America, and Africa. For every crop the average yield in the Middle East is greater than in Iran. In fact the average yield in Iran is more comparable to the average yield in Africa. Figure 5.1 summarizes the data in Table 5.5 for the three major cereals.

It may be pointed out that since the area under cultivation has increased, the stagnant average yields for cereal may be due to the utilization of marginal lands. Of course, the addition of marginal lands would have some dampening effect on the overall average yield, but the available data suggests that the marginal lands are not the
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<td>6.2</td>
</tr>
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<td>9.5</td>
<td>7.8</td>
<td>6.2</td>
<td>6.6</td>
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<td>Rice</td>
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<td>28.3</td>
<td>21.9</td>
<td>29.0</td>
<td>31.8</td>
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<td>n.a. b</td>
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<td>15.7</td>
<td>14.9</td>
<td>17.8</td>
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<tr>
<td>Sugar beet</td>
<td>192.0</td>
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<td>227.4</td>
<td>228.4</td>
<td>265.3</td>
<td>280.8</td>
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<td>1350</td>
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<td>857</td>
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<td>12.7</td>
<td>12.9</td>
<td>9.5</td>
<td>11.4</td>
</tr>
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</table>

\(^a\)Source: Derived from Tables 5.1 and 5.3 for years 1969-77; and FAO, Production Yearbook, 1974-77 (Rome: FAO, 1975-78) for first and last three columns.

\(^b\)Data not available.
<table>
<thead>
<tr>
<th>Year</th>
<th>Near East</th>
<th>Latin America</th>
<th>Africa Average 1972-77</th>
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<td>7.2</td>
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<td>1974</td>
<td>7.0</td>
<td>5.4</td>
<td>7.7</td>
</tr>
<tr>
<td>1975</td>
<td>27.7</td>
<td>23.4</td>
<td>28.2</td>
</tr>
<tr>
<td>1976</td>
<td>16.9</td>
<td>17.0</td>
<td>24.7</td>
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<tr>
<td>1977</td>
<td>246.1</td>
<td>235.7</td>
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</tr>
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<td>n.a.</td>
<td>n.a.</td>
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<tr>
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<td>7.1</td>
<td>10.0</td>
</tr>
</tbody>
</table>
Figure 5.1. Yield of major cereals in Iran
primary reason for stagnant average yields. This premise rests upon two assumptions:

1. If the government's claims regarding the development of agriculture are true, it would be reasonable to assume that such a development would have more than offset the effect of marginal lands. It should be noted that the Iranian agriculture during the period under consideration has experienced:
   a. land reform which according to government claims has eradicated the traditional feudal system and increased the productivity by providing many new incentives for increased production and growth;
   b. continuous excess demand for agricultural commodities demonstrated by the magnitude of imports and the findings of various studies which should provide an incentive for improved productivity;
   c. a rapid rate of growth in the GNP and real incomes;
   d. increased application of technical inputs;
   e. the reorganization of farming structure and the consolidation of small and scattered plots.

2. The yield in mechanized farms have also been stagnant and in some cases declining.

Table 5.6 shows the utilization and application of technical inputs for the 1964-75 period. These data clearly show a very significant increase in the application of technical inputs. Of course,
Table 5.6. Utilization and application of technical inputs, 1964-75

<table>
<thead>
<tr>
<th>Year</th>
<th>Improved Seeds (1000 ton)</th>
<th>Fertilizers (1000 tons)</th>
<th>Tractors (1000 units)</th>
<th>Harvester-Trasher (1000 units)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Wheat</td>
<td>Cotton</td>
<td>Sugar (beet)</td>
<td>Nitrogen</td>
</tr>
<tr>
<td>1964</td>
<td>7.20</td>
<td>6.10</td>
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<td>1965</td>
<td>9.00</td>
<td>5.52</td>
<td>3.50</td>
<td>24.0</td>
</tr>
<tr>
<td>1966</td>
<td>16.88</td>
<td>9.16</td>
<td>3.23</td>
<td>32.0</td>
</tr>
<tr>
<td>1967</td>
<td>12.75</td>
<td>4.57</td>
<td>3.42</td>
<td>46.0</td>
</tr>
<tr>
<td>1968</td>
<td>14.59</td>
<td>5.36</td>
<td>4.59</td>
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<td>10.40</td>
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<td>4.91</td>
<td>55.0</td>
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<td>25.58</td>
<td>7.10</td>
<td>4.95</td>
<td>65.0</td>
</tr>
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<td>66.42</td>
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<td>4.95</td>
<td>194.1</td>
</tr>
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<td>24.15</td>
<td>4.39</td>
<td>188.5</td>
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<tr>
<td>1975</td>
<td>126.01</td>
<td>18.83</td>
<td>4.39</td>
<td>190.0</td>
</tr>
<tr>
<td>1976</td>
<td>203.3</td>
<td>152.5</td>
<td>2.67</td>
<td>30.0</td>
</tr>
</tbody>
</table>


b The amount of tractors in use for 1961-65 period was 11.3.
c Average for 1961-65.
d Average for 1969-71.
Table 5.5 shows the increase in total application of technical inputs and data regarding the distribution of chemical fertilizers and tractors among specific crops is not available. But considering the fact that about 75 percent of the cultivated land is devoted to the production of wheat, it is obvious that the application of these technical inputs has also substantially increased the production of wheat and other cereals. Furthermore, data regarding the utilization of improved seeds indicate that wheat experienced the greatest increase in application of improved seeds from 7.2 thousand tons in 1964 to 126 thousand tons in 1975. But as Table 5.5 indicated, the yield per hectare for wheat has remained about the same since 1961. It should be noted that the above discussion does not suggest a high rate of technological progress in Iran. Indeed the state of Iranian agriculture is still very traditional. According to FAO data in 1975 there was only one tractor per one thousand hectares in Iran, the same as in 1970. The number of harvesters per one thousand hectares was zero.  

Nevertheless, one should think that substantial rise in the application of the technical inputs as demonstrated in Table 5.6 would be sufficient to offset the impact of the marginal lands on average productivity. But the root of the problem appears to be in the distribution of these inputs.

It can be reasonably assumed that the allocation of technical inputs have been highly uneven with the farm corporations and
agribusiness claiming a disproportionate share. This was certainly true with regard to the allocation of credit which was discussed in Chapter 4.

The available data indicate that under different categories of farm sizes, the greatest proportion of tractor use and utilization of chemical fertilizers occurred in farms over 50 hectares. In 1974 among farms about 100 hectares, 83% of the farm area was plowed with tractors whereas about 80% of land area for farms around two hectares were plowed by human labor and draft animals.\(^2\)

Supposing that marginal lands are the cause of low average yields one would suspect that the larger and mechanized farms should have experienced a substantial increase in yield. Let us examine this proposition in detail.

In Chapter 4 we discussed the various forms of farm organizations and it was shown that farm corporations and agribusiness in general have not been successful. In fact, the findings in Chapter 4 indicated that among the various existing forms of farm organizations the production cooperatives which were comprised of small producers were the most successful. In case of farm corporations it was shown that the net profits and dividends per share were meager and fluctuating. Of course, returns per share is only one indicator for the performance of the large and mechanized farms. We can now examine different aspects of these farms by introducing the findings of this and other studies.
According to studies conducted for the Iranian Government by SCETIRAN Consulting Engineers, under equal conditions, the traditional farms have the largest yield per hectare. The SCETIRAN study classifies the cultivated land for wheat into four major categories based on rainfall, variability of precipitation (CV), the degree of risk, and potential average yield per hectare criteria:

**Category I:** This category includes Average Rainfall Levels (ARL) below 250 mm; the Coefficient of Variability (CV) above 0.30; Potential Average Yield (PAY) below 300 KG/HA; and the Risks of Ruin (RR) around 25 percent.

**Category II:** ARL < 300 mm; CV = 0.30 to 0.35; PAY = 500 to 600 KG/HA; and RR = 15 to 20 percent.

**Category III:** ARL < 300 mm; CV low; PAY = 700 to 800 KG/HA; and RR = 10%.

**Category IV:** ARL = 300 to 400 mm; CV < 0.30; PAY > 1000 KG/HA; and RR = 5%.

The results of the SCETIRAN study is summarized in Figure 5.2 where the average net added value per hectare given the risks of ruins according to different categories is measured under traditional, semi mechanized, and mechanized systems of production. Under all four categories, the traditional system experienced a higher average net added value per hectare than both semi mechanized and mechanized farms. These are astounding results which point out the failure of large farms due to various institutional constraints and verify the
Figure 5.2. Average net value added per hectare
conclusions reached in Chapter 4 regarding farm corporations and agribusiness.

But let us investigate further. Table 5.7 provides data regarding cultivated area, seed use, output and yield per hectare for three major grains under different categories of farm size. The data speak for itself and requires no extensive discussion. For instance, in the light of data in Table 5.6 and the knowledge that large farms utilize a disproportionate amount of technical inputs, the yield per hectare for wheat is one of the lowest for lands over 50 hectare; and the yield per hectare for rice has the lowest yield for enterprises over 100 hectares.

It can therefore be safely concluded, that the growth rate in the production of some of the major crops has been due to the increase in the amount of cultivated land and not productivity and that the stagnant average yield for major cereals is largely due to the stagnant state and nature of the Iranian agricultural production.

According to the SECTIRAN study:

"When cereal production increases it seems more due to an increase in area than an increase in yield. The farming methods used are often rudimentary, even if they are becoming increasingly mechanized. A similar remark can be made as regard sowing."

Agricultural Imports

As it was mentioned earlier, because of rapid increases in oil revenues, Iran has experienced a rapid growth rate in GNP and
Table 5.7. Harvesting area, seed application, output, and yield for selected crops under different farm size classifications, 1974

Measures: Harvested area (100 HA); output and seed (1000 MT); yield (one MT)

<table>
<thead>
<tr>
<th>Categories</th>
<th>Harvested area (5.3)</th>
<th>Seed output (10.1)</th>
<th>Output (83.7)</th>
<th>Yield (1.6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 1 HA</td>
<td>5.3</td>
<td>10.1</td>
<td>83.7</td>
<td>1.6</td>
</tr>
<tr>
<td>1 to under 2 HA</td>
<td>11.5</td>
<td>18.0</td>
<td>111.5</td>
<td>1.0</td>
</tr>
<tr>
<td>2 to under 5 HA</td>
<td>62.1</td>
<td>81.6</td>
<td>409.6</td>
<td>0.7</td>
</tr>
<tr>
<td>5 to under 10 HA</td>
<td>113.0</td>
<td>122.3</td>
<td>543.0</td>
<td>0.5</td>
</tr>
<tr>
<td>10 to under 50 HA</td>
<td>291.0</td>
<td>254.2</td>
<td>1007.3</td>
<td>0.4</td>
</tr>
<tr>
<td>50 to under 100 HA</td>
<td>37.7</td>
<td>36.3</td>
<td>200.0</td>
<td>0.5</td>
</tr>
<tr>
<td>100 HA and over</td>
<td>77.0</td>
<td>85.9</td>
<td>531.5</td>
<td>0.7</td>
</tr>
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</table>

^Source: Plan and Budget Organization of Iran, Statistical Results for Agriculture, 1974 (Tehran: Plan Organization, 1976).
<table>
<thead>
<tr>
<th>area harvested</th>
<th>seed</th>
<th>output</th>
<th>yield</th>
<th>area harvested</th>
<th>seed</th>
<th>output</th>
<th>yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.4</td>
<td>2.6</td>
<td>20.0</td>
<td>1.4</td>
<td>4.3</td>
<td>5.5</td>
<td>117.8</td>
<td>2.7</td>
</tr>
<tr>
<td>2.0</td>
<td>3.0</td>
<td>20.0</td>
<td>1.0</td>
<td>9.4</td>
<td>11.5</td>
<td>230.9</td>
<td>2.5</td>
</tr>
<tr>
<td>13.9</td>
<td>16.4</td>
<td>84.8</td>
<td>0.6</td>
<td>12.7</td>
<td>13.1</td>
<td>291.6</td>
<td>2.3</td>
</tr>
<tr>
<td>38.5</td>
<td>28.9</td>
<td>131.4</td>
<td>0.5</td>
<td>3.6</td>
<td>3.5</td>
<td>81.7</td>
<td>2.3</td>
</tr>
<tr>
<td>69.7</td>
<td>60.6</td>
<td>268.7</td>
<td>0.4</td>
<td>4.2</td>
<td>37.8</td>
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<td>1.9</td>
</tr>
<tr>
<td>7.9</td>
<td>6.9</td>
<td>45.4</td>
<td>0.6</td>
<td>0.4</td>
<td>0.3</td>
<td>9.9</td>
<td>2.7</td>
</tr>
<tr>
<td>16.9</td>
<td>20.2</td>
<td>181.4</td>
<td>1.1</td>
<td>0.8</td>
<td>0.6</td>
<td>14.4</td>
<td>1.7</td>
</tr>
</tbody>
</table>
consequently the real incomes. This, of course, has affected the demand for food causing higher prices and shortages of various commodities. One would suspect that this would be a sufficient reason for increasing productivity. But this has not been forthcoming largely due to the incoherent government agricultural policies which have overlooked the plight of the millions of small peasant producers (some aspects of these policies concerning farm organizations and distribution of credit were discussed in Chapter 4 and others will be discussed in the following chapter). The government's explanation for the lagging production is that small farmers are not generally responsive to normal economic incentives. The government's solution has been the concentrated emphasis on farm corporations and agribusinesses and a heavy reliance on imports.

In fact, given the increased expenditure on agricultural goods, the imports can be viewed as another indicator, although an indirect one, for evaluating the performance of the Iranian agricultural sector. It should be noted that in 1966 Iran was a net exporter of agricultural goods, but by 1976 it has become a substantial importer. Table 5.7 shows the import of major agricultural commodities since 1966. Drastic increases in imports can be noticed for every agricultural product. This is particularly true for the import of food and animals which increased from a meager $60.3 million in 1966 to $1.15 billion in 1976. Every major food category,
Table 5.7. Import of major agricultural commodities, 1966-76 (million dollars)<sup>a</sup>

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total merchandise</td>
<td>928.3</td>
<td>1194.0</td>
<td>1408.9</td>
<td>1525.6</td>
<td>1648.0</td>
<td>2081.2</td>
<td>2543.2</td>
<td>3770.0</td>
<td>5979.0</td>
<td>11852.1</td>
<td>12841.8</td>
</tr>
<tr>
<td>Total ag. products</td>
<td>119.5</td>
<td>96.9</td>
<td>142.4</td>
<td>100.9</td>
<td>121.2</td>
<td>253.6</td>
<td>304.7</td>
<td>433.3</td>
<td>1263.9</td>
<td>1960.2</td>
<td>1479.8</td>
</tr>
<tr>
<td>Food &amp; animals</td>
<td>60.3</td>
<td>46.0</td>
<td>84.8</td>
<td>45.2</td>
<td>51.4</td>
<td>173.3</td>
<td>192.4</td>
<td>310.3</td>
<td>957.6</td>
<td>1602.9</td>
<td>1154.7</td>
</tr>
<tr>
<td>Live animals</td>
<td>2.0</td>
<td>1.7</td>
<td>2.4</td>
<td>5.9</td>
<td>8.7</td>
<td>8.0</td>
<td>12.7</td>
<td>23.8</td>
<td>29.9</td>
<td>67.6</td>
<td>85.5</td>
</tr>
<tr>
<td>Meat</td>
<td>0.5</td>
<td>0.6</td>
<td>0.8</td>
<td>4.4</td>
<td>4.3</td>
<td>5.3</td>
<td>6.3</td>
<td>20.8</td>
<td>42.4</td>
<td>111.4</td>
<td>111.3</td>
</tr>
<tr>
<td>Cereals</td>
<td>16.1</td>
<td>7.9</td>
<td>45.9</td>
<td>1.5</td>
<td>4.7</td>
<td>104.9</td>
<td>93.2</td>
<td>114.4</td>
<td>539.5</td>
<td>566.2</td>
<td>321.8</td>
</tr>
<tr>
<td>Sugar</td>
<td>17.8</td>
<td>12.9</td>
<td>8.2</td>
<td>5.9</td>
<td>4.9</td>
<td>10.8</td>
<td>25.7</td>
<td>76.2</td>
<td>142.6</td>
<td>452.5</td>
<td>244.9</td>
</tr>
<tr>
<td>Fruit &amp; veg.</td>
<td>1.6</td>
<td>1.0</td>
<td>1.2</td>
<td>1.0</td>
<td>1.1</td>
<td>2.6</td>
<td>3.7</td>
<td>17.5</td>
<td>79.1</td>
<td>132.3</td>
<td>179.0</td>
</tr>
<tr>
<td>Others</td>
<td>22.1</td>
<td>22.0</td>
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<td>26.5</td>
<td>27.6</td>
<td>41.7</td>
<td>50.6</td>
<td>57.6</td>
<td>124.2</td>
<td>183.0</td>
<td>212.3</td>
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<tr>
<td>Beverages &amp; tobacco</td>
<td>0.3</td>
<td>0.3</td>
<td>0.6</td>
<td>0.6</td>
<td>2.7</td>
<td>3.5</td>
<td>5.2</td>
<td>10.9</td>
<td>15.7</td>
<td>77.2</td>
<td></td>
</tr>
<tr>
<td>Crude materials</td>
<td>19.9</td>
<td>23.3</td>
<td>25.6</td>
<td>27.4</td>
<td>27.1</td>
<td>31.8</td>
<td>50.8</td>
<td>56.9</td>
<td>69.5</td>
<td>84.6</td>
<td>98.1</td>
</tr>
<tr>
<td>Animal &amp; veg. oil</td>
<td>39.0</td>
<td>27.3</td>
<td>31.3</td>
<td>27.7</td>
<td>42.2</td>
<td>45.8</td>
<td>58.0</td>
<td>60.1</td>
<td>255.9</td>
<td>257.0</td>
<td>149.8</td>
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<tr>
<td>Agricultural Requisites</td>
<td>29.7</td>
<td>40.2</td>
<td>43.8</td>
<td>41.7</td>
<td>43.5</td>
<td>50.0</td>
<td>72.6</td>
<td>76.8</td>
<td>168.2</td>
<td>408.5</td>
<td>241.4</td>
</tr>
</tbody>
</table>

especially meat and cereals, has experienced exceedingly high rate of increase in imports.

