An evaluation of economic benefits of gentrification in St. Paul, Minnesota

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An evaluation of economic benefits of gentrification in St. Paul, Minnesota

by

Hun-Zue Chuang

A thesis submitted to the graduate faculty
in partial fulfillment of the requirements for the degree of
MASTER OF COMMUNITY AND REGIONAL PLANNING

Major: Community and Regional Planning

Program of Study Committee:
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This is to certify that the master's thesis of

Hun-Zue Chuang

has met the thesis requirements of Iowa State University

Signatures have been redacted for privacy
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ABSTRACT

The purpose of this study is to answer the question of whether the process of gentrification provides economic benefits to the city. The study assumed that cities derive economic benefits from gentrification. First, the study classified St. Paul census tracts into gentrified and non-gentrified areas. Selection of indicators relied on the core definition of gentrification, that is, “class transformation.” Therefore, education and occupation were selected as proxy indicators for gentrification. Then, housing values, employment, and family incomes were used as indicators of gentrification-derived benefits. By examining census data from 1970 to 1990 and using a t-test, the relationship between gentrification and median family incomes was confirmed. However, the data did not support a relationship between employment and gentrification. Only when employing the educational indicator in the first period of 1970-1980, did the result of the test indicate that a change in employment rate was associated with gentrification. For the relationship between median housing values and gentrification, the results were different for the two periods of 1970-1980 and 1980-1990. In the first period, the change in median housing values was significantly different for gentrified and non-gentrified tracts. This difference faded away when gentrification was defined by occupation and “both” indicators during 1980 and 1990 (the second period). In conclusion, the analysis documents that gentrification indeed has generated some economic benefits for the city of St. Paul.
CHAPTER 1
INTRODUCTION

1.1 Motivation

Gentrification was first defined by Glass in a study of the East End of London in 1964 (Atkinson, 2000a). Since then, scholars have explored this issue, with the relevant research reaching its peak in the 1980s. Gentrification is a pervasive process of social change occurring in a number of U.S. cities and refers to the transformation of social classes and urban landscapes. Some scholars treat the phenomenon of gentrification as anything but natural while viewing cities as growth machines. It is seen mostly in the urban context because it is one of the major trends in the restructuring of the central city. Scholars are interested in gentrification not only because it represents the theoretical and ideological battlegrounds in urban study, but also because it causes political debates over gentrification-derived displacement and its impacts on the city. However, some researchers argue that the influences of gentrification on the city are exaggerated. Bourne (1993b) reviewed Toronto’s household income and concluded that the process of gentrification had a slight impact on inner-city neighborhoods. It may be that gentrification has minimum effects in the macro- socioeconomic context, but indeed may have enormous impacts at the neighborhood level.

There are two views in the debate over the impacts of gentrification. On one hand, advocates of growth and improvement argue that gentrification could bring positive spillover benefits to the inner city. The supporters also believe that benefits of the growth or improvement will
‘trickle down’ to low-income people. By improving the physical environment, gentrification stimulates the in-migration of higher-income groups and ultimately achieves the purpose of economic growth in inner urban areas (Bailey and Robertson, 1997; Lang, 1986; Atkinson, 2000a). On the other hand, opponents of gentrification focus on the negative outcomes, especially the problem of displacement. Opposition to gentrification results from the obvious evidence of the deprivation of living space, as the existing lower socioeconomic status households are driven out by higher status individuals or groups. The negative effects of gentrification have attracted many researchers, including studies of displacement (e.g. Atkinson, 2000a,b; Deutsche and Ryan, 1984; Spain, 1981; Lyons, 1996; LeGates and Hartman, 1986) and its negative impacts on local residents (e.g. Beauregard, 1986 and Rose, 1984). The positive view of gentrification is supported by many city officials who point to the renovation of deteriorating housing stock, decreased concentration of poverty, increased tax base, and the ultimate renewal of a vital urban space for living.

In reality, local governments promote gentrification despite the widespread recognition of its effects. This, however, raises a political dilemma. A statement by a community development director of the City of Cleveland aptly summarizes this contradiction: “I know it’s not politically correct, but with an average poverty rate of 42 percent, what my target neighborhoods need is a little gentrification (Kennedy and Leonard, 2001: 60).”

The main concern is the inequitable treatment of lower socioeconomic status residents due to the disequilibrium of housing market resulting in the problem of displacement. Such negative impacts associated with gentrification has attracted a lot of scholars to engage in studying
this phenomenon.

Only a few researchers have systematically studied the positive contribution of gentrification to the city. One early empirical study by DeGiovanni (1984) showed that gentrification\(^1\) did increase assessed property values, and concluded that gentrification through the redevelopment\(^2\) process benefits cities. Later Lang (1986) reviewed annual revenue in selected neighborhoods and also concluded that gentrification does provide significant revenue flows to the city. However, the potential benefits of gentrification have generally been overlooked. Therefore, to deal with the dilemma and to enlarge the perspective of its positive outcomes, more research focusing on the positive impacts of gentrification is needed.

1.2 Objectives

The main theme of this study is whether gentrification has positive impacts on the city. There are two specific objectives. First, the study explores the economic impacts of gentrification to the city as a whole. It draws on empirical evidence to determine socioeconomic change in the city. Second, it reviews the criteria for selecting indicators used in classifying neighborhoods

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\(^1\) Actually, the article discussed the consequence of revitalization and did not mention gentrification specifically. But the approach, which used to select revitalizing neighborhoods drawn from two factors—displacement and private investment, are also used in identifying gentrification.

\(^2\) "Redevelopment" and "gentrification" are both used to describe for the social, economic, and spatial restructuring of urban areas. Scholars, such as Wilson (1996) and Bourne (1993a), treat gentrification as a process of urban development in the neighborhoods involved in residential use. But, the phenomenon of gentrification also refers to the transformation of social class, a shift of occupation from working class to professional and managerial workers (Smith 1986).
into gentrified and non-gentrified. Different studies have used various sets of indicators to classify neighborhoods as gentrified and non-gentrified. For instance, Akinson (2000a,b) and Lyons (1996) chose professional/managerial occupations as proxies for the evidence of gentrification while Friedenfels (1992) used education and family income as criteria to identify gentrification. Because of the complexities of the process and the difficulty in measuring the context of gentrification, analysts still disagree on the content, timing, and geographic distribution of gentrification. By using empirical data to identify gentrified neighborhoods, this study will help to clarify the criteria for identifying gentrified and non-gentrified neighborhoods.

1.3 Methodology

The study involves the illustration of the context of gentrification through both a theoretical and empirical literature review. To identify gentrification in the city, a number of investigators have employed descriptive statistics. Generally, analysts draw on census data as an indicator of gentrification and use citywide averages as a threshold for determining whether or not neighborhoods have undergone gentrification. Others studies employ inferential statistical techniques to assess the impacts or the other issues of gentrification. For example, DeGiovanni (1984) used a t-test to determine the significance of the difference between the means for revitalizing neighborhoods and non-revitalized neighborhoods. In contrast, Vigdor (2001) utilized Probit regression to assess the possibility of low-status households to exist as housing units in gentrifying zones. This study employs both descriptive and inferential approaches to measure gentrification and evaluate its impacts. The
descriptive statistic and t-test\(^1\) are used to identify the distribution of gentrification and determine the direction of its impacts.

1.3.1 Hypothesis

This study assumes that gentrification brings economic benefits to the city. The benefits are represented by three dimensions: an increase in property values, job opportunities, and incomes. Gentrification is likely to increase property values and ultimately enhance property taxes, benefiting the city as a whole. In addition, it leads to the creation of job opportunities or an increase in wages for low-skill workers (Vigdor, 2001). As a consequence, it contributes to an increase in income for all residents living in the gentrified neighborhood. Therefore, the study contains three sub-hypotheses:

(i) gentrification significantly enhances property values;

(ii) gentrification leads to the growth of job opportunities;

(iii) and finally, gentrification lead to an increase in incomes.