The limited data for 1977-78 suggests that the import of major food items has escalated even more rapidly. The import of wheat for 1977 was estimated at 1.5 million tons, more than twice the amount in the previous year. Rice imports increased from 3.1 million tons in 1976 to 6 million tons in 1977. Similarly, the import of sheep and goats increased to 2.5 million heads, a rise of 45 percent. The import of both poultry meat and eggs also rose by 83 and 30 percents respectively.

This sharp rise in imports has made Iran the largest Mideast cash market for U.S. farm products. In 1977, the U.S. exports of agricultural commodities to Iran amounted to about half the size of exports to USSR. Israel, Australia, and France are the other major suppliers. This continuing decline in Iran's rate of self sufficiency is a direct consequence of government's "oil for food" policy which we discussed in Chapter 3.

Admittedly, the rising imports is partly due to the rapidly rising demand for food products, but they also indicate that under the conditions of excess demand the agricultural sector has not experienced an adequate rate of growth. Studies indicate that the rate of growth in agriculture has been slightly below the rate of growth in population. We can now turn to examine this matter in more detail.
Per Capita Food and Agricultural Output

We can use the indices of per capita food and agricultural production as another criterion for performance of the agricultural sector. Table 5.9 and Figure 5.3 provide the relevant data for this analysis. The reader should be warned that the indices are based on inflated official data for 1974-77 (see footnotes to Tables 5.2 and 5.8). But nevertheless, the data clearly indicate that the general trend of the indices is only slightly above the original.

The Growth Rate of the Agricultural Sector

The reader should note that since 1963 Iran has experienced not only a land reform, but also booming oil revenues and a rapidly growing GNP. However, under the last three plans the growth rate in the agricultural sector has fallen drastically short of the government's targets. During this period agriculture has actually experienced a very slow rate of growth, perhaps slightly below the rate of growth in population.

Table 5.9 provides the official rates of growth for agricultural value added. The official growth rate for crop production was 6.4 percent under the Third Plan, but fell to 3.3 percent under the Fifth Plan. It should be recalled that crop output comprise over 65 percent of the total value added in agriculture. The overall official growth rate for agriculture is 4.8, 3.9, and 4.6 percent under the Third, Fourth, and Fifth Plans respectively. The actual
Table 5.8. Indices of per capita food and agricultural production, 1969-71 = 100$^a$, $^b$

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>101</td>
<td>102</td>
<td>101</td>
<td>97</td>
<td>105</td>
<td>105</td>
<td>106</td>
<td>104</td>
<td>109</td>
<td>109</td>
<td>103</td>
</tr>
<tr>
<td>Food</td>
<td>100</td>
<td>101</td>
<td>101</td>
<td>97</td>
<td>105</td>
<td>105</td>
<td>106</td>
<td>106</td>
<td>110</td>
<td>111</td>
<td>105</td>
</tr>
</tbody>
</table>


$^c$1978 figures are computed by the author based on preliminary estimates provided by the Ministry of Agriculture.
Figure 5.3. Indices of per capita food and agricultural production
<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Actual</td>
<td>Planned</td>
<td>Actual</td>
</tr>
<tr>
<td>Crop output</td>
<td>6.40</td>
<td>3.90</td>
<td>3.30</td>
</tr>
<tr>
<td>Livestock(^b)</td>
<td>0.70</td>
<td>3.50</td>
<td>6.70</td>
</tr>
<tr>
<td>Forestry</td>
<td>5.56</td>
<td>10.30</td>
<td>10.80</td>
</tr>
<tr>
<td>Fishery</td>
<td></td>
<td>5.80</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>4.80</td>
<td>3.90</td>
<td>5.0</td>
</tr>
</tbody>
</table>


\(^b\)Includes games.
growth rates under the Fourth and the Fifth Plans were both lower than the planned growth rates of 5.0 and 7.0 percent.

But as various studies indicate the official rates of growth are inflated and the real rates of growth for agriculture were substantially lower. The real rate of growth during the Fourth Plan was estimated at about 2 to 3 percent which was about the same or lower than the rate of growth in population. According to Aresvik:

"Analysis of three related indicators—expenditure, according to household expenditure surveys; imports; and prices—suggest the following conclusions regarding the performance of the agricultural sector in terms of output over the period 1959-72: over the period as a whole, agricultural output grew at about the same rate as the population. In the Fourth Plan, however the rate of growth was probably slower than the population."^8

The finding of the international sources, including those invited by the Iranian Government, also suggest a slower rate of growth for agriculture than the population during the Fourth Plan:

"According to the information I have been able to gather, the growth rate of the agricultural sector during the Fourth Plan was between 2 to 3 percent and the livestock production had either zero or negative rate of growth....Concerning the growth rate during the Fourth Plan, BIRD has stated that the growth rate was slower than the rate of growth in population."^9

The studies of the growth rate during the Fifth Plan suggest an even greater exaggeration in official figures:

"...the real growth rate in agriculture is considerably lower than the official figures; that is little more than 2.5 percent, or less than annual increase in population."^10

Even the more optimistic estimates by foreign observers indicate a growth rate slightly above the population:
"But in recent years agricultural production has just managed to keep a little ahead of the annual population growth rate of over 3 percent."

Conclusion

The preceding discussion suggests that the performance of the Iranian agriculture in terms of the output has been very poor, especially for a country which has experienced a tremendous growth rate in GNP and increasing amount of oil revenues which had removed all financial constraints for the development of agriculture.

Land reform, increased oil revenues and hence greater investment in agriculture, and application of greater amount of technical inputs have not substantially changed the face of the Iranian agriculture. The yields for major crops have remained about the same. The stagnant productivity is a direct consequence of the stagnant state of the traditional methods of production. Whatever increases in output which were accomplished have been largely due to the increase in the size of farming area. The addition of marginal lands has not played a dominant role in overshadowing the rising productivity on other lands. But even if this was not true, it would only indicate a very slow rate of technological progress in agriculture.

As the discussion in this and preceding chapters indicate, the problem of the Iranian agriculture stems from the low priority which agriculture receives in government development planning and the misplaced priorities within the agriculture itself. The development
of the Iranian agriculture requires a long run policy devoted to a comprehensive and uprooting changes in agriculture which is a hopeful wish from the present government.

Even with moderate changes, potential for accomplishing self-sufficiency within a relatively short period exists. An FAO study of the Iranian projected demand and supply up to 1990 under two alternative "medium" and "high" plans indicate that by 1990 Iran has the potential to become self-sufficient in almost every major crop as well as livestock production. This indicates that given the selection and implementation of appropriate policies, relative self-sufficiency could be realized in the short run. In Chapters 6 and 8 we attempt to explore some of the possible and essential changes required in order to accomplish and fulfill this task.
FOOTNOTES


4 Ibid., p. 85.


CHAPTER 6
PRICE STABILIZATION AND PRICE FLOOR POLICIES

As it was mentioned in Chapter 4, about 80 percent of the farm families in Iran are engaged in traditional agriculture at a subsistence or semisubsistence level. The average farm land per family is near 1.4 hectares with an annual net revenue yield of approximately 50 thousand Rials (= $666).\(^1\) Considering the fact that the average size of a farm family is 5.4 persons per family it is obvious that in the majority of cases the farm income must be supplemented with non-farm employment.

Although under each Plan the government has stated that raising rural income is one of its major objectives, nevertheless it has traditionally followed a policy of maintaining a low level of prices for agricultural commodities. This was accomplished through reliance on imports and the worsening of terms of trade against agriculture as the result of rising prices of manufactured goods. Obviously increasing rural income requires rapid introduction of improved technology and increased productivity. However, low level of income which does not allow for savings and capital accumulation, lack of adequate price incentives, and the failure of government development policies are the major impediments to achieving high growth rate and development in agriculture.

In this chapter we examine two related aspects of government market regulation policies in agriculture: price stabilization and
price floor programs. Since wheat plays a significant role in the Iranian agriculture and because of the greater availability of data concerning this crop, the major emphasis of this study will focus on wheat.

Since early 1960's the government has launched an interventionist program for major cereals, particularly wheat, for the purpose of maintaining stable prices for bread and providing economic incentives for increased productivity and adoption of improved technology.

The primary objective of the program was to guarantee sufficient supply for consumption and maintain stable prices for both producers and consumers. The program was implemented through the Cereal Organization which was responsible for purchasing surplus output in good crop years and thereby building the reserve stock and ensuring the supply in bad years through reserve release and imports. Since the program required adequate storage facilities, the Cereal Organization in conjunction with related ministries was empowered to establish storage capacity.

However, neither of the primary objectives of the price stabilization program have been accomplished. Table 6.1 provides the average wholesale prices of major crops for 1966-78 period. As it is indicated in Table 6.1 the wholesale price of the major crops have not been stabilized and the fluctuations in certain years are very significant. Since wheat and barley constitute a sizeable portion of agricultural production and total value added
Table 6.1. Average wholesale prices of major crops (Rials/kilogram)

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</tr>
</thead>
<tbody>
<tr>
<td>Wheat</td>
<td>7.4</td>
<td>6.0</td>
<td>5.5</td>
<td>6.1</td>
<td>7.7</td>
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<td>Barley</td>
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<td>4.1</td>
<td>5.8</td>
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<td>9.8</td>
<td>9.3</td>
<td>8.7</td>
<td>10.6</td>
</tr>
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<td>Rice</td>
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<td>30.8</td>
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<td>29.3</td>
<td>32.3</td>
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<td>89.0</td>
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<td>Local cotton</td>
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<td>37.6</td>
<td>42.0</td>
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<td>50.0</td>
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<td>71.9</td>
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<td>95.0</td>
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<td>Potatoes</td>
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<td>9.1</td>
<td>7.3</td>
<td>6.0</td>
<td>6.6</td>
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<td>18.5</td>
<td>19.6</td>
<td>19.8</td>
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<td>Onions</td>
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<td>n.a.</td>
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<td>7.6</td>
<td>5.3</td>
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<td>7.1</td>
<td>7.6</td>
<td>12.0</td>
<td>20.0</td>
<td>20.0</td>
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<td>Beans</td>
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<td>76.0</td>
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<td>11.2</td>
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<td>31.4</td>
<td>26.4</td>
<td>22.3</td>
<td>23.0</td>
<td>36.0</td>
<td>38.0</td>
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</table>

^Sources: Ministry of Agriculture and Tehran Economist, various issues.

^Data not available.
in agriculture, the fluctuation in prices carry significant consequences for the development of agriculture. The high level of price risk and uncertainty reduces the effectiveness of the price mechanism as a viable means of providing economic incentives for adoption of improved technology.

Table 6.2 shows the national and regional domestic wholesale price variations for wheat. The national variations are obtained by averaging available seasonal province prices in the given years. However, due to the limitation of the data, price information from every province could not be obtained and for some years as few as only six provinces are used in calculating the average high and low wholesale prices.

As Table 6.2 indicates the domestic price variations for wheat are significant. For the 1972-78 period the variation at the national level was as high as 26 percent in 1977. The minimum variation during this period was 2.3 Rials or 10 percent. Similar results can be observed for regional variations with a minimum of 15 percent in 1978 and as high as 53 percent in 1972.

It is clear from the data in the above two tables that the objective of stable prices has not been accomplished. In fact, the urban population has been faced with inflationary food prices especially in post 1970 period. Tables 6.3 and 6.4 show the index numbers of agricultural and general wholesale prices as well as retail prices of food and cost of living for the 1964-74 period.
Table 6.2. Variations in domestic wholesale prices of wheat, 1972-78 (Rials/kilograms)\(^a\)

<table>
<thead>
<tr>
<th>Year</th>
<th>National variations</th>
<th>Regional variations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>1972</td>
<td>6.7</td>
<td>8.0</td>
</tr>
<tr>
<td>1973</td>
<td>6.8</td>
<td>8.8</td>
</tr>
<tr>
<td>1974</td>
<td>9.0</td>
<td>10.8</td>
</tr>
<tr>
<td>1975</td>
<td>9.2</td>
<td>11.2</td>
</tr>
<tr>
<td>1976</td>
<td>9.3</td>
<td>11.6</td>
</tr>
<tr>
<td>1977</td>
<td>10.3</td>
<td>13.0</td>
</tr>
<tr>
<td>1978</td>
<td>12.7</td>
<td>14.0</td>
</tr>
</tbody>
</table>

\(^a\)Sources: Ministry of Agriculture; and Tehran Economist, various issues.
Table 6.3. Index numbers of agricultural and wholesale prices (1970 = 100)\textsuperscript{a}

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural products</td>
<td>93</td>
<td>93</td>
<td>92</td>
<td>92</td>
<td>94</td>
<td>100</td>
<td>118</td>
<td>126</td>
<td>133</td>
<td>164</td>
</tr>
<tr>
<td>General</td>
<td>93</td>
<td>93</td>
<td>93</td>
<td>94</td>
<td>97</td>
<td>100</td>
<td>107</td>
<td>113</td>
<td>124</td>
<td>144</td>
</tr>
</tbody>
</table>

\textsuperscript{a}Source: FAO, FAO Production Yearbook 1975 (Rome: FAO, 1976), Table 147.

Table 6.4. Index numbers of retail prices of food and cost of living (1970 = 100)\textsuperscript{a}

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Food</td>
<td>96</td>
<td>95</td>
<td>97</td>
<td>97</td>
<td>99</td>
<td>100</td>
<td>107</td>
<td>116</td>
<td>124</td>
<td>144</td>
</tr>
<tr>
<td>Cost of living</td>
<td>93</td>
<td>93</td>
<td>94</td>
<td>95</td>
<td>98</td>
<td>100</td>
<td>104</td>
<td>111</td>
<td>122</td>
<td>139</td>
</tr>
</tbody>
</table>

\textsuperscript{a}Source: FAO, FAO Production Yearbook, 1975 (Rome: FAO, 1976), Table 148.
During 1965-69 period the index numbers for both general and agricultural products are relatively stable, but the post 1970 period indicates a rapid rise. The same results can be observed for the retail prices of food. Furthermore, Tables 6.3 and 6.4 also indicate that the wholesale prices of agricultural products and the retail prices of food have risen more sharply than the general wholesale prices and cost of living.