1.3.2 Study area

A single city\(^4\) was selected regarding with limited time and resource. The City of St. Paul, Minnesota served as a study city for two reasons. First, it is believed that St. Paul has undergone some degree of gentrification. London et al. (1986) identified St. Paul as one of 15 cities with three or more gentrified neighborhoods. The city’s score of “significance of

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\(^{1}\) These methods will be elaborated in chapter 4.

\(^{4}\) Schuler et al. (1992) studied Cleveland, Ohio to identify key elements of gentrification. In addition, Lang (1986) examined economic benefits of gentrification in the City of Philadelphia, Pennsylvania. Therefore, a single city is viable for examining the impacts of gentrification.
gentrification," was 5.50, greater than Minneapolis (3.50), and St. Louis (5.00). In addition, other scholars have shown that the phenomenon of gentrification in St. Paul has continued during the past of three decades (Hammel and Wyly, 1996). Therefore, the study focuses on St. Paul’s socioeconomic changes from 1970 to 1990.

1.4 Significance of gentrification to urban planning

The study of gentrification in the 1990s centers on issues of urban policy and urban politics (Lees, 2000). Particularly, gentrification has significant influences on housing affordability and low-income housing assistance (Wyly and Hammel, 1999). In addition, urban politics and urban planning have been dominated by the sound of promotion of growth (Leitner, 1990). The leaders of cities have made attracting affluent people back to their cities, to enhance tax base of their communities and revitalize their downtown (Kennedy and Leonard, 2001). Gentrification therefore has been used as a tool for urban renaissance. However, the political dilemma on the issue of gentrification has not been dispelled. How to view the phenomenon of gentrification challenges urban planners. Therefore, this study aims to provide a valid insight of gentrification and expects to eliminate the confusion about this complicated social change.

1.5 Organization of the study

The definition of gentrification varies in the literature. To clarify the thought on the issue of gentrification, chapter 2 reviews the literature and focuses on its operational definition, mainstream interpretations of the emergence of gentrification and provides its impacts; and discusses the context of gentrification. Chapter 3 focuses on the spatial distribution of
gentrification in the City of St. Paul. The chapter starts with a brief introduction of St. Paul's
neighborhoods and its history of development. The process of identifying gentrification then
is introduced. The procedure of identification varies in the diversity of research on
gentrification, and the indicators of defining gentrification are different. In this chapter, an
approach to classifying census tracts into gentrified and non-gentrified is developed, and
applied to St. Paul. The maps of St. Paul's spatial distribution of gentrified neighborhoods for
1970s and 1980s are discussed.

Chapter 4 elaborates on the extent of economic benefits that are derived from gentrification,
and extracts indicators of economic benefits of gentrification. The three sub-hypotheses are
tested and results are discussed. Finally, chapter 5 summarizes the findings and offers
suggestions on urban policy and gentrification.
CHAPTER 2
THE CONTEXT OF GENTRIFICATION

2.1 Gentrification as a ‘chaotic concept’

2.1.1 Overview

Gentrification is a synthesis of multiple causes and involves simultaneously physical, economic, social and cultural phenomena (Hamnett, 1991). Many scholars have engaged in explaining the process of gentrification. The diversity of interpretations of gentrification in the literature often results in confusion, leading some to describe the concept as “chaotic.”

Up to now, a consistent explanation of gentrification has not been produced. This is not only because of its relationship to the complicated processes of socioeconomic changes, and its association with physical, economic, and cultural reconstruction, but also because of analysts’ opposition to other opinions, particularly based on their own “valid insights.” Consequently, it is easy to fall into a situation mentioned by Hamnett (1991) in which, “like Aesop’s fable of the blind men and the elephant, each of the major theories has perceived only part of the elephant of gentrification.” London, Lee, and Lipton (1986) reviewed the

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5 The term was cited by Rose from Sayer’s perspective that, “in place of a theory of abstract elements of a situation and how they combine to compose concrete phenomena, there is an acceptance of unexamined, largely commonsense definitions of these empirical objects, and a generalization of the features of these chaotic concepts… (Rose 1984: 57).” Beauregard (1986) and van Weesep (1994) also borrowed this term to describe the complexity of gentrification.

6 London et al. (1986) claimed that various theorists, including ecologists, demographers, socioculturalists, and political-economists, each offer valid insights to study gentrification, however an individual approach cannot provide a full understanding of the phenomenon.
demographic, ecological, sociocultural, political-economic explanations of gentrification and concluded that each perspective provides only small increments of knowledge.

The different explanations of gentrification have converged around two main streams: liberal humanism and structural Marxism. Liberal humanists emphasize the role of choice, culture, consumption and consumer demand. David Ley is a representative of this approach and argues that “the values of consumption rather than production guide central city land use decisions” (cited in Smith 1979: 538). Structural Marxists on the other hand focus on the role of capital, class, production and supply in determining land use. Neil Smith is a proponent of the structural approach (van Weesep, 1994) and argues that “to explain gentrification according to the gentrifier’s action alone, while ignoring the role of builders, developers, landlords, mortgage lenders, government agencies, real estate agencies, and tenants, is excessively narrow” (Smith 1979: 540). 7 Hamnett (1991) does not see the two theoretical perspectives on gentrification as competing but as complementary. Indeed, this phenomenon cannot be understood without considering the two theoretical perspectives. The process of gentrification will be interpreted from this axis in the second section of this chapter.

2.1.2 Definition of gentrification

To provide an operational definition for this analysis, this section reviews the literature on the definition of gentrification, and some contemporary studies are collected for discussion.

7 Liberal humanists and structural Marxism explanation of gentrification are discussed later in this chapter.
The *American Heritage* dictionary defines gentrification as “the restoration of deteriorated urban property especially in working-class neighborhoods by the middle and upper classes (1982:585).” Oxford dictionary defines it as “the social advancement of an inner urban area by the refurbishing of building and arrival of affluent middle-class residents, usually displacing poorer inhabitants (2003: 512).” U.S. Department of Housing and Urban Development (HUD) defines gentrification as “the process by which a neighborhood occupied by lower-income household undergoes revitalization or reinvestment through the arrival of upper-income households (cited in Hammel and Wyly, 1996: 265).” The phenomenon of gentrification is associated with the process of revitalization in HUD’s documents.

Similar definitions are also found in the early academic literature. London, Lee, and Lipton (1986: 369) see gentrification as “widespread emergence of middle- and upper middle-class enclaves in the formerly deteriorated, inner-city neighborhoods.” Smith and Williams (1986: 1) argue that it is “the rehabilitation of working-class and derelict housing and the consequent transformation of an area into a middle-class neighborhood.” Drawing on his previous work, Hamnett (1991) offers a comprehensive framework for thinking about gentrification—it is “simultaneously a physical, economic, social and cultural phenomenon and commonly involves the invasion by middle-class or higher-income groups of previously working-class neighborhoods or multi-occupied ‘twilight-areas’ and the replacement or displacement of many of the original occupants.” The issue of replacement or displacement is highlighted, and he argues that the motivation of physical renovation derives from the requirements of newcomers. As a result, “housing in the areas affected, both renovated and unrenovated,
undergoes a significant price appreciation” (Hamnett 1991: 175), and this change is accompanied by some degree of tenure transformation from renting to owning.

More recently, scholars have further extended the definition of gentrification on the issue of displacement or condensed its main idea of class transformation from income and occupational status to social class. Lyons (1996: 42) defines gentrification as “the displacement or replacement of a low ranking socioeconomic group by a higher status socioeconomic group in the inner city, involving the renovation of previously downgraded buildings for residential use and occurring unevenly, affecting some neighborhoods but not others, and taking place in stages.” Wilson (1996: 143) argues that gentrification is tied to urban redevelopment: it is “a process of urban redevelopment” and occurs “when middle-class families move into declining central city neighborhoods, and the housing in these neighborhoods is upgraded through rehabilitation and apartment conversion.” Millard-Ball (2000: 1673) provides a simplified definition: it is “the social and physical ‘upgrading’ of a residential neighborhood.” Like Neil Smith, Wyly and Hammel also focus on how capital flows affect housing markets and fuel gentrification. They argue that it is “the class transformation of urban neighborhoods that were devalorized by previous rounds of disinvestments and out-migration amidst metropolitan growth and suburbanization” (Wyly and Hammel, 2001: 213).

In sum, the conceptual description of gentrification composes three elements that can answer the questions of who and where: (i) some see gentrification as the transformation between two socioeconmic groups from low to high; (ii) some see it as a social transformation
between two different income groups; and (iii) still others look at it as a transformation between two social-class groups in terms of occupation. Much current literature tends not to specify the differences between the two groups by labeling them as income or occupational differences. They simply define gentrification as the process of “class transformation” or “social upgrading.” A presumable explanation for this trend is that it is too difficult to distinguish gentrifiers and affected groups by a sole indicator. Therefore, this study will adopt “class transformation” as the definition of gentrification.

The phenomenon of gentrification was first defined in the inner-city of London. The (previously) deteriorated inner-city neighborhoods were commonly recognized as the location of the extent of gentrification. However, restrictively, some researchers make an argument that gentrification should only take place in neighborhoods for residential use. Bourne (1993a) argues that if the neighborhoods involve non-residential uses, the process of social transition could not be recognized as gentrification but as a redevelopment process. It is central to Bourne’s argument that the phenomenon of gentrification is marked by not only the socioeconomic transformation, but also by the deprivation of the original residents’ living space. However, adopting such restrictive definition of gentrification in this study would cause problems in identifying gentrification. The procedure of identification would become too complicated to be practical for this study. As a result, gentrification is simply defined as a process of social change which involves class transformation from low to high status in the (previously) deteriorated inner-city neighborhoods.
2.2 Causes of gentrification

2.2.1 Liberal Humanism vs. Marxism

The contemporary explanations of the process of gentrification primarily are derived from two theoretical aspects. Liberal humanism views the phenomenon of gentrification as characteristic of the post-industrial society. The phenomenon also relates to the changes in demographic composition, culture, and consumption mode. Post-industrial cities are not only characterized by a shift of the labor force from blue- to white-collar workers, particularly in the professional, managerial, administrative and technical occupations, but also a shift of the political atmosphere. Political culture in post-industrial cities has changed the decision-making process as described by Ley: “decision making and allocation of resources is now referred to the political arena... the politicization of varied interest groups is challenging the formerly firm hold of the business lobby on political decisions (cited in Hamnett, 1991).” The gentrifiers and their boosters representing interest groups and possessing political powers (the power of decision making) are able to express their desires and change the neighborhood’s landscape as a result. Their desires therefore are viewed as a trigger of gentrification. Internal political tensions exist in neighborhoods where a number of groups pursue the representation of community interests through negotiation (Blomley, 1997). Within this framework, their desires formed by the interaction of demographic, cultural, and consumption factors, can be fulfilled through the decision-making process.

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8 Beauregard (1986) asserts that the process of gentrification is promoted by its “boosters” such as city offices, real-estate companies, financial institutions, and redevelopment bodies consisting of landlords and middle-class homeowners.
Changes in population composition encourage the process of gentrification, especially in the rapidly increasing population after World War II. The baby boom generation had become young adults by the 1980s and this cohort increased the demand for housing (London and Palen, 1984). Because of the rising age at first marriage, improved contraceptive devices, declining fertility rates, later birth of the first child, and increasing women in the labor force, this generation often consisted of young, childless couples. They were more likely to live in or near the inner city for the reason of proximity to work and to recreation, or for the reason of attractive and affordable homes (London et al., 1986; London and Palen, 1984; Rose, 1984; van Weesep, 1994). These groups were the main source of gentrifiers who led gentrification during the late 1970s and the 1980s.

Liberal humanists also emphasize sociocultural factors as contributing to gentrification. Changes in values, attitudes, and lifestyles contributed to the migration of middle-class and middle-upper-class people to the inner-city neighborhoods. London and Palen (1984) offer an explanation of how value changes stimulated the process of gentrification. The "rural ideal" is seen to have long affected choice of location in housing. However, with the emergence of "pro-urban"9 values, more of the young population choose to live in the central city. Liberal humanists believe that cultural values often motivate individual behavior, and this new group holding political and economic power is viewed as a major determiner of the urban landscape. This perception constitutes the aspect of "consumer sovereignty:" it is assumed that consumers have free choices in the land and housing markets and their requirements for

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9 London et al. (1986) defined "pro-urban" as people consciously settling in cities because of proximity to cultural, recreational, and other amenities available there.
inner-city locations, with amenities and cultural facilities, make gentrification occur. Within this framework, gentrification is treated as the product of certain sets of consumer’s choices (Smith and Williams, 1986).

A competing explanation of gentrification derives from Marxism. It assumes that the role of investment and development agencies is much more important in directing the fate of neighborhoods. The concept is represented by Smith’s rent gap theory. It draws on production or supply-side approaches and political-economic explanations (London et al., 1986; Wyly and Hammel 2001). The rent gap is the difference between the potential ground rent (representing the expected value for highest and best land usage) and the actual ground rent (representing the present land usage). In the context of capitalism, it is expected that the value of a house will decline with length of use. Thus, the value of housing will go down during “the first cycle of usage.” Property owners may not choose to repair their houses if there is not enough convincing economic incentive. As a result, some degree of transition from owner occupancy to tenancy is likely to take place and capital investment may leave the property to be invested elsewhere. During this period, the levels of capitalized ground rent (the actual quantity of ground rent; see Smith, 1979: 543) for the area will drop below the potential ground rent. Consequently, real estate agents may buy these properties and resell them at a profit. Bradford and Rubinowitz argue that the real estate agencies direct the course of investment and development, and their decisions significantly shape the market (cited in Smith, 1979: 543). Accordingly, landlords may abandon their properties if the renovation does not return sufficient rent to cover costs.
Beauregard (1986) discusses in much more detail how diverse “boosters” act in the process of gentrification. He claims that gentrification is initiated by two kinds of forces intervening in the process of a neighborhood’s redevelopment or reinvestment. One of the forces arises from the public sector, at both federal and local levels. Federal policy may indirectly effect structural changes in society through a system of welfare or policies such as tax reductions and credits or mortgage insurance to motivate interest in home-ownership. At the local level, governments play more active and direct roles in the gentrification process. For example, the City of Atlanta facilitated the emergence of gentrification by providing tax abatements for new housing development; large public infrastructure investments and homeownership tax credit are the driving factors of gentrification in Washington, D.C (Kennedy and Leonard, 2001).

Another force derives from landlords, developers, financial institutions and real-estate agents in the private sector. Often they are interested in maximum economic advantage, which does not necessarily correspond to an increase in the use value of the property. Landlords may increase rents in order to prepare for sale or complete rehabilitation; financial institutions and developers provide the necessary capital or other resources to accelerate the emergence of gentrification.

From the Marxists’ perspective, gentrification is a structural product of the land and housing markets. It occurs when the rent gap is too large in the present neighborhoods. However, this condition cannot explain why gentrification occurs in only some central cities. Deteriorated neighborhoods, resulting from a lack of investment by private and public sectors should be
treated as a precondition of gentrification. Capital reinvestment may be essential for the process of gentrification, but without a pool of potential gentrifiers, gentrification will not occur, however great the rent gap, and however strong the desire of boosters to make it happen. In sum, it is impossible to explain what triggers gentrification, in either the production or consumption aspect. Gentrification occurs only under certain sets of conditions, provided by either/both Liberal or/and Marxist explanation(s).

2.3 Consequences of gentrification

Gentrification affects a city in diverse ways. Its consequences will be discussed from three perspectives: changes in the neighborhood’s landscape, physical upgrading, and social upgrading.