The government's failure to stabilize wholesale prices is directly associated to two aspects of its stabilization program: (1) ineffective purchase-sale program of major crops during the periods of excess demand and excess supply; and (2) ineffectiveness in establishing price floors and minimum price guarantees.

As it was pointed out above the nexus of the stabilization program was to purchase excess supply during good harvesting years and to eliminate excess demand through sales from reserve stock and imports during bad crop years. In order to fulfill this task the Cereal Organization was empowered to establish storage capacity and adequate facilities.

In practice, however, the program was never effectively implemented. Table 6.5 provides relevant information regarding wheat production and annual purchase and sales by the Cereals Organization. It can be seen that government's purchase as a percentage of total output is very insignificant and with wide variations. Furthermore, the stock of wheat at the end of each year has experienced drastic
Table 6.5. Aggregate wheat production and annual government sale and purchase, 1966-1976 (1000 tons and Rials/KG)\(^a\)

<table>
<thead>
<tr>
<th>Year</th>
<th>Output</th>
<th>Wholesale price</th>
<th>Stock at beginning of year</th>
<th>Annual purchase</th>
<th>Annual purchase as % of total output</th>
<th>Imports</th>
<th>Annual sales</th>
<th>Stock at end of year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1966</td>
<td>3190</td>
<td>7.4</td>
<td>89.0</td>
<td>197.2</td>
<td>6.0</td>
<td>188.2</td>
<td>241.9</td>
<td>232.5</td>
</tr>
<tr>
<td>1967</td>
<td>3800</td>
<td>6.0</td>
<td>232.5</td>
<td>246.3</td>
<td>6.4</td>
<td>23.7</td>
<td>73.2</td>
<td>369.1</td>
</tr>
<tr>
<td>1968</td>
<td>4400</td>
<td>5.5</td>
<td>369.1</td>
<td>244.7</td>
<td>5.6</td>
<td>53.3</td>
<td>306.2</td>
<td></td>
</tr>
<tr>
<td>1969</td>
<td>4100</td>
<td>6.1</td>
<td>306.2</td>
<td>9.3</td>
<td>0.0</td>
<td>102.9</td>
<td>209.6</td>
<td></td>
</tr>
<tr>
<td>1970</td>
<td>4260</td>
<td>7.7</td>
<td>209.6</td>
<td>4.0</td>
<td>0.0</td>
<td>118.3</td>
<td>310.6</td>
<td>19.7</td>
</tr>
<tr>
<td>1971</td>
<td>3700</td>
<td>8.4</td>
<td>19.7</td>
<td>0.8</td>
<td>0.0</td>
<td>845.7</td>
<td>804.4</td>
<td>61.8</td>
</tr>
<tr>
<td>1972</td>
<td>3900</td>
<td>7.1</td>
<td>61.8</td>
<td>5.0</td>
<td>0.0</td>
<td>601.8</td>
<td>524.8</td>
<td>143.9</td>
</tr>
<tr>
<td>1973</td>
<td>4546</td>
<td>7.9</td>
<td>143.9</td>
<td>3.1</td>
<td>0.0</td>
<td>543.3</td>
<td>593.7</td>
<td>96.6</td>
</tr>
<tr>
<td>1974</td>
<td>2886</td>
<td>12.6</td>
<td>96.6</td>
<td>116.2</td>
<td>4.0</td>
<td>1355.3</td>
<td>1370.8</td>
<td>208.5</td>
</tr>
<tr>
<td>1975</td>
<td>4650</td>
<td>10.9</td>
<td>208.5</td>
<td>496.7</td>
<td>10.7</td>
<td>1284.7</td>
<td>1553.8</td>
<td>436.2</td>
</tr>
<tr>
<td>1976</td>
<td>5100</td>
<td>10.6</td>
<td>436.2</td>
<td>793.9</td>
<td>15.6</td>
<td>830.4</td>
<td>1649.1</td>
<td>411.5</td>
</tr>
</tbody>
</table>

fluctuations. This inadequate level of purchase and stock buildup is therefore, a major cause for the failure to stabilize prices.

Initially, lack of storage facilities provided a constraint to an effective storage and supply control program, but with the construction of additional silos increasing the capacity to near one million tons silo capacity can no longer be considered as a significant limitation. As Table 6.5 indicates the reserve stock has never approached full capacity.

Although total silo capacity cannot be considered as a significant constraint, the distribution of storage facilities are a limiting factor. Most silos are located at the provincial capitals and there is little storage at the village level. Lack of adequate roads and high cost of transportation do not permit the small peasant farmers to take advantage of the government silos and minimum price guarantee. As it was pointed out in Chapter 4, the rural cooperatives which were formed for the purpose of marketing the output of local producers account for the purchase of less than one percent of aggregate output. Consequently, small producers are constantly threatened by heavy losses and are left at the mercy of the middlemen and money lenders.

The other aspect of government policy--the establishment of price floors--has also failed to accomplish the stated objectives. Concomitant with the price stabilization program, the government initiated the minimum price guarantee program to reduce price
uncertainties and fluctuations in farmers' income. But the government's purchasing price has often been below the market price and sometimes below the cost of production. Prior to 1974, the guaranteed minimum price for wheat was 6 Rials (= $0.08) per kilogram. As price data in Table 6.5 indicate, the market price has been below the guaranteed price only during 1967 and 1968 period and that the difference for both of these years is not very significant. In 1974 the government announced new minimum prices for major agricultural commodities.

Table 6.6 provides information regarding the purchasing price by the Cereals Organization for selected main crops. The guaranteed price for wheat was raised to 10 Rials (= $0.13) per kilogram and the newly established price floor for barley was set at 7.5 Rials (= $0.10) per kilogram. The purchasing price for corn, sugar beets, and soybeans were established at 9.5, 2.3 and 24 Rials per kilogram respectively.

Again the comparison of these government guaranteed prices with the price information in Table 6.1 clearly shows that the price floors are still unrealistic and in many instances substantially below the market price. But even if the price floors were higher, few farmers would be able to take advantage of the guaranteed price since there are no local systems of delivery and storage. Such an infrastructure constraint and the government's failure in its purchasing program reduces the effectiveness of any price floor policy as a
Table 6.6. Government-guaranteed prices for selected major crops, 1975 (Rials/kilogram)\(^a\)

<table>
<thead>
<tr>
<th>Crop</th>
<th>Minimum price (Rials/kilogram)</th>
<th>(U.S. dollars/kilogram)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat</td>
<td>10.0</td>
<td>0.13</td>
</tr>
<tr>
<td>Barley</td>
<td>7.5</td>
<td>0.10</td>
</tr>
<tr>
<td>Corn</td>
<td>9.5</td>
<td>0.13</td>
</tr>
<tr>
<td>Sugar beets</td>
<td>2.3</td>
<td>0.03</td>
</tr>
<tr>
<td>Soybeans</td>
<td>24.0</td>
<td>0.32</td>
</tr>
</tbody>
</table>

\(^a\)Source: Cereals, Sugar and Tea Organization.
means of protecting the producers income. Thus the only alternative open to small producers is to sell their output to the local middle-men often up to 40 percent below the announced price floor and usually in payment toward previous credit advances.\(^2\) A 1968 CENTO study indicates that in some areas the wheat price was 3.5 Rials per kilogram in 1967 and 4.5 Rials in 1968.\(^3\) These prices were substantially below the minimum guaranteed price.

Various studies indicate that at government guaranteed minimum prices the farmers can have an annual revenue slightly above cost of production. Table 6.7 provides information about cost of wheat production for peasant producers for 1972-73 period in Talebabad Village. It should be noted that the cost information is approximate and that the original study by Professor Safinezhad did not include the cost of family labor.\(^4\) According to Table 6.7 the total cost of production per hectare of wheat land is 6000 Rials (= $80) excluding family labor and 9000 Rials (= $120) including family labor. It should be noted that the author's estimate of own labor, 3000 Rials per hectare is a very low figure considering prevalent wage rate in Talebabad. Furthermore, storage and transportation costs are not included.

To calculate the approximate revenue and net revenue we must make certain assumptions: the peasant farmer is able to sell all output at the market price; or the peasant producer is able to sell all output at the government guaranteed price. This assumption
<table>
<thead>
<tr>
<th>Item</th>
<th>Kilogram and Rials</th>
<th>Kilogram and U.S. dollars</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plowing</td>
<td>500</td>
<td>6.67</td>
</tr>
<tr>
<td>Disc</td>
<td>250</td>
<td>3.33</td>
</tr>
<tr>
<td>Seed</td>
<td>500</td>
<td>6.67</td>
</tr>
<tr>
<td>Harvester</td>
<td>1500</td>
<td>20.00</td>
</tr>
<tr>
<td>Grinding</td>
<td>450</td>
<td>6.00</td>
</tr>
<tr>
<td>Miscellaneous(^a)</td>
<td>300</td>
<td>4.00</td>
</tr>
<tr>
<td>Rent</td>
<td>2500</td>
<td>33.33</td>
</tr>
<tr>
<td>Total</td>
<td>6000</td>
<td>80.00</td>
</tr>
<tr>
<td>Family labor(^b)</td>
<td>3000</td>
<td>40.00</td>
</tr>
<tr>
<td>Total cost</td>
<td>9000</td>
<td>120.00</td>
</tr>
</tbody>
</table>

\(^a\)Does not include storage and transportation cost.

\(^b\)Estimated by the author.
enables us to preclude the possibility of sale to middlemen at rates below market price or the guaranteed price, a practice which as discussed above is quite common.

Table 6.8 provides relevant information concerning revenue, cost and net revenue per hectare of wheat land in Talebabad Village. The yield per hectare is 2000 kilograms which compared to the national average is very high. The national average yield per hectare for 1973 was about 7.2 kilograms (see Table 5.5 in Chapter 5). The estimated market price is 8.5 Rials per kilogram, an optimistic figure since the average annual market price for wheat in the same period was below 8 Rials (see Table 6.1). If we account for the family labor cost and assume all output is sold at the market price, the net revenue per hectare would be approximately 7958 Rials (= $226). If family labor is included and all output is sold at the government minimum price, the net revenue would be approximately 3000 Rials (= $56).

The average size of land for the landowning peasants in Talebabad is 10 hectares per family. Thus under optimistic calculations the annual average net revenue per family in 1972-73 in Talebabad was about $1060 if all output was sold at the market price and $560 if all output was sold at the government guaranteed minimum price.

If we extend this analysis nationwide, the results would be very discouraging. Talebabad is a relatively prosperous village with fair supply of water and fertile land. Considering that the
Table 6.8. Approximate revenue, cost and net revenue per hectare for wheat in Talebbad Village, 1972-73 (Kilograms, Rials and U.S. dollars)

<table>
<thead>
<tr>
<th>Item</th>
<th>Kilograms and Rials</th>
<th>Kilograms and U.S. dollar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yield</td>
<td>2000</td>
<td>2000</td>
</tr>
<tr>
<td>Market price/KG</td>
<td>8.5</td>
<td>0.113</td>
</tr>
<tr>
<td>Total revenue from</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Market sale&lt;sup&gt;a&lt;/sup&gt;</td>
<td>16958</td>
<td>226</td>
</tr>
<tr>
<td>Total cost&lt;sup&gt;b&lt;/sup&gt;</td>
<td>9000</td>
<td>120</td>
</tr>
<tr>
<td>Net revenue</td>
<td>7958</td>
<td>106</td>
</tr>
<tr>
<td>Government guaranteed price</td>
<td>6.0</td>
<td>0.08</td>
</tr>
<tr>
<td>Total revenue from</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sale to government&lt;sup&gt;a&lt;/sup&gt;</td>
<td>12000</td>
<td>160</td>
</tr>
<tr>
<td>Total cost&lt;sup&gt;b&lt;/sup&gt;</td>
<td>9000</td>
<td>106</td>
</tr>
<tr>
<td>Net revenue</td>
<td>3000</td>
<td>56</td>
</tr>
</tbody>
</table>

<sup>a</sup>Does not include hay.

<sup>b</sup>Does not include storage and transportation cost.
national average yield per hectare for wheat in 1973 was 7.2 kilograms and assuming that in other areas the total cost is not substantially below that estimated for Talebabad, it becomes apparent that many peasant producers had an average cost of production at about the same or below the minimum guaranteed price.

In 1974 the government increased the guaranteed price of wheat to 10 Rials per kilogram. But the new price floor was still unrealistic since the post 1973-74 escalated rate of inflation had substantially increased the price of resources.

Table 6.9 shows the prices paid by the Iranian farmers per 100 kilograms of plant nutrient for 1970-74. The prices of all fertilizers over 1970-73 period were steady or even in some cases declining. The 1974 prices, however, indicate substantial increases. The last column in Table 6.9 shows the 1973-74 percent increase in prices. The highest increases can be observed for ammonium nitrates which experienced a 57% rise. With the exception of Urea, 14 percent, in all cases the price rise was over 20 percent. Unfortunately concrete data about the post 1974 prices of fertilizers do not exist, but the scattered evidence suggests that the price hike has continued at an even more rapid rate. Similar observations can be made in regard to the prices of machinery. For instance, in the past two decades the price of a combine has increased by over 100 times whereas the price of wheat has only increased by about 50 percent.
Table 6.9. Prices paid by the Iranian farmers per 100 KG of plant nutrient

<table>
<thead>
<tr>
<th>Type of fertilizer</th>
<th>Prices in Rials</th>
<th>Prices in U.S. dollars</th>
<th>1973-74 % Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrogenous fertilizer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ammonium sulphate</td>
<td>2667</td>
<td>2238</td>
<td>2238</td>
</tr>
<tr>
<td>Ammonium nitrates</td>
<td>1673</td>
<td>1673</td>
<td>1673</td>
</tr>
<tr>
<td>Urea</td>
<td>1783</td>
<td>1728</td>
<td>1673</td>
</tr>
<tr>
<td>Phosphate fertilizers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Superphosphate, 25%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$P_{2}O_{5}$, or over</td>
<td>1772</td>
<td>1717</td>
<td>1674</td>
</tr>
<tr>
<td>Potash fertilizers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potassium sulphate</td>
<td>1640</td>
<td>1640</td>
<td>1640</td>
</tr>
</tbody>
</table>


\(^b\)Calculated by the author.

\(^c\)1972 exchange rate of $1.00 = 75 Rials.
It should also be noted that the announced price floor was not only below the domestic market price but also less than the price paid by the government for the purchase of wheat in the international market. For example, in 1974-75 the price paid at the port of delivery for the U.S. wheat was 12-13 Rials.

Of course, most of the small peasant producers in Iran do not utilize machinery and chemical fertilizers in production. The reasons are obvious in the light of the above discussion and the low income received by the farmers. But it is this very subsistence nature of the Iranian agriculture and the continuous presence of excess demand which necessitates an effective pricing policy. To break away from this vicious circle of poverty a fair guaranteed price or imput subsidy and credit must be established. Otherwise one cannot expect the adoption of improved technology and modern inputs in the absence of viable economic incentives and given the low income of rural families.

Most recent studies on government guaranteed price suggest that the price floor for wheat should be set at 15 Rials (= $0.20) per kilogram. This conclusion is based on the computation of the national average cost per hectare for the irrigated and rain-fed lands. Tables 6.10 and 6.11 summarize the relevant data for the calculation of average cost on both types of lands.

Both tables give the cost breakdown for wheat production on one hectare of irrigated and dry lands. The total cost does not
Table 6.10. Cost of production on one hectare of irrigated wheat land

<table>
<thead>
<tr>
<th>Items</th>
<th>Rials - KG</th>
<th>U.S. dollars - KG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rent</td>
<td>10000</td>
<td>133.3</td>
</tr>
<tr>
<td>Plowing - disc - sowing - planting</td>
<td>1000</td>
<td>13.3</td>
</tr>
<tr>
<td>150 KG seed</td>
<td>1800</td>
<td>24.0</td>
</tr>
<tr>
<td>100 KG ammonium phosphate</td>
<td>1200</td>
<td>16.0</td>
</tr>
<tr>
<td>150 KG urea</td>
<td>1500</td>
<td>20.0</td>
</tr>
<tr>
<td>Labor cost for fertilizer application in fall and spring</td>
<td>500</td>
<td>6.7</td>
</tr>
<tr>
<td>Cost of weed extermination</td>
<td>1800</td>
<td>24.0</td>
</tr>
<tr>
<td>Labor and capital cost for water</td>
<td>4000</td>
<td>53.3</td>
</tr>
<tr>
<td>Harvesting cost</td>
<td>4500</td>
<td>60.0</td>
</tr>
<tr>
<td>Others(^b)</td>
<td>5470</td>
<td>72.9</td>
</tr>
<tr>
<td>Total cost(^c)</td>
<td>31779</td>
<td>423.9</td>
</tr>
<tr>
<td>Average yield per hectare(^d)</td>
<td>2500</td>
<td>2500.0</td>
</tr>
<tr>
<td>Average cost per kilogram</td>
<td>12.7</td>
<td>0.17</td>
</tr>
</tbody>
</table>


\(^b\)Includes packaging and interest on 6 month loan at the annual rate of 14 percent.

\(^c\)Does not include storage, transportation to the silo and own labor cost.

\(^d\)Average yield is calculated based on the estimate of 3500 KG per hectare in good years and 1500 KG per hectare in bad years.
### Table 6.11. Cost of production on one hectare of rain-fed wheat land\(^a\)

<table>
<thead>
<tr>
<th>Item</th>
<th>Rials - KG</th>
<th>U.S. dollars - KG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rent</td>
<td>1000</td>
<td>13.3</td>
</tr>
<tr>
<td>Plowing - disc - planting</td>
<td>1000</td>
<td>13.3</td>
</tr>
<tr>
<td>60 KG of seeds</td>
<td>720</td>
<td>9.6</td>
</tr>
<tr>
<td>100 KG of urea</td>
<td>1000</td>
<td>13.3</td>
</tr>
<tr>
<td>Labor cost for fertilizer application</td>
<td>250</td>
<td>3.3</td>
</tr>
<tr>
<td>Harvesting cost</td>
<td>1500</td>
<td>20.0</td>
</tr>
<tr>
<td>Others(^b)</td>
<td>1238</td>
<td>16.5</td>
</tr>
<tr>
<td>Total cost(^c)</td>
<td>6708</td>
<td>89.4</td>
</tr>
<tr>
<td>Average yield per hectare</td>
<td>550</td>
<td>550.0</td>
</tr>
<tr>
<td>Average cost per kilogram</td>
<td>12.2</td>
<td>0.16</td>
</tr>
</tbody>
</table>

\(^a\)Source: Derived from George Sergisian, "The price of one kilogram of wheat should not be below 15 Rials," Tehran Economist 1203 (July 16, 1977), pp. 29, 50.

\(^b\)Includes packaging and interest on 6 month loan at the annual rate of 14 percent.

\(^c\)Does not include the storage and transportation to the silo and own labor cost.
include cost of storage, transportation to the silo, and own labor cost. The total cost on irrigated lands amounts to 31779 Rials (= $423.9) per hectare. With an optimistic national average yield of 2500 kilograms per hectare on irrigated lands, the average cost per kilogram is 12.7 Rials (= $0.17). Similar computation in Table 6.9 for dry lands yields average cost of 12.2 Rials (= $0.16).

Thus given these figures and considering the unaccounted costs, if the government aims to pursue the guaranteed price policy, it should set the price at approximately 15 Rials (= $0.20).

In view of the fact that the average international price of wheat for the same period was about 12-14 Rials per kilogram, it may be argued that the government guaranteed price of 15 Rials would be very high and would tend to maintain farms which are inefficient and low in productivity and that the elimination of inefficient and less productive farms through competition is a natural course in the development of agriculture. But even under the most favorable conditions in agriculture, due to the externalities and absence of competition in other sectors labor may still hang back in agriculture despite of declining income.5

In developing countries such as Iran, the primary problem is not so much the elimination of small farms by the more advanced mechanized farms—a consequence of the development of capitalist production in agriculture—but rather elevating the country's agriculture from its subsistence state. It is obvious
that the presence and knowledge of advanced technology does not necessarily mean its substitution for the more traditional methods of production. Advanced technology is only adopted when its price relative to traditional resources declines and the uncertainties associated with it are reduced to a minimum. In a country like Iran, this would require initial incentives, provided by the government. Furthermore, the already crowded urban areas with substantial level of unemployment are not ready to absorb additional surplus labor. Thus, the productive exit of labor from agriculture requires first the development of capitalist production in agriculture itself; and second, a viable and growing industrial sector to absorb the additional unskilled labor. Indeed it would be difficult to consider the transfer of labor in developing countries such as Iran as productive for such a transfer is the manifestation of the bankruptcy of the agricultural sector and a direct consequence of the prevalent abject poverty rather than the growth of mechanized and advanced capitalist farms.

If we free ourselves from the illusion that Iran is a country with capitalist mode of production and come to grips with its semi-feudal nature, then it would become clear that the development of the country is very much dependent upon the development of its agriculture and that the latter requires a well-intentioned and comprehensive planning. At the center of such a planning lies the objective of raising rural income through increasing productivity
and investing in high yielding inputs such as human capital. Fair and realistic government price guarantee and/or subsidies is only a beginning in the correct direction. But even a reasonable price guarantee, if it is not part of an overall comprehensive development planning, could not be effective in improving the lot of millions of Iranian peasantry.

The following are several recommendations which can ameliorate the floor pricing policy. But it should be pointed out that such measures are only meaningful within the context of a comprehensive development planning for agriculture, a formidable task which based on the past experience cannot be fulfilled by the Shah's government.

1. The establishment of storage facilities at the local level and a low cost system of transportation to the market. Presently, the government silos are located at the provincial capitals. Lack of adequate means of transportation does not enable the small peasant producers to take advantage of the market prices as well as government guaranteed price.

2. The purchasing government organization should be willing to buy all output supplied to it at the announced minimum price. One reason for the discrepancy between the price floor and the market price is that the Cereal Organization has not been able to purchase all output offered, or to supply the commercial market at times of excess demand in order to maintain stable prices.
3. Provide a realistic and fair minimum price floor. The computations in this chapter indicate that the price floor should be set at near 15 Rials per kilogram of wheat. If the problem of excess demand is going to be solved through increasing domestic production rather than relying on imports, then sufficient incentives for increasing productivity and adopting improved technology should be provided. Fair minimum price guarantee is one of the methods of reducing the uncertainties faced by the small peasant producers.

4. Price floors should be announced well in advance in order to be effective and payments to farmers should be in cash upon delivery with minimum amount of red tape and delays.

5. In order for the government's role in stabilizing prices to be effective a much greater percentage of aggregate output should be purchased by the purchasing organization. So far the governments average annual purchase has amounted to about 5% of total output which is not significant in having a real impact on prices. The more advisable rate would appear to be near 10-20 percent of the aggregate output or 30-50 percent of the marketed output. This greater government role does not only help to stabilize prices, but along with fair minimum prices and easy system of delivery helps to reduce the high price risks faced by the small farmers.
6. Establishment of adequate grading system.

7. Establishment of centers for agricultural services at the local level and making price informations readily available to the small producers.

8. Creation of radio programs responsible for providing information regarding prices, government programs, and modern production techniques.

9. Providing easy and low interest credit as an incentive for adopting improved technology.
FOOTNOTES


4 Most data used in the following discussion concerning Talebabad is derived from Javad Safinezhad, Boneh (Tehran: Tûss Publication, 1974).

The ultimate objective of agricultural development is to increase the welfare of the rural as well as urban population. Of course the subject of welfare rests on value judgment and therefore leads to varying concepts depending on individual's world outlook.

The Iranian government's concept of welfare, however, is broad and ambiguous. Nevertheless, in its development plans, it has consistently emphasized the improvement of rural welfare as its primary objective. For the purpose of this dissertation and in order to provide a framework of analysis we can specify certain general aspects of welfare for which there appears to be a relative universal consensus.

1. Monetary aspects such as increase in rural real income and equitable distribution of income expressed in terms of improved nutrition and housing, and the ability to purchase the necessities.

2. Increase and improvement in public goods and services such as health, education and transportation.

A third aspect of welfare, the nonmonetary aspects, could also be identified. These could be expressed in terms of a feeling of accomplishment and fulfilled aspirations; and a greater participation in socio-political and developmental activities with a sense of pride and cohesive support for them.
This chapter will attempt to briefly examine certain aspects of welfare such as distribution of income, household expenditure, health and education in rural Iran.

Distribution of Income

There is a very limited and often unreliable data on income distribution in Iran. This problem of fragmentation and reliability of data is particularly true concerning the rural areas and does not allow for historical comparisons of income distribution. All the available government data suggest that the distribution of income has worsened during the past two decades. This is especially true regarding the urban areas for which the data are not as scarce.

Table 7.1 shows the share of different segments of urban population in total expenditure. According to the table the share of top 20 percent has increased from 51.79 percent in 1959 to 55.56 percent in 1973. In contrast over the same period the shares of both middle and lower 40 percent has decreased. In 1959 the middle 40 percent accounted for 27.54 percent of the total household expenditure whereas in 1973 their share had declined to 26.06 percent. The lower 40 percent experienced an even greater reduction from 13.90 in 1959 to 11.96 in 1973.

Table 7.2 shows the decile and cumulative distribution of household expenditure for both rural and urban areas in 1972. The data indicate greater inequality in expenditure for urban areas. The share of lower 20 percent of the urban households was 5.73
Table 7.1. Shares of expenditure in urban areas (percentage)\(^a\)

<table>
<thead>
<tr>
<th>Years</th>
<th>Gini coefficient</th>
<th>Share of top 20 percent</th>
<th>Share of middle 40 percent</th>
<th>Share of lower 40 percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1959</td>
<td>0.4552</td>
<td>51.79</td>
<td>27.54</td>
<td>13.90</td>
</tr>
<tr>
<td>1969</td>
<td>0.4710</td>
<td>52.91</td>
<td>26.96</td>
<td>12.99</td>
</tr>
<tr>
<td>1970</td>
<td>0.4849</td>
<td>54.30</td>
<td>26.05</td>
<td>12.71</td>
</tr>
<tr>
<td>1971</td>
<td>0.5051</td>
<td>55.48</td>
<td>25.49</td>
<td>11.65</td>
</tr>
<tr>
<td>1972</td>
<td>0.4916</td>
<td>55.33</td>
<td>26.29</td>
<td>11.88</td>
</tr>
<tr>
<td>1973</td>
<td>0.4946</td>
<td>55.56</td>
<td>26.06</td>
<td>11.96</td>
</tr>
</tbody>
</table>

Table 7.2. Decile and cumulative distribution of household expenditures, 1971 (percentage)\(^a\)

<table>
<thead>
<tr>
<th>Deciles low to high</th>
<th>Rural areas</th>
<th>Cumulative</th>
<th>Urban areas(^b)</th>
<th>Cumulative</th>
<th>Total</th>
<th>Cumulative</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2.79</td>
<td>2.79</td>
<td>1.34</td>
<td>1.34</td>
<td>1.96</td>
<td>1.96</td>
</tr>
<tr>
<td>2</td>
<td>3.82</td>
<td>6.61</td>
<td>2.39</td>
<td>3.73</td>
<td>3.51</td>
<td>5.59</td>
</tr>
<tr>
<td>3</td>
<td>5.04</td>
<td>11.65</td>
<td>3.60</td>
<td>7.33</td>
<td>4.37</td>
<td>9.84</td>
</tr>
<tr>
<td>4</td>
<td>5.90</td>
<td>17.55</td>
<td>4.32</td>
<td>11.65</td>
<td>5.14</td>
<td>14.98</td>
</tr>
<tr>
<td>5</td>
<td>6.98</td>
<td>24.53</td>
<td>5.66</td>
<td>17.31</td>
<td>6.24</td>
<td>21.22</td>
</tr>
<tr>
<td>6</td>
<td>8.14</td>
<td>32.67</td>
<td>6.94</td>
<td>24.25</td>
<td>8.39</td>
<td>29.61</td>
</tr>
<tr>
<td>7</td>
<td>9.56</td>
<td>42.23</td>
<td>8.57</td>
<td>32.82</td>
<td>8.51</td>
<td>38.12</td>
</tr>
<tr>
<td>8</td>
<td>12.10</td>
<td>54.33</td>
<td>11.70</td>
<td>44.52</td>
<td>11.88</td>
<td>50.00</td>
</tr>
<tr>
<td>9</td>
<td>14.48</td>
<td>68.81</td>
<td>16.00</td>
<td>60.52</td>
<td>15.80</td>
<td>68.80</td>
</tr>
<tr>
<td>10</td>
<td>31.19</td>
<td>100.00</td>
<td>39.48</td>
<td>100.00</td>
<td>34.20</td>
<td>100.00</td>
</tr>
</tbody>
</table>

\(^a\)Sources: Computed based on data from Plan and Budget Organization of Iran, Survey of Household Expenditure (Tehran: Plan Organization, 1971 and 1973).

\(^b\)There is a discrepancy in the data provided by the statistical center of Iran for distribution of household expenditures in urban areas. Data published in 1971 give a greater unequal distribution than a 1973 publication concerning the same year.
compared to 6.61 for the rural areas. Furthermore, the share of top 20 percent of households in urban areas was 55.48 compared to 45.67 in the rural areas.

It should be noted that the above discussion is based on official data released by the Iranian government. Independent studies show a greater inequality. For instance, a special report by the International Labor Organization published in 1973 indicate that the top 10 percent of the households accounted for 40 percent of expenditure compared to only 8 percent for the bottom 30 percent.\(^2\)

Furthermore, inequality in household expenditure do not indicate the absolute disparities in consumption nor the inequality in income. The decile distribution shows us only what percentage of total expenditure was spent by a certain category. The 1973 survey of the rural households, for example, indicates that in 1972, 67.5 percent of the rural households had an annual expenditure below 60,000 Rials (= $800) while 1.1 percent of the households had annual consumption expenditure above 240,000 Rials (= $3200).\(^3\)

In addition, consumption expenditure disparities are only an indication of inequalities in income distribution. Studies show that the income disparity is usually greater than household consumption expenditure inequalities. For instance, the aforementioned 1973 ILO study indicates that the income inequalities in Iran are high even by the standards of developing countries:

"Even if we assume conservatively that the income inequality corresponding to the expenditure inequality is only one-fourth
higher, we get a Gini coefficient ranging from 0.65...to 0.75....Such coefficients are extremely high, higher than any country in East and Southeast Asia, considerably higher than in western countries and probably as high or higher than in Latin American countries for which data are available.4

We can consider the problem from a different perspective by deriving the per capita private consumption expenditure. Table 7.3 shows the urban-rural ratio of private consumption expenditure per capita for 1966-75, hereinafter referred to as the "gap ratio." In 1966 the urban per capita consumption expenditure in current prices was 20625 Rials (column 2 \( \div \) 3) compared to 9127 Rials for the rural areas, and the urban/rural per capita gap ratio (column 4 \( \div \) 7) at 2.26. Although per capita expenditures in current prices for both rural and urban areas increased by 1975, the urban-rural gap ratio also increased to 4.60, over double of the initial amount in 1966.

The increase in gap ratio demonstrates that not only the disparity of income within rural and urban areas had increased, but that the gap between the city and the country has also deteriorated.