2.3.1 Changes in the neighborhood’s landscape and atmosphere

Gentrification is a process of class transformation. Newcomers bring significant impacts to the original neighborhoods in terms of cultural and social landscapes. Although there is a debate between Marxists and the liberal humanists, both recognize that gentrifiers are characterized by a new middle class that consists of professionals and managers unlike the old middle class\(^{10}\) or “petit bourgeoisie” (Bridge, 1994) and working class. These new groups pursue leisure, aesthetic lifestyles\(^{11}\), and possess much more political and economic power.

\(^{10}\)They are characterized as people who are sober, industrious and steady. The difference between new and old middle class is the consumption model. “Art becomes increasing integrated into the new middle-class pattern of consumption as a form of investment, status symbol and means of self-expression” (Jager, 1986:86).

\(^{11}\)The concept of lifestyle is defined by Salomon and Ben-Akiva, cited from Rose’s article (1984: 56), “as the
than the lower-status groups, enabling them to express their own predilection for luxury items or leisure facilities. In addition, gentrifiers are defined by Caulfield as leaders in creating new conditions for social activities (cited in Lees, 2000: 393), and have assumed the responsibility for introducing new consumption models (Jager, 1986). Not surprisingly, scholars from consumption-dominance schools of thought assert that the new middle class’s requirement of cultural consumption alters or reforms neighborhood landscapes (Ley, 1996; Rose, 1984; Marcuse, 1986; Lees, 1994). The increasing concentration of bars, restaurants, theaters, shops, studios, and coffee lounges, for example, is a phenomenon of neighborhood gentrification based on consumption tastes imported by newcomers. National chain stores may replace local shops in offering their products and services to these new upscale residents. As a consequence, the unique flavor of inner-city neighborhood changes (Kasarda, 1999; Kennedy and Leonard, 2001).

2.3.2 Physical Upgrade

The process of gentrification, based on Marxist interpretation, involves capital reinvestment by financial institutions, developers and individual homeowners, which may facilitate physical upgrading in the central city of neighborhoods. Physical upgrading in the process of gentrification is generally defined as the renovation of existing dwellings. Alternatively, it

pattern of behavior which conforms to the individual’s orientation toward the three major roles of: a household member, a worker, and an consumer of leisure, and which conforms to the constrained resources available.”

12 Gentrifying neighborhoods are defined as the neighborhoods which have undergone some degree of housing improvement within the volume of property transactions and the price of housing; which do not involve the change of the property transaction, of the price of housing, or of the household status, it was defined as upgrading neighborhoods (DeGiovanni, 1984: 84).
may consist of the activities of new building construction or condominium conversion in commercial buildings (Wyly and Hammel, 1999; van Weesep, 1994). In addition, new residents may require the city to provide more cultural amenities. The demands of middle-class and middle-upper-class people for high-quality facilities and services adversely affect public expenditure on basic facilities\(^{13}\) which original residents rely on. Subsequently, gentrification may diminish original residents’ ability and desire to stay in that place (Atkinson, 2000b).

2.3.3 Social Upgrade

Gentrification also involves a certain degree of social upgrading, which is determined by the social mobility of the local population and results from an invasion by a higher socioeconomic-status group displacing the original residents in the process (van Weesep, 1994). Whether displacement takes place is determined by the timing of gentrification. In their early stages, gentrifying neighborhoods may enjoy benefits from a mix of race, income, and demography. Cybriwsky et al. (1986) in their experience of Vancouver found that a certain degree of social mixing existed, and claimed that neighborhoods which provide social and physical diversity are healthy. In addition, gentrification contributes to the deconcentration of poverty. The concentration of poverty in potentially gentrifying neighborhoods may generate social problems such as crime, homelessness, etc. Conversely, it is believed that deconcentration of poverty through migration of higher income residents may

\(^{13}\) Basic facilities are defined as public transport, good libraries, and leisure facilities which are subsidized by a local government and which are less useful for the middle-class and middle-upper class residents (Atkinson, 2000b).
provide means of learning about employment opportunities (Quercia, 1997) and have vital impacts on the well-being of families and children (Kennedy and Leonard, 2001). Moreover, it is usually assumed that lower-income households may reap the benefits of living in proximity to high-income families by sharing high quality facilitates and services (van Weesep, 1994). In addition, according to HUD’s Displacement Report, gentrification by means of the revitalization process provides a unique opportunity for social integration and may contribute to the elimination of social conflicts between gentrifiers and original residents (LeGates and Hartman, 1986).

Accompanying the process of “social upgrading,” the problem of displacement threatens original residents. Several empirical studies indicate that gentrification-caused displacement is severe in U.S. cities, and the annual displacement is conservatively estimated to be about 2.5 million people (LeGates and Hartman 1986). Glass argues that the process of gentrification will not stop and will go on rapidly until all or most of the original working-class occupiers are displaced (cited in van Weesep, 1994:79).

2.3.4 Who benefits?

Theoretically, the major beneficiaries of gentrification, although they may fail to invest, are financial institutions, developers, individual landlords and property owners. They benefit through the process of capital accumulation and investment in the form of interest, as do local governments and the middle class in general (Smith and LeFaivre, 1984). Financial institutions benefit by providing loans and mortgages, and collecting interest payments. Large businesses, as in the case of Philadelphia, benefit from relocation (Kilimnik, 1975);
however, small businesses are hurt by gentrification because of increases in rent or owner move-in evictions. Initially, individual landlords may profit by increasing house rents while their profits can cover the cost of maintenance, and owner occupiers may have more confidence in their neighborhood as a viable place to live (DeGiovanni, 1984). Those who have the ability to employ professional developers may have profits generating from the rehabilitation of one or more structures (Smith and LeFaivre, 1984).

Gentrifiers often are middle-class or middle-upper-class residents. These groups of people consider much more than personal profits in terms of wealth accumulation when deciding where to live. This attitude distinguishes them from local people who use the city principally as a place to live and work. In addition, gentrifiers favor gentrifying neighborhoods that provide relatively cheap houses and unique place characteristics within the inner city. Although these situations may change depending on the stages of gentrification, it is assumed that gentrifiers can obtain economic profits because of increased property values, and ultimately achieve the goal of wealth accumulation.

Direct benefits for the city from gentrification are in the form of property taxes resulting from an increase in property values; these benefits are assumed as a consequence of gentrification. City officials welcome gentrification because they believe it is a solution to urban decline by attracting middle- and upper- households to resettle in the central city. The resettlement of middle- and upper-class groups of people in central city neighborhoods is expected to increase the demand for housing units, and improve the city’s fiscal condition as a result. Although Lees suspects the “true” value of gentrification is as a practical solution to
urban decline, gentrification is commonly construed as a treatment for urban problems, and a stimulant for the vigorous urban life (Lees, 2000).
CHAPTER 3
DISTRIBUTION OF GENTRIFIED NEIGHBORHOODS IN ST. PAUL, MN

3.1 The City of St. Paul

3.1.1 Emergence of St. Paul

St. Paul, serving as the case study in this paper, is one of prime cities in Minnesota and located at the east side of the Mississippi River, opposite Minneapolis. Its ample timber resource, great agricultural production, and river transportation guaranteed the emergence of the city in the early nineteenth century. St. Paul offered a convenient transfer point and soon after became a head of navigation on the upper Mississippi River. As a result, the city became the main regional commercial and transportation center before the end of the century (Adams and VanDrasek, 1993; Borchert, 1987).

3.1.2 Early economic development

Early development of the city was boosted by the timber and fur industries and St. Paul became one of the major fur centers in the world. As a consequence of its superior economic status, the city was designed as the capital of the state in 1849. Meanwhile, the vigorous economic activities made St. Paul an important banking center. When the railroads expanded, the river transportation was not as important as it was before. As a result, the city did not maintain its premier position. By 1880, when settlement expanded westward, and the Upper Midwest developed as an important area for producing goods, Minneapolis substituted for St. Paul as a site for new enterprise. Although the center of industrial development transferred to Minneapolis, numerous small firms still depended on St. Paul's role as transportation and
mercantile center. When the economic transition to manufacturing and service took place in the early twenty-century, St. Paul became more highly centered on manufacturing and transportation industries but was weak in trade, finance, and service sectors (Adams and VanDrasek, 1993; Borchert, 1987).