Some Iranian economists and panagyrists of the government's policies have suggested that the increase in income inequalities and the deterioration of the gap ratio is an indication of economic growth.5 Such proposition rests on the traditional growth theories which claimed the disparities in income distribution were a precondition for economic growth. Based on the assumption of a linear keynesian consumption function and a higher rate of savings by the
Table 7.3. Urban-rural ratio of private consumption expenditure per capita (current prices)\(^{a}\)

<table>
<thead>
<tr>
<th>Year</th>
<th>Urban cons. exp. (billion Rials)</th>
<th>Urban population (1000)</th>
<th>Urban per capita cons. exp. (Rials)</th>
<th>Rural cons. exp. (billion Rials)</th>
<th>Rural population (1000)</th>
<th>Rural per capita cons. exp. (Rials)</th>
<th>Urban/rural gap ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1966</td>
<td>202</td>
<td>9794</td>
<td>20625</td>
<td>146</td>
<td>15995</td>
<td>9127</td>
<td>2.26</td>
</tr>
<tr>
<td>1967</td>
<td>223</td>
<td>10350</td>
<td>21546</td>
<td>149</td>
<td>16443</td>
<td>9062</td>
<td>2.38</td>
</tr>
<tr>
<td>1968</td>
<td>262</td>
<td>10856</td>
<td>24134</td>
<td>161</td>
<td>16722</td>
<td>9628</td>
<td>2.51</td>
</tr>
<tr>
<td>1969</td>
<td>295</td>
<td>11361</td>
<td>25966</td>
<td>169</td>
<td>17037</td>
<td>9920</td>
<td>2.62</td>
</tr>
<tr>
<td>1970</td>
<td>344</td>
<td>11896</td>
<td>28917</td>
<td>178</td>
<td>17360</td>
<td>10253</td>
<td>2.82</td>
</tr>
<tr>
<td>1971</td>
<td>381</td>
<td>12398</td>
<td>30731</td>
<td>174</td>
<td>17622</td>
<td>9874</td>
<td>3.11</td>
</tr>
<tr>
<td>1972</td>
<td>487</td>
<td>12931</td>
<td>37661</td>
<td>204</td>
<td>17889</td>
<td>11404</td>
<td>3.30</td>
</tr>
<tr>
<td>1973</td>
<td>649</td>
<td>13496</td>
<td>48088</td>
<td>250</td>
<td>18149</td>
<td>13775</td>
<td>3.49</td>
</tr>
<tr>
<td>1974</td>
<td>941</td>
<td>14014</td>
<td>67147</td>
<td>302</td>
<td>18482</td>
<td>16340</td>
<td>4.11</td>
</tr>
<tr>
<td>1975</td>
<td>1201</td>
<td>14687</td>
<td>81773</td>
<td>332</td>
<td>18688</td>
<td>17765</td>
<td>4.60</td>
</tr>
</tbody>
</table>

\(^{a}\)Source: Derived from data in Plan and Budget Organization of Iran, Statistical Yearbook of Iran, 1976 (Tehran: Plan Organization, 1977), pp. 33 and 548.
rich, it was argued that the disparities would allow a greater private investment to initiate and sustain economic growth. Today such assertions are largely rejected within the framework of the traditional growth theories. It is argued that the reduction in the income disparities would increase the effective demand for consumer goods and products from the industrial sector among the lower class and reinforce the industrialization drive. 6

The Iranian government's attitude toward inequalities in income and gap ratio is best summarized in the following lucid passage from a memo by the Plan Organization:

"Much of the evidence in economic literature suggests that the income distribution tends to widen during the early stages of economic growth, to stabilize as the economy matures and then to narrow as the process of economic growth begins to filter down to all segments of the population."7

The use of "trickling down" theories by the government is actually a system of justifying the inequalities in income distribution and legitimizing the government's policies in pursuit of traditional growth theories. Consequently, by adhering to such a viewpoint, the government is bound to consider the inequalities in income not as a problem but a sign of progress and prosperity.

Employment

As in the case of income, concrete data regarding the labor force over a long enough period of time to allow for the computation of the index of labor productivity in agriculture does not exist. Historically, agriculture's share of the total labor force decreased
from 3.4 million (53.5 percent) in 1959 to 3.7 million (41.9 percent) in 1971.

Table 7.4 provides data on the active labor and unemployment according to sex, rural and urban areas classification for 1971. The total labor force for the whole country was 8.1 million or 28.7 percent of the population. Of this 7 million or 86.4% (48.4% of population) were male and 1.1 million or 13.6% (8.1 percent of population) were female workers. The division of the labor force between sexes and among rural and urban areas was as following:

5.2 million or 64% (31.5% of population) in rural areas from which 4.4 million or 85% (31.5% of rural population) were male workers;

the total labor force in urban areas was 2.9 million or 36% (34.8% of total population) among which the male workers accounted for 2.6 million or 90% (43.7% of total population) of the urban labor force.

Comparison of women's share of the labor force in both rural and urban areas shows that women constitute a very insignificant portion of it. Females account for only 15% of rural and 10 percent of the urban labor force. This stands for the low position held by the women in the Iranian society. In general the incidence of female employment in both rural and urban areas falls heavily on the lower income families.

Furthermore, of the 7.2 million employed workers in 1971, 9.9 percent or over 700 thousand were children under the age of 14.
Table 7.4. Active labor force and unemployment according to sex, rural and urban areas classification, 1971 (million persons)\textsuperscript{a, b}

<table>
<thead>
<tr>
<th>Classifications</th>
<th>Total population</th>
<th>Active labor force</th>
<th>As a % of total population</th>
<th>Unemployed</th>
<th>As a % of active labor force</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country</td>
<td>28.3</td>
<td>8.1</td>
<td>28.7</td>
<td>0.9</td>
<td>11</td>
</tr>
<tr>
<td>Male</td>
<td>14.5</td>
<td>7.0</td>
<td>48.4</td>
<td>n.a.\textsuperscript{c}</td>
<td>--</td>
</tr>
<tr>
<td>Female</td>
<td>13.8</td>
<td>1.1</td>
<td>8.1</td>
<td>n.a.</td>
<td>--</td>
</tr>
<tr>
<td>Rural areas</td>
<td>16.5</td>
<td>5.2</td>
<td>31.5</td>
<td>0.2</td>
<td>6</td>
</tr>
<tr>
<td>Male</td>
<td>8.5</td>
<td>4.4</td>
<td>51.8</td>
<td>n.a.</td>
<td>--</td>
</tr>
<tr>
<td>Female</td>
<td>8.0</td>
<td>0.8</td>
<td>10.2</td>
<td>n.a.</td>
<td>--</td>
</tr>
<tr>
<td>Urban areas</td>
<td>11.8</td>
<td>2.9</td>
<td>34.8</td>
<td>0.7</td>
<td>14</td>
</tr>
<tr>
<td>Male</td>
<td>6.0</td>
<td>2.6</td>
<td>43.7</td>
<td>n.a.</td>
<td>--</td>
</tr>
<tr>
<td>Female</td>
<td>5.8</td>
<td>0.3</td>
<td>5.2</td>
<td>n.a.</td>
<td>--</td>
</tr>
</tbody>
</table>


\textsuperscript{b}All figures are rounded.

\textsuperscript{c}Data not available.
Of this approximately 426 thousand (12.5% of the labor force in agriculture) were employed in the agricultural sector and 220 thousand (15.8% of the labor force in the industrial sector) were employed by the industrial sector.  

Table 7.4 further shows the level of unemployment for the country as well as the urban and rural areas. The figures for 1971 were 11% for the country, 6 and 14 percent for the rural and urban areas respectively.

Table 7.5 shows the average weekly hours of work, wages and salary of agricultural workers according to geographical classification in 1972. According to the last row in Table 7.5 the average weekly hours of work for the agricultural workers was 54 hours with the average weekly wage and salary of 557 Rials ($7.0). The figures in the last two columns give the average wage rate per hour (column 3 and 4 divided by column 2). Thus the average hourly wage rate of the agricultural workers for the entire country was 10.3 Rials or 13 cents. Such low wage rates again substantiate our earlier findings, namely, the very low income of rural families.

Many agricultural workers in Iran are Khoshneshines—landless peasants and squatters (see Chapter 4). The latest figures in 1979 estimate the Khoshneshines as 20 percent of the rural population. Some of the Khoshneshines are actually the victims of land reform since prior to the land reform and according to the traditional laws they enjoyed residence or space rights. The landlord employed them
Table 7.5. Average weekly hours of work, wages and salary of agricultural workers according to geographical classification, 1972a

<table>
<thead>
<tr>
<th>Province</th>
<th>Average weekly hrs. of work</th>
<th>Average weekly wage and salary</th>
<th>Average wage and salary per hour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>U.S. dollars</td>
<td>Rials</td>
</tr>
<tr>
<td>Central</td>
<td>57</td>
<td>9.5</td>
<td>760</td>
</tr>
<tr>
<td>Gilan</td>
<td>43</td>
<td>14.5</td>
<td>1156</td>
</tr>
<tr>
<td>Mazandaran</td>
<td>44</td>
<td>7.8</td>
<td>627</td>
</tr>
<tr>
<td>E. Azerbaijan</td>
<td>45</td>
<td>6.7</td>
<td>534</td>
</tr>
<tr>
<td>W. Azerbaijan</td>
<td>45</td>
<td>6.1</td>
<td>491</td>
</tr>
<tr>
<td>Kermanshah</td>
<td>65</td>
<td>5.5</td>
<td>443</td>
</tr>
<tr>
<td>Khozestan</td>
<td>63</td>
<td>11.4</td>
<td>911</td>
</tr>
<tr>
<td>Fars</td>
<td>62</td>
<td>6.9</td>
<td>553</td>
</tr>
<tr>
<td>Kerman</td>
<td>49</td>
<td>4.1</td>
<td>328</td>
</tr>
<tr>
<td>Khorasan</td>
<td>50</td>
<td>4.7</td>
<td>378</td>
</tr>
<tr>
<td>Esfahan</td>
<td>56</td>
<td>7.8</td>
<td>622</td>
</tr>
<tr>
<td>Sistan</td>
<td>44</td>
<td>4.3</td>
<td>343</td>
</tr>
<tr>
<td>Kurdestan</td>
<td>68</td>
<td>5.7</td>
<td>458</td>
</tr>
<tr>
<td>Hamedan</td>
<td>63</td>
<td>8.6</td>
<td>688</td>
</tr>
<tr>
<td>Chahar Mahal</td>
<td>59</td>
<td>7.5</td>
<td>603</td>
</tr>
<tr>
<td>Loreston</td>
<td>65</td>
<td>9.4</td>
<td>754</td>
</tr>
<tr>
<td>Ilam</td>
<td>64</td>
<td>2.9</td>
<td>231</td>
</tr>
<tr>
<td>Boyer Ahmad</td>
<td>68</td>
<td>7.2</td>
<td>578</td>
</tr>
<tr>
<td>Boshahr</td>
<td>59</td>
<td>4.6</td>
<td>368</td>
</tr>
<tr>
<td>Cemnon</td>
<td>58</td>
<td>9.5</td>
<td>761</td>
</tr>
<tr>
<td><strong>Average of country</strong></td>
<td><strong>54</strong></td>
<td><strong>7.0</strong></td>
<td><strong>557</strong></td>
</tr>
</tbody>
</table>

on daily basis but could not evict them without purchasing their space right (their huts). Land reform led to the eviction of these peasants and the ultimate migration of a majority of them to the urban areas. Another component of the Khoshneshins are farmers who prior to the land reform had root rights (Saheb-nasgh) which were purchased by the landlords. There were actually 13,374 tenant farmers who according to the land reform laws sold their root rights and became agricultural wage earners and Khoshneshins.

As it can be seen in Table 7.5, the average weekly hours of work and wage rate varies according to geographical divisions. In some provinces, the average weekly hours of work is over 60 hours. There is a correlation between long hours of work and low wage rate per hour. Most provinces which have an average weekly hours of work over 60 hours also have a hourly wage rate below 10 Rials or 13 cents. With the exception of few provinces, most regions with low wage rate and high average weekly hours are heavily populated by national minorities. Both Kermanshah and Kurdistan Provinces with average hourly wage rate of 6.8 and 6.7 Rials respectively are populated by the Kurdish minority. Tribal concentration can also be found in Ilam, Boyer-Ahmad and Bushehr Provinces. There is not sufficient data to relate hours of work and wage rate to the productivity of land. However, there is a concentration of low wage rate and high average weekly hours in the southern regions where the land is less fertile and the water more scarce.
Furthermore, there are no sufficient data to compare the changes in average income and the cost of living. But according to a 1977 government report in the official newspaper, Rastakhiz, prices of commodities in the past twenty-five years have increased between 2 to 200 times. According to Rastakhiz the average cost of living for a petty government employee had increased by 45 times whereas the average salary within the same period was 18 times more than the initial year in 1952. In addition, according to the Rastakhiz calculations, a simple government employee is faced with a monthly deficit of 4400 Rials ($58.6) which necessitates holding of a second job.\footnote{11}

Health and Education

Health and education are of vital and critical importance to agricultural development since improvements in the utilization of resources and adoption of new technology requires trained and able manpower. Hence the development of agriculture in developing countries requires not only raising the level of literacy, but also training the farmers for improving farming efficiency.

Like many other developing countries Iran suffers from a high rate of illiteracy. Despite large amounts of oil revenues, because of the low priority assigned to education and the meager allocation of development funds, the gains in education have been less than satisfactory. This is particularly true about the rural Iranian women, 89 percent of whom according to the official government statistics were illiterate.
Table 7.6 shows the rate of illiteracy according to sex, rural and urban area classification. The 1966 figures represent the rate of illiteracy for population over 7 years of age and the 1968-75 figures the illiteracy for the population over 6 years of age. It should be noted that the illiteracy data in Table 7.6 are official data released by the Iranian government. These are not in accordance with UNESCO estimates and the unofficial estimates show a lower level of gains.

According to Table 7.6, 58.2 percent of the total population were illiterate in 1975. The rate of female illiteracy for the country was 70 percent. The rate of illiteracy in the rural areas was 75.4 percent. The division of sexes in rural areas for 1975 shows the illiteracy rate of 64.5 and 89.1 for male and female population respectively.

The literacy campaign in rural Iran has been very much directed toward enabling the peasants to read and write rather than a comprehensive educational program. Still today about 90 percent of schools in rural areas are one-room schools lacking rudimentary facilities. The low income of poor peasants which necessitates the mobilization of the entire family for production limits attendance for at least during the production seasons.

It is obvious that with such a high rate of illiteracy, programs aimed toward training the farming families in modern techniques and improving farming efficiency would be very difficult since these programs require the minimum skill of reading and writing.
### Table 7.6. Rate of illiteracy in rural and urban Iran, selected years (percentage)\(^a\)

<table>
<thead>
<tr>
<th>Year</th>
<th>Rural areas</th>
<th>Urban areas</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Aggregate</td>
</tr>
<tr>
<td>1966</td>
<td>74.6</td>
<td>95.7</td>
<td>84.9</td>
</tr>
<tr>
<td>1968</td>
<td>70.2</td>
<td>94.2</td>
<td>81.7</td>
</tr>
<tr>
<td>1971</td>
<td>68.1</td>
<td>91.7</td>
<td>79.6</td>
</tr>
<tr>
<td>1972</td>
<td>67.2</td>
<td>91.3</td>
<td>78.6</td>
</tr>
<tr>
<td>1975</td>
<td>64.5</td>
<td>89.1</td>
<td>75.4</td>
</tr>
</tbody>
</table>

\(^a\)Source: Statistical Center of Iran and Ministry of Labor.

\(^b\)Seven years of age and over for 1966, six years of age and over for 1968-75.
Table 7.7 shows the distribution of literate rural population according to sex and level of education in 1972. According to these official statistics only 13.1 percent of rural population had between one to six years of schooling. Only 1.9 percent of the rural population had some years of secondary education (3.4% of rural male and 0.4% of rural female population). The figures for post high school education show that only 5 thousand out of a total rural population of near 17 million had above high school degrees.

Of course, one reason for such low figures is the out migration of the more educated rural population to the urban areas. But the examination of the data for urban areas also provide discouraging results. The statistics for the same year in the urban areas indicate that 17.8 percent had some secondary education and only 1.9 percent had post high school education.