Figure 3.1 Metropolitan Area and Neighborhood Districts, St. Paul City, Minnesota

3.1.3 Neighborhood development
The image of St. Paul was not only its working-class identity but also its ethnic diversity. The main ethnic groups included Swedes, Germans, Norwegians, and later immigrant Irish. These immigrant groups were also the major population in the middle-class neighborhoods. The earliest neighborhood was Swede Hollow, located along the ravine of Phalen Creek, running from Lake Phalen to the Mississippi River in 1840s. Later due to health concerns, in 1974 the ravine was designed as Swede Hollow Park (Adams and VanDrasek, 1993; Lanegran, 1977).
The small morainic hill directly north of downtown, along with Dayton's Bluff east of downtown once had been a popular place to live for elite. However, when tastes shifted and affluent families desired more space, they then relocated to the bluffs at the east end of Summit Avenue where there was ample land for development. By 1900, the upper classes were established in the Summit Hill neighborhood west of downtown. Middle-class neighborhoods developed to the west and northwest of the city. In contrast, western St. Paul was favored by upper classes while development in east and north of downtown was assigned to railroad and industrial uses. The East Side district was developed for such uses and attracted immigrants from Southern and Eastern Europe. The West Side neighborhood, across the river south of downtown, concentrated on mixed industrial activities, was the location of the main Jewish settlement. Other residential neighborhoods such as slums were located on the flood plain of the Mississippi River (Adams and VanDrasek, 1993; Lanegran, 1977).

By the 1920s, the Midway District became a major zone of manufacturing and goods handling. Meanwhile, St. Paul’s first-tide suburbanization took place inside the city, largely in Highland Park in the southwest and around Lake Phalen in the northeast part of the city. After World War II, these areas filled with single-family housing and were occupied by the earliest post-war suburbanization of young families. Highland Park later became one of the highest priced housing areas, according to the 1970 census. As a result, the East Side Lake Phalen neighborhood developed recreational uses for wealthy families.

Typically, St. Paul’s working classes, according to a 1983 statistical profile, were
concentrated in Thomas-Dale and Dayton's Bluff, which once was the location of the city's elite. Thomas-Dale area with the highest percentage of poor people, therefore, showed relatively high overall unemployment rate. Another area with greatest proportion of low-income population is Summit-University district. Other neighborhoods of central St. Paul, such as North End, West Side, and West Seventh Street, were also intensively occupied by working-class and lower-middle-class residents. Particularly, West Seventh Street provides satisfactory low-cost housing and thus attracts low-income working households to live (Adams and VanDrasek, 1993; Lanegran, 1977).

In contrast, the western and southwestern parts of the city were developed for relatively high social-status group. For instance, the St. Anthony neighborhood had a large college-graduate population; Como with great proportions of nuclear families and students had the highest number of owner-occupied houses and the fewest poor people. Along Summit Avenue, St. Paul's elite established their homes in the two neighborhoods of Groveland-Macalester and Merriam Park-Lexington. Vast expanses of high-quality houses further expanded to the southwest, into Highland district (Adams and VanDrasek, 1993; Lanegran, 1977).

3.1.4 Downtown redevelopment

After World War II, St. Paul experienced a deconcentration and steady outward migration of population that lasted into the 1960s. To attract people to (re)settle in the central city, St. Paul initiated redevelopment programs in 1964 which emphasized physical environment reconstruction, for example, replacing old buildings and downtown infrastructure. During the 1970s and 1980s, the city spent an enormous amount of money on its downtown
redevelopment efforts and particularly focused on economic rejuvenation. Between 1964 and 1978, numerous lands were designed for office, financial, and residential uses. By 1989 St. Paul’s downtown redevelopment turned the focus on strengthening economic activity and on enhancing the city’s status by designating it as a government and cultural center. Generally, St. Paul’s redevelopment programs were centered on economic revitalization and real estate redevelopment. By the early 1990s, the city had succeeded in drawing people and businesses back to downtown (Adams and VanDrasek, 1993).

3.2 Selecting Proxy Indicators

3.2.1 Problem of identification

The primary indicators that analysts use to identify gentrified neighborhoods include housing or demographic measurements. Before developing criteria for identifying gentrification, first a methodological question must be addressed; i.e. how to identify gentrified areas? Methods that have been used to identify gentrification have been criticized for their interpretation and technical failures. Galster and Peacock (1986) caution that the lack of a consistent definition of gentrification affects the choice of indicators, and could eventually reduce confidence in gentrification research. This is the interpretation failure, i.e. inappropriate identification of gentrification. The failure originates in and involves issues of selecting criteria for identifying gentrification. Regarding technical failures, Schuler, Kent and Monroe (1992) argue that using descriptive statistics to determine the existence of gentrification within the inner-city neighborhoods is less accurate than discriminant analysis. Still, much current literature relies on the method of descriptive analysis to evaluate the phenomenon of gentrification (e.g. Atkinson, 2000a,b; DeGiovanni, 1984; Friedenfels, 1992). Therefore, this study will adopt
the widely-accepted method of descriptive statistics as the approach for identifying gentrification.

The rest of this chapter focuses on the types of indicators for distinguishing gentrified areas from other inner-city neighborhoods and the distribution of gentrified neighborhoods in St. Paul.

3.2.2 Overview

Hammel and Wyly (1996) attempted to model the selection of gentrified neighborhoods by employing census data in a two-step method. The first step involves documenting the extent and nature of neighborhood change through a field survey. In the second step, they evaluated the validity of the selected variables on the basis of previous empirical works. Although this approach is useful, it requires a lot of time and resources that would not be possible for this study.

For studies which focus on evaluating alternative indicators to identify the phenomenon of gentrification, the criteria for selecting indicators are drawn from the characteristics of gentrifiers, generally defined as young whites with higher education and possibly higher income. For example, Spain (1981) examined the relationship between race, education, and income variables and gentrification, but found no relationship between these socioeconomic indicators and gentrification. Schuler et al. (1992) employed discriminant analysis\textsuperscript{14} to

\textsuperscript{14} Discriminant analysis has been used to examine the importance of indicators of gentrification. This is a
identify factors that are most useful in defining gentrified areas. They selected eleven variables, including education, race, age, income, and occupation (as socioeconomic indicators) and housing rent affordability, home ownership, tenure transition, and working in the central city (as housing market indicators). Interestingly, they found that the socioeconomic indicators are highly related to gentrification, particularly the education variable in comparison to the indicators for the housing market. Glaster and Peacock (1986) adopted race, education, housing value, and income as gentrification criteria. They found that each of the definitions of gentrification had great sensitivity to affect the results of identifying gentrified areas; and concluded that it is hard to generate the “best” operational definition and criteria for selecting indicators should depend on the purposes of analysis.

Other studies which aim to assess the impacts of gentrification utilize the descriptive statistics. For example, Henig (1980) was concerned about the issue of gentrification-related displacement and used housing conditions and occupational status to describe the extent of gentrification. Friedenfels (1992) employed education and income as indicators of gentrification. Marcuse (1986) adopted a single indicator (education) to examine whether the change of college-educated population exceeds the citywide average for the periods. Others studies outside the United States, especially in United Kingdom, use “class” as an indicator, particularly using occupation as the criterion of class difference. For instance, Lyons (1996)

powerful tool which provides more information about variables than descriptive analysis does. However, this study simply defines gentrification and does not attempt to identify the best indicators of gentrification. Therefore, the descriptive analysis is used, and it is assumed that all selected variables have equal relationship with gentrification.
adopted the male householder in professional and managerial occupations as the indicator of gentrification. Similarly, Atkinson (2000a,b) used proxy indicators to see whether neighborhoods have experienced an increase in professionals and managers; areas where changes in composition of professional and managerial workers exceeded the average levels of professionalization, were considered gentrified.

In sum, studies have employed different criteria to describe or identify gentrification including either the characteristics of gentrifiers (such as education, age, income, occupation) or the housing conditions (such as housing rent, tenure, and home ownership) in gentrified neighborhoods. However, most scholars have chosen characteristics of gentrifiers rather than housing conditions. This trend can be attributed to the common definition of gentrification—middle and upper-middle social status individuals or groups move into (previously) deteriorated neighborhoods. The next section will elaborate the process of selecting indicators of gentrification.

3.2.3 Selecting Proxy Indicators

The bulk of empirical literature uses either variables that describe the socioeconomic status of gentrifiers such as race, education, occupation, and income, or the housing market condition. It is, however, recognized that the primary qualified indicator should derive from the definition of gentrification. This study defines gentrification as a process of social change, which involves class transformation from low to high status in the (previously) deteriorated inner-city neighborhoods. Wyly and Hammel (1998, 2001) adopt the housing condition as the determiner of potential for gentrification. Their approach is based on Smith’s rent gap theory:
the precondition of gentrification is the housing stock in neighborhoods experiencing disinvestments during a certain long period. The core cause of gentrification, instead of the condition of housing units, is “class transformation.” This view is emphasized by Hackworth (2000), and Wyly and Hammel (2001) also mention class transformation: “gentrification is the class transformation of urban neighborhoods …” (Wyly and Hammel, 2001: 213). Other scholars also describe the process of gentrification as involving the process of the replacement or displacement of the low ranking socioeconomic groups by higher-status socioeconomic groups. Thus, the criteria for selecting indicators should draw on the concept of class transformation.

From a theoretical point of view, Bridge (1994) finds that the bulk of research on gentrification uses social class variables; utilizing occupation and income as indicators to distinguish various social classes. He reviews the works of other scholars to illustrate the meaning of class in the context of gentrification from Marxist and liberal perspectives. In gentrified neighborhoods it is possible to distinguish social classes based on their possessions of different levels of economic and cultural capitals15. Bridge concludes that the emergence of a new middle class is distinct from a working class tied to the “skill and education assets,” particularly education, which is seen as a key element of class formation.

However, occupation should be included in the elements of class structure because the new

15 Economic capital refers to material resources such as income, property, and etc.; and cultural capital means levels of education through which “habitus” (displaying good taste and pursuing leisure activities) is performed (Rose, 1984).
middle class possesses expertise, or what Bridge (1994) calls “skill assets” that makes them distinct from other classes, and that obviously reflects on different positions in the labor market. This group, also defined as white-collar workers, usually holds executive positions and has power to make decisions, specifically in professional, managerial, or technical occupations. From these points, both education and occupation are eligible to be indicators of gentrification.

There are still other variables not selected as indicators of gentrification for different reasons. The income index is seen in some empirical studies as an inappropriate indicator because it fails to capture the full range of socioeconomic changes. Gentrifiers have higher socioeconomic status rather than higher income. For instance, Wyly and Hammel (1998) found that income, education, occupation, rent and house value increased in the gentrified areas of four cities. However, the gentrified areas in some cities did not appear to have higher incomes than the citywide average because their gentrifiers were often young and less affluent. Another important indicator of gentrification not adopted is ethnicity. According to early literature, ethnic composition did not appear to be applicable for St. Paul (Spain, 1981; Hammel and Wyly, 1996). Thus, race was not chosen as a gentrification indicator. In sum, only education and occupation variables were used to identify the phenomenon of gentrification within census tracts.

3.3 Method of the identification of gentrification

3.3.1 Geographic problem of census tracts

The methodology of early empirical studies of gentrification can be classified as the
case-study approach, which relies on information from local offices or field surveys (e.g., Lang, 1986; DeGiovanni, 1986), or census-based analysis (e.g., Lipton, 1980; Schuler, Kent and Monroe, 1992). Studies that adopt the case-study approach usually discuss the phenomenon of gentrification in a short-term period (e.g. within a decade), while those that employ decennial census data usually involve long-term observations of socioeconomic change. Some scholars point out that socioeconomic transition is difficult to measure with only census data (Hammel and Wyly, 1996; Wyly and Hammel, 2000). In addition, class transformation could actually occur during the decennial census year. Moreover, census tracts may also be too large to capture the process of gentrification (Henig, 1980; London et al., 1986; Schuler, Kent and Monroe, 1992), especially in its early stages, since the process may occur only in one or two blocks. Despite these criticisms, Schuler, Kent and Monroe (1992), argue that if gentrification is really a national phenomenon, it must be measurable at the tract level; conversely, if the changes are only restricted to the block level, then the impacts of gentrification must be seen as limited. Although Henig (1980) criticizes the use of census tract data, he concludes that the significance of the process of gentrification could be captured by using census data at the tract level. Finally, the main reason for the use of census data at the tract-level is that it is a statistically comparable and comprehensive source of data that captures socioeconomic changes of neighborhoods.

One limitation of the use of census data in gentrification research is the frequent changes in tract boundaries over time that makes comparability of the various decennial data difficult. For example, St. Paul’s census tract boundaries have changed significantly during the study period (1970, 1980, and 1990); some tracts have been merged and others divided. In order to
make data comparable between among 1970, 1980, and 1990, some tracts have to be combined. To minimize the problem of shifting tract boundaries, two models were developed. Therefore, the second model can be served as a comparison to see the effect of the boundary adjustment. The first model makes the adjustment based on the 1970 census boundaries. Sixteen tracts were affected, every two of which were merged into one. For example, tract 306 in 1970 had been divided into 306.01 and 306.02 since 1980. According to the rule in Model-I, tracts 306.01 and 306.02 were merged into one in 1970. A total 73 census tracts were created using this model. The second model is based on 1980 census tract boundaries and has less geographic adjustments. Only six tracts involved boundary adjustments, and a total of 78 tracts were created. Therefore, this model may produce better results (see Table 3.1 and Figure 3.2).

### Table 3.1 Adjustment of Census Tract Boundaries

<table>
<thead>
<tr>
<th></th>
<th>Model-I</th>
<th></th>
<th>Model-II</th>
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<tbody>
<tr>
<td>After</td>
<td>Before</td>
<td>After</td>
<td>Before</td>
</tr>
<tr>
<td>306.01</td>
<td>306.01</td>
<td>307.02</td>
<td>307.02</td>
</tr>
<tr>
<td>306.01</td>
<td>306.02</td>
<td>307.03</td>
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<td>321</td>
</tr>
<tr>
<td>307.02</td>
<td>307.02</td>
<td>322</td>
<td>322</td>
</tr>
<tr>
<td>307.02</td>
<td>318.02</td>
<td>361</td>
<td>361</td>
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<tr>
<td>321</td>
<td>321</td>
<td>371</td>
<td>371</td>
</tr>
<tr>
<td>346</td>
<td>346.01</td>
<td>347.01</td>
<td>347.01</td>
</tr>
<tr>
<td>347</td>
<td>346.02</td>
<td>347.02</td>
<td>347.02</td>
</tr>
<tr>
<td>361</td>
<td>361</td>
<td>371</td>
<td>371</td>
</tr>
<tr>
<td>374</td>
<td>374.01*</td>
<td>374.02</td>
<td>374.02</td>
</tr>
</tbody>
</table>

3.3.2 Definition of proxy indicators

According with previous discussion, both occupation and education are selected to be indicators of gentrification.

(i) Occupation

The specific focus is on the professional, managerial, or technical (PMT) occupations. The Census Bureau had a different occupational classification system between 1970 and 1980. Two of associated PMT occupations in the 1970 census data were reported as “managerial and professional specialty occupations” and “technicians and related support occupations.”
The 1980 census report specifically separates “managerial and professional specialty occupations” into two categories and adds the managerial occupations into “executive, administrative” categorization. Thus, the examination of 1980 and 1990 census statistics includes three subjects: the executive, administrative, and managerial occupations; professional specialty occupations; and technicians and related support occupations. If the change of the proportion of workforce in PMT employment exceeded the St. Paul’s average, then a tract would be designed as gentrified, labeled as “Goccu.”