In general, low rural income and dissatisfaction with government programs are responsible for low level of motivation and enrollment. For instance, according to a 1978 study by ILO, only 30 percent of children between the ages 6-12 were enrolled in rural schools. Furthermore, there is a very high dropout rate in the rural areas and outright dissatisfaction with government programs. Government educational programs use the rural schools as a propaganda channel for the establishment and reinforcement of the central government's authority. Often the content and curriculum are not related to the needs of the local people. Pioneering research by a well-known
Table 7.7. Distribution of literate rural population according to sex and level of education, 1972 (1000 persons)\(^a\)

<table>
<thead>
<tr>
<th>Levels of education</th>
<th>Male</th>
<th>% of rural male pop.</th>
<th>Female</th>
<th>% of rural female pop.</th>
<th>Aggregate</th>
<th>% of rural population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary school (1-6)</td>
<td>1724</td>
<td>20.8</td>
<td>490</td>
<td>5.9</td>
<td>2214</td>
<td>13.1</td>
</tr>
<tr>
<td>Secondary school (7-12)</td>
<td>291</td>
<td>3.4</td>
<td>34</td>
<td>0.4</td>
<td>325</td>
<td>1.9</td>
</tr>
<tr>
<td>Post high school</td>
<td>4</td>
<td>--</td>
<td>1</td>
<td>--</td>
<td>5</td>
<td>--</td>
</tr>
</tbody>
</table>

Iranian educator, Samad Behrang, shows that most subjects and contents are alien to the rural children and the knowledge of it would have little practical use for them.\textsuperscript{14}

The data regarding health in rural Iran are scarce and contradictory. General health information showed a life expectancy of 51 years in 1973 and an infant mortality rate of 120 per thousand in 1972.\textsuperscript{15} But the infant mortality rate in rural areas should be higher than the infant mortality rate for the country.

Table 7.8 shows the population per physicians, dentists and hospital beds. Despite substantial gains in the area of health within the past two decades, the health conditions in Iran are backward compared to other Middle Eastern countries. In 1976 the population per physician was 2502, one of the lowest in the Middle East. According to the 1973 U.N. Statistical Yearbook, in 1972 nine of the Middle Eastern countries had a better ratio of population per hospital bed than Iran (e.g. 243 for Bahrian, 525 for Iraq, 207 for Kuwait, 260 for Lebanon, 173 for Israel, and 479 for Turkey).\textsuperscript{16}

The distribution of health facilities in the country provides a more discouraging picture. In 1972, 47 percent of the physicians and 57 percent of the dentists were in the Tehran area. In the capital city area the population per physician was 880 while in the Province of Ilam, this ratio was as high as 14,900.\textsuperscript{17}

There are actually no data regarding the distribution of physicians and hospital beds among the urban and rural areas.
Table 7.8. Population per physicians, dentists and hospital beds

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of physicians</td>
<td>8970</td>
<td>10201</td>
<td>11054</td>
<td>11760</td>
<td>12440</td>
<td>13428</td>
</tr>
<tr>
<td>Population per physician</td>
<td>3301</td>
<td>2981</td>
<td>2825</td>
<td>2725</td>
<td>2643</td>
<td>2502</td>
</tr>
<tr>
<td>No. of dentists</td>
<td>1290</td>
<td>1347</td>
<td>1730</td>
<td>1846</td>
<td>1803</td>
<td>1725</td>
</tr>
<tr>
<td>Population per dentist</td>
<td>22951</td>
<td>22574</td>
<td>18051</td>
<td>17357</td>
<td>18232</td>
<td>19474</td>
</tr>
<tr>
<td>No. of hospitals</td>
<td>500</td>
<td>474</td>
<td>485</td>
<td>493</td>
<td>498</td>
<td>525</td>
</tr>
<tr>
<td>No. of hospital beds</td>
<td>36000</td>
<td>40480</td>
<td>42960</td>
<td>45602</td>
<td>45604</td>
<td>53944</td>
</tr>
<tr>
<td>Population per hospital bed</td>
<td>822</td>
<td>751</td>
<td>727</td>
<td>703</td>
<td>721</td>
<td>623</td>
</tr>
</tbody>
</table>

\(^a\)Sources: Compiled from Plan Organization of Iran, Statistical Yearbook of Iran, various issues, and Bank Markazi Iran, Annual Report and Balance Sheet, various issues.

\(^b\)Does not include unlicensed dentists.

\(^c\)This figure appears to be inflated.
Table 7.9. Regional distribution of physicians and hospital beds, 1976*

<table>
<thead>
<tr>
<th>Province</th>
<th>No. of physicians</th>
<th>Population per physicians</th>
<th>No. of Hospital beds</th>
<th>Population per bed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central</td>
<td>6567</td>
<td>1054</td>
<td>23552</td>
<td>294</td>
</tr>
<tr>
<td>Gilan</td>
<td>380</td>
<td>4152</td>
<td>2254</td>
<td>700</td>
</tr>
<tr>
<td>Mazandran</td>
<td>515</td>
<td>4630</td>
<td>2268</td>
<td>1051</td>
</tr>
<tr>
<td>E. Azarbaijan</td>
<td>699</td>
<td>4570</td>
<td>3521</td>
<td>907</td>
</tr>
<tr>
<td>W. Azarbaijan</td>
<td>277</td>
<td>5072</td>
<td>1327</td>
<td>1059</td>
</tr>
<tr>
<td>Kermanshah</td>
<td>220</td>
<td>4619</td>
<td>1002</td>
<td>1014</td>
</tr>
<tr>
<td>Khozestan</td>
<td>855</td>
<td>2545</td>
<td>3653</td>
<td>596</td>
</tr>
<tr>
<td>Fars</td>
<td>583</td>
<td>2960</td>
<td>2560</td>
<td>780</td>
</tr>
<tr>
<td>Kerman</td>
<td>228</td>
<td>4772</td>
<td>835</td>
<td>1303</td>
</tr>
<tr>
<td>Khorasan</td>
<td>889</td>
<td>3675</td>
<td>4916</td>
<td>665</td>
</tr>
<tr>
<td>Esfahan</td>
<td>836</td>
<td>2362</td>
<td>3883</td>
<td>509</td>
</tr>
<tr>
<td>Sistan</td>
<td>127</td>
<td>5191</td>
<td>382</td>
<td>1726</td>
</tr>
<tr>
<td>Kurdestan</td>
<td>127</td>
<td>6157</td>
<td>439</td>
<td>1781</td>
</tr>
<tr>
<td>Hormuzgun</td>
<td>116</td>
<td>3995</td>
<td>180</td>
<td>2575</td>
</tr>
<tr>
<td>Hamedan</td>
<td>157</td>
<td>6921</td>
<td>887</td>
<td>1225</td>
</tr>
<tr>
<td>Lorestan</td>
<td>146</td>
<td>6335</td>
<td>441</td>
<td>2097</td>
</tr>
<tr>
<td>Yazd</td>
<td>119</td>
<td>2993</td>
<td>683</td>
<td>522</td>
</tr>
<tr>
<td>Boshehr</td>
<td>110</td>
<td>3140</td>
<td>193</td>
<td>1790</td>
</tr>
<tr>
<td>Chahar Mahal</td>
<td>92</td>
<td>4286</td>
<td>208</td>
<td>1896</td>
</tr>
<tr>
<td>Zanjan</td>
<td>72</td>
<td>8042</td>
<td>205</td>
<td>2824</td>
</tr>
<tr>
<td>Ilam</td>
<td>32</td>
<td>7632</td>
<td>60</td>
<td>4070</td>
</tr>
<tr>
<td>Cemnan</td>
<td>144</td>
<td>3374</td>
<td>445</td>
<td>1092</td>
</tr>
<tr>
<td>Boyer-Ahmad</td>
<td>37</td>
<td>6615</td>
<td>50</td>
<td>4895</td>
</tr>
<tr>
<td>Country excluding central province</td>
<td>--</td>
<td>3887</td>
<td>--</td>
<td>878</td>
</tr>
</tbody>
</table>

*Sources: Compiled from Plan and Budget Organization of Iran, Statistical Yearbook of Iran, 1977 (Tehran: Plan Organization, 1978), pp. 33, 105, 111.
Table 7.9 shows the regional distribution of physicians and hospital beds in 1976. According to these data, there is a high degree of unequal distribution for both physicians and hospital beds. The population per physician is over 4500 for many provinces and as high as 8042 for Zanjan compared to 1054 in the Central Province. The average population per physician for the entire country excluding the Central Province was 3887. The same results can also be seen for population per bed. The ratio for some provinces like Zanjan and Boyer-Ahmad is sixteen times higher than the Central Province. Although Table 7.9 does not show the distribution of population per dentist, similar conditions can be observed. For instance, according the 1977 Bank Markazi report, there was one dentist for every 5000 persons in the Tehran area compared to one every 61,000 persons in the Ilam Province. 18

General Remarks

Throughout this work the subsistence and traditional nature of the Iranian agriculture has been emphasized. The findings in this chapter are consistent with the earlier discussion and indicate low income and standards of livings for most of the rural population. The following two tables are introduced to provide a general description of the rural welfare.

Table 7.10 shows the composition of average rural family for 1966-73 period in both Iranian and U.S. currency. The average monthly expenditure increased from 3989 Rials (= $53) in 1966 to
Table 7.10. Average monthly expenditure of an average rural family, 1966-73^a, b

<table>
<thead>
<tr>
<th>Year</th>
<th>Total (Rials)</th>
<th>Total (U.S. dollars)^c</th>
<th>Food (%)</th>
<th>Clothing (%)</th>
<th>Water &amp; heat (%)</th>
<th>Housing &amp; trans. (%)</th>
<th>Health &amp; trans. (%)</th>
<th>Home appliances (%)</th>
<th>Others (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1966</td>
<td>3989</td>
<td>53</td>
<td>60.0</td>
<td>11.7</td>
<td>8.5</td>
<td>3.6</td>
<td>8.5</td>
<td>4.0</td>
<td>3.7</td>
</tr>
<tr>
<td>1967</td>
<td>4387</td>
<td>59</td>
<td>62.1</td>
<td>11.0</td>
<td>7.8</td>
<td>3.4</td>
<td>5.1</td>
<td>4.6</td>
<td>6.0</td>
</tr>
<tr>
<td>1968</td>
<td>4005</td>
<td>53</td>
<td>64.4</td>
<td>8.6</td>
<td>7.0</td>
<td>3.5</td>
<td>6.1</td>
<td>3.7</td>
<td>6.7</td>
</tr>
<tr>
<td>1969</td>
<td>3958</td>
<td>53</td>
<td>66.5</td>
<td>7.6</td>
<td>6.4</td>
<td>4.5</td>
<td>5.6</td>
<td>3.1</td>
<td>6.2</td>
</tr>
<tr>
<td>1970</td>
<td>4179</td>
<td>56</td>
<td>66.8</td>
<td>6.8</td>
<td>5.2</td>
<td>5.9</td>
<td>6.3</td>
<td>3.2</td>
<td>5.8</td>
</tr>
<tr>
<td>1971</td>
<td>4985</td>
<td>67</td>
<td>64.0</td>
<td>8.7</td>
<td>5.3</td>
<td>4.3</td>
<td>6.0</td>
<td>3.8</td>
<td>7.9</td>
</tr>
<tr>
<td>1972</td>
<td>4940</td>
<td>66</td>
<td>65.5</td>
<td>8.1</td>
<td>5.5</td>
<td>4.3</td>
<td>2.9</td>
<td>3.2</td>
<td>7.2</td>
</tr>
<tr>
<td>1973</td>
<td>5985</td>
<td>80</td>
<td>60.2</td>
<td>10.2</td>
<td>4.7</td>
<td>4.3</td>
<td>3.9</td>
<td>4.8</td>
<td>7.9</td>
</tr>
</tbody>
</table>

^a Source: Compiled from Plan and Budget Organization of Iran, Statistical Yearbook of Iran, 1976 (Tehran: Plan Organization, 1977).

^b Average rural family has 5.4 members.

^c Calculated by the author based on 1972 exchange rate of $1.00 = 75 Rials.

^d Includes recreation, education, home repair and services, and miscellaneous personal expenditures.
5985 Rials (= $80) in 1973. Over 60 percent of the monthly expenditure were on food. Official government data show that a huge portion of the expenditure on food was spent on bread and cereals: 42.8 percent in 1966, 42.5 in 1972, and 39.5 in 1974.\(^{19}\)

If we accept the assertion that growth and prosperity would lead to a declining percentage of household expenditure on food, then the data in Table 7.10 does not reflect substantial changes. In fact, the expenditure on food as a percentage of total household expenditure increased over the 1966-71 period. Of course, this is partly due to the unequal distribution of income, but that too indicates that a majority of the rural population have not benefited from whatever gains which have been made.

Table 7.10 shows only the average monthly consumption in rural Iran. Examination of the regional disparities in expenditure would provide a better picture of the conditions. Table 7.11 shows the rural domestic consumption in selected provinces for 1972. As it can be seen, the domestic expenditure is as low as 2,716 (= $36.2) in some provinces. This is well below the average for rural Iran shown in the last row. Similarly, in some provinces more than 70 percent of household expenditure is spent on food. This would leave little for expenditure on consumer goods and the products of the industrial sector. A look back at Table 7.10 shows that during 1966-73 the percent expenditure on clothing and home appliance hardly increased and for some years it actually experienced a consistent decline.
Table 7.11. Domestic consumption in the rural areas in 1972

<table>
<thead>
<tr>
<th>Province</th>
<th>Rials/month</th>
<th>% on food</th>
</tr>
</thead>
<tbody>
<tr>
<td>Khorasan</td>
<td>3,052</td>
<td>70.8</td>
</tr>
<tr>
<td>Sistan Baluchestan</td>
<td>2,716</td>
<td>68.6</td>
</tr>
<tr>
<td>Kerman</td>
<td>3,660</td>
<td>70.9</td>
</tr>
<tr>
<td>Central</td>
<td>4,800</td>
<td>63.3</td>
</tr>
<tr>
<td>Azerbayejan (West)</td>
<td>5,428</td>
<td>71.2</td>
</tr>
<tr>
<td>Azerbayejan (East)</td>
<td>7,972</td>
<td>56.2</td>
</tr>
<tr>
<td>Semnan</td>
<td>3,653</td>
<td>68.8</td>
</tr>
<tr>
<td>Khuzestan</td>
<td>6,325</td>
<td>72.4</td>
</tr>
<tr>
<td>Gilan</td>
<td>8,261</td>
<td>62.2</td>
</tr>
<tr>
<td>Iran rural</td>
<td>4,940</td>
<td>65.5</td>
</tr>
</tbody>
</table>

*aSource: Statistical Center of Iran.*
Table 7.12 shows some of the characteristics of living conditions in rural Iran in 1976. According to this data 80 percent of the head of the households were illiterate and 45 percent of them had no literate member. Eighty-one point two percent of them lived in mud huts containing no metal, cement or bricks. In addition, 90 percent of homes lacked piped water, 86 percent had no electricity and over 98 percent were without private bath. Only one percent owned automobiles, 7.2 percent motorcycles and 10.6 percent bicycles indicating that horses and mules are still the standard means of transportation.