(ii) Education

The college-educated population is examined. The data source in 1990 consists of population with bachelor’s degrees or graduate/professional degrees; in the 1970 and 1980 census, the population that completed four or more college years was used. If the percentage of college-educated population changes above the citywide average, then a tract would be designed as gentrified, designed as “Gedu.”

3.4 Location of Gentrified Tracts

3.4.1 Occupation-Based Gentrification

The regional occupation status of St. Paul indicates that PMT workers make up roughly a quarter of total employment in 1970, 1980 and 1990, with 23, 28, and 34 percent respectively (Table 3.2). Although the 1970s’ growth rate of population declined by 12.82 percent, there was still a slight increase in professional/managerial occupations between 1970 and 1980, with a growth rate of about 20 percent. Between 1980 and 1990, the growth rate in these occupations experienced a moderate growth of up to 25 percent, which was lower than the 38
percent national growth rate in central cities (Wilson, 1996). Generally, between 1970 and 1990, St. Paul’s employment in PMT occupations improved gradually. Tracts were thereby designated as “gentrified” if the growth rate of PMT workers exceeded the citywide averages of 5 percent in the 1970s and 6 percent in the 1980s.

### Table 3.2 Occupation Status, 1970-1990, St. Paul, MN

<table>
<thead>
<tr>
<th></th>
<th>1970</th>
<th>1980</th>
<th>1990</th>
<th>Growth Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>70-80</td>
</tr>
<tr>
<td>Total Population</td>
<td>309,980</td>
<td>270,230</td>
<td>272,235</td>
<td>-12.82</td>
</tr>
<tr>
<td>Employed Workers</td>
<td>129,768</td>
<td>129,705</td>
<td>133,383</td>
<td>-0.05</td>
</tr>
<tr>
<td>Professional/managerial</td>
<td>30,057</td>
<td>35,946</td>
<td>44,907</td>
<td>19.59</td>
</tr>
<tr>
<td>workers percentage (%)</td>
<td>23.16</td>
<td>27.71</td>
<td>33.67</td>
<td>4.55</td>
</tr>
</tbody>
</table>


In the 1970s, 36 of 73 tracts designated as gentrified were scattered over the middle and the west of St. Paul. Particularly, the neighborhoods of Summit University and Summit Hill experienced a much higher proportion of increase in PMT occupations; other neighborhoods of central St. Paul, such as St. Anthony, Merriam Park, Macalester, West 7th, and downtown St. Paul also experienced some degree of occupational transformation in professional/managerial categories. By the 1980s, the geographic distribution of gentrification seems to have moved from the mid-western St. Paul and clustered around the north- and south-west of the city. Neighborhoods which experienced the greatest increase of PMT workers in the 1970s did not continue the trend in the 1980s, as the focus shifted to St. Anthony, Como, Midway, Highland, and downtown St. Paul. The number of gentrified tracts declined to 26 tracts in Model-I, while those in Model-II went down to 29 tracts during the 1980s. The spatial distribution also shows no significant difference between the two models.
in the 1980s. Only three tracts more were identified in Model-II than Model-I, which are 306.01, 307.04, and 347.02, located around the northeast of St. Paul (see figure 3.3).

**Figure 3.3 Distribution of Occupation-based Gentrification, 1970-1990, St. Paul, MN**


### 3.4.2 Education-Based Gentrification

In addition to the decline in total population between 1970 and 1980, the population aged 25 years old and over experienced a relatively low decline of about 4 percent of the growth rate (Table 3.3). The college-educated population, however, had a significant shift with a 64.48
percent increase. The proportion of college-educated to population aged 25 years old and over increased by 8.32 percent from 12 percent in 1970 to 20 percent in 1980. Between 1980 and 1990, although the proportion of the college-educated population increased to 26 percent, it accounted for only 43 percent of the college-educated population growth rate. The increase in proportion of college-educated persons in the 1980s did not show as well as it did in the 1970s, with only 6.76 percent growth rate. In general, St. Paul experienced a stable increase in the college-educated population from 19,500 to 45,800 people between 1970 and 1990, but a slight decrease in the proportion of college-educated population from 8 percent to 7 percent between 1970-1980 and 1980-1990. Accordingly, the gentrified tracts were identified when their changes in the proportion of college-educated population exceed the citywide averages (8.32 in the 1970s and 6.76 in 1980s).

In the 1970s, 27 census tracts were identified by the education indicator as gentrified areas. Most of them clustered around the western area of St. Paul. Merriam Park and Summit Hill were the neighborhoods that experienced the greatest proportion of both educational and professional change. By the 1980s, Merriam Park and Summit Hill consisted of gentrified tracts in all regions, and such a social change extended to the St. Anthony, Como, and Highland neighborhoods. When comparing gentrified areas classified by education-based and both-based indicators, Figures 3.4 and 3.5 reveal that there are no differences between Model-I and -II. Thirty-one tracts had growth rates proportional to the college-educated population equal or more the average, 6.76 percent, and were thus identified as gentrified areas (see Table 3.3 and 3.4). The geographic pattern of the 1980s continued from the previous decade and extended to the northwest and southwest area of the city boundaries.
# Table 3.3 Education Status, 1970-1990, St. Paul, MN

<table>
<thead>
<tr>
<th></th>
<th>1970</th>
<th>1980</th>
<th>1990</th>
<th>Growth Rate (%)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>70-80</td>
</tr>
<tr>
<td>25 years old and over</td>
<td>167,870</td>
<td>161,546</td>
<td>172,290</td>
<td>-3.77</td>
</tr>
<tr>
<td>College-educated</td>
<td>19,476</td>
<td>32,034</td>
<td>45,805</td>
<td>64.48</td>
</tr>
<tr>
<td>percentage (%)</td>
<td>11.60</td>
<td>19.83</td>
<td>25.96</td>
<td>8.32</td>
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</table>


## Model-I

<table>
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<th>The Theme of Map</th>
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<tr>
<td><img src="image1" alt="Map" /></td>
<td>Sunray-Batteck-Highwood</td>
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<tr>
<td></td>
<td>Great East Side</td>
</tr>
<tr>
<td></td>
<td>West Side</td>
</tr>
<tr>
<td></td>
<td>Dayton's Bluff</td>
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<td></td>
<td>Payne-Phalen</td>
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<tr>
<td></td>
<td>North End</td>
</tr>
<tr>
<td></td>
<td>Thomas-Dale</td>
</tr>
<tr>
<td></td>
<td>Summit-University</td>
</tr>
<tr>
<td></td>
<td>West Seventh</td>
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## Model-II

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<tbody>
<tr>
<td><img src="image2" alt="Map" /></td>
</tr>
</tbody>
</table>

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**Figure 3.4 Distribution of Education-based Gentrification, 1970-1990, St. Paul, MN**

3.4.3 Both-Based Gentrification

Using both occupational and educational indicators in the period of 1970-1980, (i.e. tracts in which the shift of proportion of PMT occupations exceeded 4.55 percent and the change in the percentage of college-educated population exceeded the citywide rate of 8.32 percent), only 22 tracts were designated as gentrified ("G_{both}"). These are clustered around the west of St. Paul. By the 1980s, 21 gentrified tracts were distinguished from others, which cluster around north- and south-west St. Paul, and the north of downtown (see Figure 3.5).
Table 3.4 Number of Identified Tracts between the 1970s and 1980s St. Paul, MN

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Model-I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Occupation-indicated</td>
<td>36 Tracts</td>
<td>26 Tracts</td>
</tr>
<tr>
<td>Education-indicated</td>
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<td>31 Tracts</td>
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<tr>
<td>Both-indicated</td>
<td>22 Tracts</td>
<td>21 Tracts</td>
</tr>
<tr>
<td>Model-II</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Occupation-indicated</td>
<td></td>
<td>29 Tracts</td>
</tr>
<tr>
<td>Education-indicated</td>
<td></td>
<td>31 Tracts</td>
</tr>
<tr>
<td>Both-indicated</td>
<td></td>
<td>21 Tracts</td>
</tr>
</tbody>
</table>


For period one (1970-1980), the “occupation” indicator identified 36 tracts while “education” had 27 tracts and “both” with 22 tracts. In period two (1980-1990), the “education” indicator defined 31 tracts, the “occupation” indicator with 26 tracts (in Model-I and 29 tracts in Model-II) and “both” with 21 tracts. These two models show no significant differences in the number of gentrified tracts. When using only the occupation indicator, three more census tracts were recognized in Model-II. Moreover, there are more or less increases or decreases in three different indicators between the two periods. \( G_{\text{occu}} \) has a dramatic decrease from 49 percent (36 tracts) in the 1970s to 35 percent (26 tracts) in the 1980s. Conversely, education-indicated tracts increased slightly from 27 to 31 tracts, and \( G_{\text{both}} \) lost 1 tract from 22 tracts to 21 tracts. In general, more than 30 percent of census tracts have undergone gentrification between 1970 and 1990.