The last two columns in Table 7.12 show the breakdown for the lower and upper income categories. Two generalizations could be made from the data in these columns. First, it gives us some indication of the living conditions for the lower income families and its comparison with the higher income bracket. For instance, 78.7 percent of the low income families had no literate member compared to 10.4 percent for the high income families. Forty-two point one percent of the low income families had no employed member of the household compared to 100 percent employment for the upper income families. In general, the data in the column for poor families show us unbearable conditions of abject poverty. It should be noted that some 20 percent of rural families fall in this income category. Second, by observing the data for the upper income families, we can see that even for most of the rich the living conditions are
Table 7.12. Some characteristics of standards of living in rural Iran, 1976 (percentage)\(^a\)

<table>
<thead>
<tr>
<th>Item</th>
<th>% of total rural households</th>
<th>% of households with under 2500 Rials ($40) monthly income</th>
<th>% of households with over 100,000 Rials ($1333) monthly income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illiterate head of household</td>
<td>80.0</td>
<td>83.3</td>
<td>27.6</td>
</tr>
<tr>
<td>No literate member in household</td>
<td>45.1</td>
<td>78.7</td>
<td>10.4</td>
</tr>
<tr>
<td>No employed member</td>
<td>7.4</td>
<td>42.1</td>
<td>6.0</td>
</tr>
<tr>
<td>Live in mud huts</td>
<td>81.2</td>
<td>90.0</td>
<td>46.0</td>
</tr>
<tr>
<td>Own automobile</td>
<td>1.2</td>
<td>0.8</td>
<td>33.1</td>
</tr>
<tr>
<td>Own motorcycle</td>
<td>7.2</td>
<td>2.7</td>
<td>16.2</td>
</tr>
<tr>
<td>Own bicycle</td>
<td>10.6</td>
<td>3.1</td>
<td>28.1</td>
</tr>
<tr>
<td>Own television</td>
<td>2.4</td>
<td>0.7</td>
<td>41.8</td>
</tr>
<tr>
<td>Own refrigerator</td>
<td>5.6</td>
<td>1.2</td>
<td>41.8</td>
</tr>
<tr>
<td>Own radio</td>
<td>52.0</td>
<td>21.2</td>
<td>52.0</td>
</tr>
<tr>
<td>Have piped water</td>
<td>10.0</td>
<td>5.5</td>
<td>49.5</td>
</tr>
<tr>
<td>Have electricity</td>
<td>13.8</td>
<td>5.1</td>
<td>49.5</td>
</tr>
<tr>
<td>Have telephone</td>
<td>0.6</td>
<td>0.0</td>
<td>2.3</td>
</tr>
<tr>
<td>Have bath</td>
<td>1.5</td>
<td>0.3</td>
<td>3.0</td>
</tr>
</tbody>
</table>

not satisfactory. For example, over half of those families had no piped water or electricity or owned other essentials. This in itself is the manifestation of the backwardness of the Iranian rural areas and an indication that the country's growth has been a growth without development.

The preceding discussion demonstrates that despite the government's stated objectives of raising the rural income and attaining a better distribution, fifteen years of planning and large oil revenues sometimes in excess of 20 billion dollars per annum have not changed the face of much of the Iranian agriculture nor the lot of many of the Iranian peasantry.

Of course, this is a direct result of government's attitude and policies in relation to the agricultural sector. Corrective policies are only meaningful within the scope of the wider and more comprehensive planning and policies for the entire economy. The welfare of the rural population can best be improved when the role and importance of agriculture in the process of development is realized and growth concomitant with development engulfs the whole country rather than disproportionately benefiting a segment of the population. The following chapter attempts to summarize some of the major problems faced by the Iranian agriculture and explore the possible remedial policies.
FOOTNOTES


4 ILO, op. cit., p. 6.


7 Plan and Budget Organization of Iran, Income Distribution Projections for Iran (Tehran: Plan Organization, 1974), p. 1. Supposedly, the quoted statement and arguments made by Vakil and Amuzegar (see footnote 5) find their origin in 1955 article by Professor Simon Kuznets in which he indicates the widening of income inequality during the initial stages of development. But in his conclusion Kuznets also states: "This paper is perhaps five percent empirical information and 95 percent speculation, some of it possibly tainted by wishful thinking." See Simon Kuznets, "Economic Growth and Income Inequality," American Economic Review 45 (March 1955): 26.

The figures for the industrial sector does not include children employed in construction, utilities and transportation industries.

Vajin, May 24, 1979, p. 2.


Bank Markazi Iran, *op. cit.*


CHAPTER 8
CONCLUSION

This dissertation has attempted to examine the nature of the development of agriculture in Iran and to evaluate state planning and policies in relation to agriculture. Chapter 1 briefly reviewed some of the economic theories of growth and development as well as identifying those which were pursued and applied in Iran. It was pointed out that most of these theories consider the government as a primary force in promoting and enhancing the development of the country. This necessitated the underlying assumption that the governments themselves are the agents of modernization. We hypothesized, however, that the governments and the associated institutions themselves could become a barrier to the process of development by emphasizing growth rather than development and by determining economic goals, sectoral and intersectoral priorities which are reflective of only small segments of the population who are disproportionately represented in the government. Thus it was stated that many of limitations to development stem from the exogenous variables to the agricultural development process, namely, the political, cultural and institutional barriers which should be considered. The central focus of the study, therefore, was placed on examining the process and nature of agricultural development as well as evaluating the government's goals and objectives and their realization.
Chapter 3 provided a brief overview of the Iranian economy. The results indicated that Iran has experienced a rapid rate of growth accompanied by a high rate of inflation. But it was also found that the oil industry has been the primary factor and the largest contributing sector to this growth while the share of other sectors in the GNP has remained the same for the industry and declined for both agriculture and services. Furthermore, the growth of the economy was accompanied by a greater dependency on imports, particularly for agricultural commodities. In the case of agriculture the formulation of an "oil for food" policy and a pattern of continuous neglect of the agricultural sector was identified.

Chapter 3 also examined the government planning and programs. Five government plans were reviewed in order to identify the objectives, the sectoral and intersectoral priorities, and the allocation of development funds among the various sectors and projects. It was found that agriculture consistently received low priority and that the allocation of the financial resources within agriculture were biased toward highly capital intensive projects such as the construction of large dams and the establishment of agribusiness. In addition, the study of government targets and the actual results revealed a wide gap between the specified targets and their actualization.
Chapter 4 evaluated the results of the Iranian land reform initiated during the Third and Fourth Plans. It was found that the reform did not accomplish even the conservative objectives it had set out to achieve. Many exemptions in the law allowed the landlords to retain a good portion of their lands and between 40 to 50 percent of the village population by and large received no land. Furthermore, the traditional disparities within the village were not greatly affected. Chapter 4 also evaluated the post reform structure of farming and the various forms of farm organizations. It was found that the majority of the Iranian farm families were engaged in traditional and subsistence agriculture. The government's emphasis in the structural changes was largely placed on the creation of agribusinesses and farm corporations which were accomplished by the forced eviction and relocation of the local peasantry. The evaluation of both of these farm organizations showed low rate of return and substantial inefficiency.

Chapters 5 and 6 examined agricultural production and government price floor and stabilization policies. Using various criteria in order to evaluate the performance of the agricultural sector, it was found that rate of growth has been very low, probably equal or slightly below the population growth rate, and the yields for major crops stagnant. It was also found that government market interventions had not succeeded in stabilizing prices of
agricultural commodities and the government guaranteed prices were too low to provide sufficient incentives or adequate income.

Finally, Chapter 7 examined the rural welfare. The available data indicated deteriorating gap between the rural and urban sector and worsening of the distribution of income. Furthermore, it was found that the majority of the rural population still lived under primitive conditions with low standards of living.

It should be pointed out here that all research and most of the writing of this work was undertaken prior to the overthrow of the Shah's regime and the Pahlavi Dynasty in February 1979. The level and magnitude of dissatisfaction which embraced every strata of the Iranian society, particularly among the workers and peasantry, actually substantiates many of our findings and is a clear evidence of the fallacies of the government policies. Many problems of the Iranian agriculture and government policies discussed in this work were common themes in the expression of peasantry dissatisfaction in the revolution.

Of course, the direction and objectives of the new regime are not yet clear. But all the available evidence indicates that Iran could undergo some fundamental economic and socio-political
changes in the future. Accordingly, the following discussion and recommendations are made in the light of the recent changes and with the hope that the new government will move toward introducing and devising comprehensive and progressive programs for the Iranian economy that are reflective of the needs and aspirations of the masses of people rather than the interests of a small ruling class.

Comprehensive Planning Which is Reflective of the People's Needs

In Chapter 1 we indicated that various theories of economic growth and development emphasized the role of government in initiation and promotion of development. At the foundation of such concepts lies the assumption that the state can perform the role of modernizer. It is the fallacy of this assertion which we have tried to expose. When we speak of central planning and state intervention we must also examine the problem of the primary actor--the nature and formation of the state itself--and have a better understanding of the end and means and the distinction between them in the planning process. As Charles Bettelheim distinctly and simply points out:

"In general, and not only in economics, a plan, in our sense, consists of the totality of arrangements decided upon in order to carry out a project. The idea of a plan is thus definable by two elements: (1) a project, that is, an end which one proposes to achieve; (2) the arrangements decided upon in order that this end may be achieved, that is the determination of the means."  

But it is the state which determines the end as well as the means to attain it. Hence, the nature of the state itself becomes
a critical issue. In general, the state is the reflection of social class, and in case of Iran representative of a very small class once called the rule of one thousand and one families. Thus the determination of the objectives and the means is subject to the nature and balance of representation of the social forces.

As Lovbroek points out

"The planning process is a process where subjective formulations of the objective needs of the different social classes are given different priorities. The formulation of goals and priorities in national planning takes place within the state apparatus. The logical conclusion from this is that the interests of the social classes that control state power also determines which goals for the planning process will be given priority."\(^2\)

In Iran this process of planning was not certainly reflective of the objective needs of the poor, namely, the great number of workers and peasantry, but rather the expression of class interests of a small ruling class composed of feudal landlords and nascent bourgeoisie.

Of course, the ruling class was not a cohesive group with well-defined objective and means to accomplish them. There were contradictions between the old and new, between the traditional and feudal elements and the rising bourgeoisie, between the state and private sector, and within the private sector between the national capital and internationally dependent capital. These contradictions were reflected in the process of planning, in defining the end and means and in the ranking of priorities. Thus
the process of planning itself became a mechanism to establish a compromise between these various social forces. For instance, land reform which intended to eradicate the existing feudal relationships permitted the landlords to retain possession of one village or its equivalent. The mechanization of farms under the program of agribusinesses proceeded with foreign and dependent capital and by forcibly evicting the small and medium sized producers.

Often the failure of policies and the genesis of the problems are sought in the theory of planning or the contradiction between the theory and the praxis of planning rather than in the a priori assumption of the state as a modernizing agent. While theoretical and technical shortcomings may be the source of problems, we propose to look beyond the technical questions and the substance of plans for in order to understand these we must understand the leitmotif and the prime movers behind them.

Throughout this paper we have emphasized the need for a comprehensive planning for agriculture while stressing that the Shah's government was not capable of fulfilling this task. Similarly, the problem faced by the present government is not only the realization of the need for a comprehensive planning but also the need for a development strategy within which the hierarchy of both sectoral and intersectoral priorities are the reflection of the needs of the people and are determined through their free and active participation. Indeed the success of the government
depends on its realization of the objective needs of the masses of peasantry and the subjective formulation of them in a democratic process of planning and on whether the determination of objectives and the means to attain them are reflective of the interests and aspirations of the rural masses.

The remainder of this chapter is devoted to some of the major limiting factors faced by the Iranian agriculture as well as the primary components of a development planning and strategy which could resolve them. It should be emphasized here that the recommendations made are based on limited data and sketchy information. Much research is yet needed in order to fully comprehend the nature of the problems, the objective needs and priorities within agriculture.

**Preliminary Research and Collection of Data**

Probably the first step to begin is creation of an agricultural investigatory committee or task force composed of scientists, government representatives, and representatives of rural population to investigate the real nature of the problems faced by the Iranian agriculture. Indeed research and collection of data are essential before any comprehensive agricultural strategy could be formulated. There are still too many unknowns about the Iranian agriculture and the discrepancy and scarcity of data limits us in fully understanding and locating all the shortcomings and problems of the
agricultural sector. Research is needed in essentially every aspect of the Iranian agriculture. Surveys of production and consumption and accurate estimations of population, demand and supply are required in order to determine the per capita consumption of food and the needs of the country. Dietary surveys should be undertaken in order to determine the quality, composition and nutritive value of the food consumed. Research regarding the infrastructure, the correct form of farm organization, appropriate methods of technological improvements, etc. are some of the other areas which need to be investigated.

In general, inquiries into the nature of the problems and needs in agriculture and evaluation of various objectives and means to resolve them should be the central focus of the preliminary research.

Production Expansion Strategy

In order for Iran to achieve self-sufficiency within the next two decades a comprehensive development strategy to increase production and thereby the welfare of the rural population is required. Two major components of such a strategy are discussed below, others will be treated separately in this chapter.

Changes in farming structure

The main problems in the agricultural sector are poverty, both in absolute and relative terms, and traditional and subsistence
farming. This is partly because of small and fragmented plots of land too small to provide sufficient income; and the neglect of a substantial portion of the peasantry, the Khoshneshins or landless peasants. Hence the restructuring of farming is essential. The government may decide on the redistribution of the lands which were exempt under the land reform or retained by the landlords. There are still many large landlords whose lands could be distributed. But the distribution of land will not solve the problem of fragmentation and would actually augment it. Thus serious attention should be paid to this problem and the correct form of farm structure selected. The selection of a new type of farm organization requires great deal of research and pondering as well as input by the peasantry themselves. Our study indicated that among the existing farm organizations, production cooperatives were the most successful and the best form of farm structure.

The production cooperatives have actually historical roots in Iran. The communal production, Boneh, was practiced for many centuries and under the feudal system several or more tenant families who were given small plots of land by the landlord polled their resources and produced collectively. This concept of Boneh could be used to create new and modern cooperatives where collective cropping pattern, cultivation and marketing is established.

Changes in production inputs and technology

Several studies, including one by the FAO, concerning the future prospects of the Iranian agriculture indicate that the country
has the potential of attaining self-sufficiency in many major crops as well as livestock and poultry by 1990. Actually Iran has all the financial resources to facilitate a technological revolution in all areas of biological, chemical, mechanical and human factors. Studies should be conducted in order to determine the optimum blend of these factors and the ways and means by which a more rapid diffusion and introduction of improved technology can be accomplished.

Substantial increase in output could be accomplished through increasing the efficiency of land and water management. Of the total water available for agriculture about 50 percent is wasted and the remainder is used inefficiently. Therefore, rapid development of irrigation water and increase in efficiency in all areas of land and water utilization should receive high priority.

But increases in efficiency require skilled manpower which is quite scarce in Iran. The majority of the Iranian peasantry are illiterate and others lack adequate general and technical knowledge. Farmers need to learn about cropping plans, how to control them, and how to produce different crops efficiently in order to achieve high yields. Thus investments in education and training, the expansion of research and extension services would almost become a prerequisite for not only increasing efficiency but also introducing new technology.

In the area of biological inputs a strong and widespread campaign to introduce seeds of high yield variety is essential.
Presently, the high quality seeds have been introduced in only limited areas and in limited quantity. Research should be undertaken to find high yield seeds best suited for the Iranian land and weather conditions or by crossing foreign and local varieties. Furthermore, increase in locally improved seeds and production should also be emphasized.

In the area of chemical inputs a derive for the expansion of fertilizer consumption and pesticides is necessary. Many of the Iranian peasantry, particularly the small peasant producers, do not use chemical fertilizers. The chemical inputs are one of the most important means of increasing agricultural productivity and its consumption should become common and universal practice. Research and study should be undertaken to determine the optimum application according to soil and water, climatic conditions and crop variety. In addition, the need for an efficient fertilizer distribution and credit system should be recognized. Yields could also be increased by initiating an extensive plant protection program and expanding the use of insecticides and other plant protection chemicals.

Increase in mechanization is another element of a progressive agricultural development plan. Increase in the use of tractors, tools and equipments for cultivation, adequate machinery for land leveling etc. should all be encouraged. Consolidation of the fragmented lands would facilitate this process.
Thus, selection of appropriate farm organization, seeds of high yield variety, mechanization, greater fertilizer application and pesticides, improved efficiency of water and land management, development of skilled manpower are the key elements of the Iranian agricultural revolution.

It should be recognized that the accomplishment of such a task requires substantial expenditure on human aspects such as education and training of manpower. Thousands of specialists are needed to demonstrate and implement the various aspects of the program. Indeed the Iranian agricultural revolution requires its vanguard of dedicated specialists for the introduction and diffusion of the new technology and training of the rural population. Thus investment in research, education and training of skilled manpower should receive top priority.

Furthermore, success of the development strategy depends on creation of adequate government and local institutions to efficiently plan and implement various programs; an appropriate pricing and subsidization policy; and proper infrastructure and marketing channels. These aspects of development program will be discussed later in this chapter.

Agricultural Pricing, Marketing and Subsidization

As it was discussed in Chapter 5, the yields and productivity have been generally low and stagnant in the Iranian agriculture.
The rate of growth in production has been about the same as population resulting in consistent excess demand and greater dependency on imports. Furthermore, it was demonstrated in Chapter 6 that lack of adequate price guarantees and price stability compounded by many other uncertainties impeded the adoption of improved technology and desire to increase output. Agricultural pricing and subsidization policies normally have a twofold objective of providing an incentive for increasing productivity and maintaining a fair level of income. Both of these objectives are to be accomplished while maintaining relative price stability and fair food prices for the urban sector.

To eliminate these problems government should devise a pricing and subsidization strategy which aim to stabilize prices as well as providing price supports for agricultural commodities and subsidization of both producers and consumers.

It should be recognized that the crux of the problem is low yields and productivity. Hence subsidization can help to improve productivity and the expansion of output. In order to accomplish this task, the subsidization should be in areas which lead to high expenditure in land and water development; high yielding inputs such as new seeds, fertilizers, crop protection chemicals, tractors and machinery, and modern tools.

Price supports should also be an essential component of the pricing strategy because of the following reasons:
1. Price supports and guarantees could be discriminatory and be applied to a specific commodity.

2. Price supports and guarantees reduce the price risks and uncertainties.

3. Price supports and guarantees stimulate the efficient use of traditional inputs such as family labor as well as modern inputs.

In general, the objective of the price support and guarantee is to provide an insurance against price fluctuations and provide attractive prices for the producers in order to stimulate increasing productivity and output as well as keeping a fair level of rural income.

It should be noted that at the center of the government pricing and subsidization policy is the objective of increasing productivity rather than raising prices. If price supports and guarantees are cost based and are used in conjunction with input subsidization the ultimate result would be a decrease in cost per unit of output and thereby lower price guarantees. Presently high prices in Iran are due to high cost of production and marketing and low productivity. Fair minimum prices based on cost of production as Chapter 6 indicated, would require a price level above the international prices. But in order to achieve reasonable levels of self-sufficiency in agriculture and increase productivity, the minimum price guarantees are necessary.
Furthermore, price guarantees and subsidies should be accompanied by subsidization of low income urban families. The importance of this measure is realized when we recognize the fact that over 65 percent of the low income urban families' expenditure is on food.

Price stabilization should be another component of the government strategy. This could be partly accomplished by expanding the government purchasing and storage program. As it was discussed in Chapter 6, in order for the government to have a sufficient impact on prices, over 30 percent of total production should be purchased. The purchasing organization should buy all output offered to it at the announced prices. Moreover, these prices should be announced well in advance as to guide the farmers in their production planning.

It should be noted that the government's price control and stabilization program requires efficient organization and strong administration. Thus elaborate planning and institutional designs are necessary. The price control planning and administration should concern itself with not only stabilization of prices of agricultural commodities but also the control of general prices and inflation. In this area particular attention should be paid to the control of rising prices of industrial goods and production inputs in order to improve the terms of trade for agriculture and reduce the gap between the per capita incomes of urban and rural areas.
The need for substantial changes in the marketing system should also be recognized. Presently, the small peasant producers are at the mercy of the middlemen and money lenders. In addition, there is a gap between marketing and production. The marketing system basically serves several large urban centers. There is little interaction between demand and supply and the feedbacks from changes in the consumer demand are restricted.

The separation between the market and production paralyzes the operation of the price system. The differences between the prices received by the farmers and the retail prices in the urban areas is exceptionally high. The farmers' share of the retail price is sometimes as low as 20 percent. Part of the price differential is due to the high transport and risk cost. This could be improved as the result of the development of infrastructure discussed elsewhere in this chapter. Such developments would not only link the market to producers and reduce price differentials, but also allow the farmers to take full advantage of government guaranteed prices.

Aside from structural changes in transport, storage and processing, the development in marketing and distribution of food requires strong and efficient organizations and administration. The cooperatives created during the Shah's rule were neither efficient in operation nor effective in changing the market structure. At best, they accounted for less than one percent of the output purchased. Strong and responsible cooperatives should be established
for the purpose of providing a distribution channel for both inputs and outputs. The peasant producers dependency on middlemen could be reduced through the effective use of the cooperatives and by using the proceeds from the sale of output for the cost of input advances. The cooperatives could also function as the source of credit.

Infrastructure

In the light of the discussion in the text of this work we need not to reiterate the importance of infrastructure for the development of the Iranian agriculture. Iran is in need of both capital intensive and capital extensive agricultural infrastructure. The following categories can be identified as areas which require substantial changes and improvements for the development of agriculture.

Irrigation system and water supply

As it was pointed out in Chapter 2, about 50 percent of the captured water for irrigation is wasted. The present irrigated land area is about 3.8 million hectares. Studies have shown that the potential for expanding the irrigated land area to 5.6 million hectare exists. However the future irrigation projects should not only emphasize the expansion of the irrigated land area but also increase the efficiency of water management. Irrigation efficiency is low and estimates indicate that only about 20 percent of the
irrigated lands receive optimal water supply. Thus improvements in use of water resources would greatly contribute to increasing production.

In the past, the emphasis in the irrigation development programs was placed on large showy dams which did not only require substantial capital investment, but seldom achieved the objectives of irrigating the land areas intended for. The land area irrigated by these dams have consistently been substantially below the targets set by the government. Thus greater utilization of the already built storage dams is essential. Estimates show that the irrigated land area below these dams could be expanded by 800 thousand hectares (about double of the present amount).

The irrigation development program should also be directed toward the construction of canals, distributaries, drainage systems, and restoration of ghanats. As it can be recalled from Chapter 2 about 800 thousand hectares of land are irrigated by the traditional ghamat system which were usually constructed and maintained by the landlords. The land reform and the lack of financial resources for the maintenance and restoration of ghanats led to the slow deterioration of the systems to the extent that presently about 30 percent of the existing 3500 ghanats are dry. But the greatest prospects for expanding the irrigated land area lies in the exploitation of ground water through the construction of new canals. Construction of additional canals and the improvements in the
present ones, both in the areas of water collection and distribution network, will increase the volume of water captured and provide a better irrigation of particularly cereal crops. In addition, efforts should be made to reduce the volume of water lost in canals through seepage and thereby increase the amount of available water.

Furthermore, government supported and local based programs should be devised for land leveling, drainage, pump irrigation, and other improvements which could lead to more efficient soil and water management. It should be noted that many of the required irrigation development projects are relatively small scale projects and their success depends on the level of government aids and its ability to mobilize the local rural population.

Marketing channels and facilities

As it was pointed out in Chapter 4 two-thirds of the Iranian villages have no access to a transportation network and in 1976 over 19000 villages could only be reached with mule. Obviously, lack of commercial roads limits the marketing of agricultural output. Construction of roads and creation of an adequate transportation network is essential in order to spur production and expand the market in the subsistence areas.

In addition, emphasis on storage and construction of additional silos at the local level is necessary. Presently, the shortcoming is not so much in the total silo capacity, but in lack of
any storage at the village level. In the absence of adequate transportation facilities and local network of storage, producers cannot take advantage of the potential market and the losses incurred due to deterioration after harvest could be substantial. Creation of both transportation and storage networks will also reduce the dependency of small producers on the local middlemen.

Furthermore, establishment of specialized processing plants and wholesale facilities on the regional basis will both reduce the wastage and simplify transportation. The processing plants would also provide a new source of employment for rural population and many themselves become an incentive for improving food quality, supply and distribution. In fact, diversification and establishment of agricultural related industries in rural areas is essential in order to reduce the exodus to the urban areas.

**Credit and financial institutions**

It should be recognized that in traditional agriculture easy and low cost credit is a key factor in overcoming agricultural stagnation. As it was discussed in Chapter 4, about 50 percent of agricultural credit is provided by noninstitutional sources at exuberant rates of interest. Moreover, most institutional loans were small short term loans requiring high collateral security.

Increase in institutional credit and elimination of externalties in lending and flow of credit will substantially reduce peasant
dependency on the middlemen and informal money lenders as well as reducing the cost and thereby providing greater incentive for increasing production and use of improved technology.

In addition, in order to increase the availability of capital to the agricultural sector, following changes can remove some of the constraints to institutional lending

- Revise the criterion for collateral security. Under the old system the required collateral was sometimes about 20 times more than the size of the loan.
- Provide more long term loans.
- Reduce bureaucratic red tape.
- Establish institutional branches in the rural areas.

Presently, the Agricultural Development Bank of Iran is situated in the capital city and the Agricultural Cooperative Bank has no branches at the village level. It is estimated that the amount spent for travelling expenses and acquiring the loan sometimes amounted to half of the loan.

Education

Throughout this thesis we have stressed the subsistence nature of the Iranian agriculture with traditional patterns of production. Most production methods are traditional and the tools primitive and simple. A good portion of farm output is for own consumption.
Lack of storage facilities and means of transportation limits the market and low income and high price risks leave no room for innovations and increased production.

It is obvious that the development of agriculture requires the knowledge of modern agriculture and scientific methods. Thus education becomes a prerequisite for the transformation of a traditional agriculture into a modern sector.

Given the high rate of illiteracy in rural Iran, a strong and widespread campaign is essential. The spearhead of such a drive should not only be directed toward the elimination of illiteracy, but also toward educating and training of rural population in the more efficient use of resources. For this substantial public investment is required. Additional schools must be built and more teachers trained. Furthermore, the rural population should be motivated and be willing to participate and apply the newly acquired knowledge and skills. Part of the motivation comes from increase in rural income and reduction in need for family child labor, another from observing the success of others who have applied new techniques. But above all, the question of motivation and willingness is very much linked to the problem of trust in government policies, a sense of satisfaction from participation in development efforts and pride in being able to shape one's own destiny and contribute to the progress and the well-being of the society.
Thus the role of government in rural education becomes very critical. The government agencies and personnel should be welcomed and looked upon as a part of the community rather than agents of the central government and alien to the local problems and needs. The curricula and subject matter should be oriented toward the needs of the local inhabitants and the methods of instruction appropriate for the type of knowledge to be transmitted and for the level of understanding of those receiving it.

Literacy programs directed toward adult population should not only include literacy training of adults and other forms of social welfare training, but be also oriented toward the production problems of the peasantry. The adult literacy program should actually be a functional literacy program dealing with various aspects of peasant life and both practical and technical problems of the farmers. Job related subjects such as irrigation, pesticides, animal husbandry etc. should be emphasized rather than abstract concepts. For this a method of integrating social aspects with technical content can be adopted. For instance, suppose the technical content involves weeding and the use of a new tool—the push hoe. The integrated system of instruction could emphasize the following aspects:

1. Technical topic: the importance of keeping crop free from weeds. This could include purpose of weeding, when to weed, methods of weeding and improved tools.
2. Practical demonstration: The improved tool, in this case the push hoe, is demonstrated to the class and the adults are given the opportunity to use the hoe and experience its superiority over the older types.

3. Social aspects: could include subjects such as the development of this specific tool throughout history. This can also embrace geographical as well as historical elements (i.e.: by showing and discussing how peoples of other countries approach similar problems according to their environment and natural resources. The important aspect is that technical achievements are the result of a long and arduous process in which many people have contributed.

In general, concomitant with battling illiteracy and enhancing the perspective and vision of the peasantry, adult education and extension programs should aim to realize the following objectives: (1) create a framework of attitudes conductive to acceptance of new technology and motivate the peasantry to adopt and apply modern inputs and recognize the link between these changes and the fulfillment of their aspirations; (2) provide the peasantry sufficient information concerning the new technology; and (3) train the farmers in the areas of efficient management.

Furthermore, the literacy and adult education programs should not only be directed toward the farm families and emphasize
agricultural skills. First, adult education programs should also be directed toward the nonfarm population who serve the peasants locally. Second, adult education programs should also aim to train both farm and nonfarm people in skills other than farming in order to prepare those who migrate to the urban areas for nonfarm types of employment, but more importantly, to train skilled manpower locally for the promotion of diversification and creation of small scale industries (i.e.: processing plants etc.) in the rural areas.

Creation of vocational schools for both young and adult rural population can also train and arm the local peasantry with both farming and industrial skills. This will help to increase the productivity in food production as well as in other nonfarm economic activities.

Finally, extensive educational programs require training of adequate teaching staff who are trained in both teaching methods and approach appropriate for the realization of the specific educational goals in the rural areas. Hence establishment of rural teachers colleges with general rural orientation is essential.

Rural educational programs could also include the following recommendations and experimental projects.

- Creation of regional agricultural research center.
- Creation of agricultural laboratories and experiment stations.
- Creation of local agricultural and educational radio programs.
- Creation of sample modern farm for each 20-30 villages which can be used as a farm workshop for dramatic demonstration of new technology and modern inputs.
- Creation of travelling agricultural teams which would visit different villages, set up workshops to demonstrate new tools, modern inputs and production techniques, and provide short term teaching sessions.

Health and sanitation

One of the major problems in the area of health is the scarcity of medical staff and facilities as well as its distribution in the country. As it was discussed in Chapter 7 the population per physicians and dentist in some provinces is as high as 8000 and 16000 respectively. Therefore, the establishment of additional medical schools, hospitals, and health facilities is necessary for the improvements in public health and rural welfare. Ways should also be found to attract the estimated ten thousand Iranian physicians who reside and practice outside of Iran. In addition, improvements should be made in distribution of physicians, dentists, and health facilities. Presently, the concentration is in the central province and a few large cities. The possibility of subsidizing medical students, particularly students from rural
areas in return for specific years of services in rural areas after graduation should be explored.

Substantial improvements are also required in the following areas:

- Elimination of open sewer systems.
- Establishment of sanitary and health standards.
- Creation of rural medical training and first-aid schools with the objective of training medics and medical personnel.
- Creation of sanitary water supply.
- Creation of rural educational health and hygiene programs.

Soil conservation and land development

As it was mentioned in Chapter 2, the potential arable land area in Iran is about 40 million hectares given adequate supply of water. Presently, about 16 million hectares are cultivable, but under 10 million hectares are actually cultivated. Development and expansion of the land area could substantially increase total production. In addition, soil conservation programs aimed at maintaining soil fertility and preventing the loss of cultivated lands are also necessary.

The following are some additional areas which need improvement for the development of agricultural infrastructure:
Crop and animal protection.
Disease and pest control.
Packaging and grading services.

It should be noted that the aforementioned structural changes require institutional changes. Effective development of the infrastructure involves the mobilization of the local masses and therefore appropriate formal and informal organizations. One central point stressed in this work has been the institutional constraints which impeded the development of agriculture. Distrust and dissatisfaction with the Shah's regime was exceptionally high and the Shah's created institutions and agencies were looked upon as the oppressive arms of the central government to establish its authority and rule. In general, the local institutions should be reflective of people's aspirations, responsible and responsive to their social and economic needs.

Once again, we must reiterate that the preceding recommendations and discussions are based on the findings in this work many aspects of which were constrained by insufficient data. Meticulous research is needed in every field of the Iranian agriculture. No comprehensive planning for the rapid development of agriculture could be effectively devised and implemented without first fully understanding the true nature and scope of the problems faced by the Iranian agricultural sector and carefully examining the range of possible remedial strategies and the means by which they could be overcome.
But one thing is certain, in order to achieve relative self-sufficiency in this century, the future path of the Iranian agricultural transformation must be a revolutionary path, a course of widespread and serious campaign in every front and aspect of agriculture. Actually, among the developing nations, Iran is perhaps in the best advantageous position to launch an agricultural revolution and facilitate the rapid development of the agricultural sector. It has the abundance of its various natural resources, large amount of oil revenues which remove most financial constraints, a relatively small but innovative and ingenious population, all of which are supplemented by the recent enthusiasm and fervor for the reconstruction of the country and the establishment of a progressive modern society. It must be remembered that the oil revenues will deplete by the end of the century and if Iran is determined to stand on its own two feet—agriculture and industry—it must begin to take the initiative now.


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