In sum, the geographic distribution of gentrification slightly shifted to the northwest and southwest of St. Paul during the 1970s and 1980s. St. Anthony is the latest development of a middle-class district after St. Paul’s elite established their homes in Ramsey Hill and on Summit Avenue (Adams and VanDrask, 1993). This spatial change of gentrification reflects the neighborhood’s development, as in 1970s the neighborhood of St. Anthony experienced
certain degrees of gentrification. By the 1980s, almost the entire region consisted of tracts identified as gentrified. Along Summit Avenue, the neighborhoods of Highland, and Macalester Park were defined as the best addresses of St. Paul with high-quality, upper-middle-class housing (Adams and VanDrask, 1993). These areas experienced certain degrees of gentrification identified by occupational and educational indicators in the 1970s. They consisted of census tracts all of which were identified as gentrified in 1980s when the educational index is applied. The results of spatial distribution of gentrification were distinct among three proxy indicators. Therefore, it cannot be determined which approach is most applicable or reliable, due to the limitations of the descriptive statistic approach. However, the indicators do paint a clear geographic pattern of gentrification during the two periods of 1970-1980 and 1980-1990. In the next chapter, based on these classifications, we examine the economic benefits associated with the geography of gentrification in St. Paul.
CHAPTER 4

EVALUATION OF ECONOMIC BENEFITS FROM GENTRIFICATION

4.1 Identification of economic benefits

The benefits of gentrification involve both social and economic upgrades. Generally, it has tremendous possibility to increase wealth through increases in home ownership, property values, tax base, the value of neighborhoods, and job opportunities. Furthermore, the process of gentrification helps to decrease concentrations of poverty and works to eliminate urban ills such as physical blight and abandonment. Eventually, it triggers the creation of socioeconomic heterogeneity of neighborhoods and provides desirable living spaces in the inner city.

This study focuses on the economic benefits of gentrification. To evaluate its benefits, the economic indicators of gentrification should be quantitative and measurable. The indicators used in this study are drawn from the literature on gentrification and includes property values, employment, and incomes.

From the theoretical and empirical points of view, gentrification raises property values through renovation or improvement of housing units, and ultimately, increases property taxes to benefit the entire city. From the demand-side interpretation, it is reasonable to expect that the increased demand in housing markets, resulting from the affluent immigration of upper-middle and middle classes would lead to an increase in housing values. DeGiovanini’s (1984) empirical study in six U.S. cities led him to observe that neighborhoods which have
undergone a high degree of private market investment experienced greater increases in property values than other inner-city neighborhoods. Thus, he concluded that the increase in property values and ultimately property tax revenue is an expected result of gentrification (DeGiovanni, 1984). Most empirical research on the connection between gentrification and displacement implies that existing households are replaced by middle-upper and middle class households due to the increases in property values and housing rents, particularly in central city neighborhoods which have undergone renovation (Lee and Hodge, 1984; Vigdor, 2001). The question is whether the escalation of housing prices might be seen as a negative for the disadvantaged minority who experience economic disability, or as a benefit to the entire city due to increased property values?

The process of gentrification is also associated with the improvement of the labor market in three ways: increased wages, the transformation of occupational positions from lower-skill jobs to professional labor, and the expansion of employment opportunities. However, the increase in job opportunities may either be the cause or the consequence of gentrification. In the case of the San Francisco Bay Area, job growth in the central city is identified as a key driver rather than the consequence of gentrification (Kennedy and Leonard, 2001). Conversely, media or groups supporting gentrification claim it brings more job opportunities (Tierney, 2002). Therefore, it is assumed that gentrification may create job opportunities or increase the accessibility of existing opportunities for original residents through the secondary labor market, resulting in its net effect on labor demand (Vigdor, 2001:10). Thus, increased job opportunities is considered the second index of economic benefits derived from gentrification.
Increased income among central city residents is also considered a benefit of gentrification. A number of empirical studies have shown that the relatively higher concentration of middle and/or upper income groups in gentrifying neighborhoods is a characteristic of gentrification rather than the consequence of its process. However, the determination of these two diverse perspectives (either characteristic or consequence of gentrification) relates to the timing of the process of gentrification. For example, Marcuse (1989) has classified gentrifiers as “pioneers” or the “settlers,” based on their socioeconomic statuses. Pioneers often include young educated people with worsening economic conditions. Settlers have higher incomes and are willing to pay higher prices to move into the gentrifying neighborhood. Urban pioneers take greater risks to rehabilitate declining neighborhoods in the center of city in the earlier stages of gentrification. One of the empirically supportive evidences draws on Rose’s (1984) observation of the nature of gentrifiers in the first-wave of neighborhood change in New York City’s Lower East Side. It shows that the renovators consist of educated young people with no jobs, economically marginal self-employment, young white-collar workers, and so on. Accordingly, it is reasonable to presume that income increases can be attributed to gentrification. Based on these general recognitions, increases in property values, job opportunities, and incomes are selected as proxy indicators to measure the economic benefits of gentrification.

4.2 Method of evaluation

The data was derived from the 1970, 1980, and 1990 U.S. Census at tract level. Therefore, the three proxy indicators were represented as median housing values, employment, and
median family incomes.

4.2.1 Definition of the indicators

(i) Housing Values:
Housing values are presented only for “specified owner-occupied” housing units which are defined as property with less-than-10-acre family houses, and mobile homes and houses with commercial uses excluded (U.S. Bureau of the Census). One of the technical failures raised is the narrowness of the indicator, which cannot capture the full range of changes in property values in the city (Hammel and Wyly, 1996). This is one of limitations of the use of census data.

(ii) Employment:
Employment refers to people who are 16 years old and over who have jobs (US Bureau of the Census). It is considered that simply observing the employment change over time cannot capture the “true” transition of the labor force in the job market because of the accompanying increases in population over time. To avoid this, the change in the proportion of employment to the labor force was used as an indicator of the economic benefit of gentrification.

(iii) Median family income:
Median family income comprises the incomes of all members related to householder (US Bureau of the Census). Some analysts choosing income as an indicator of gentrification may consider household incomes, consisting of all members, whether or not they are related to the householder. However, household incomes for the 1970 census report is not available. Thus,
median family incomes are employed to evaluate the economic benefit of gentrification to allow for considering during the time period examined from 1970 to 1990.

**4.2.2 Method of analysis**

In the previous chapter, the census tracts for St. Paul were categorized into gentrified (Group 1) and non-gentrified (Group 2). To test the hypothesis about the economic impacts of gentrification, a t-test is employed. A t-test is used to measure whether or not the two samples belong to a single population. Operationally, if a t-value is located within a number range of distance (critical-values), the statement that the variables have same means in two sample is produced. The research hypothesis ($H_1$) is assumed that the means of two groups are unequal. If a dependent variable (housing values, employment, or incomes) has the same means in two groups, it means that there are no differences between Group 1 and Group 2, and the variables have no relation with gentrification. In other words, if the proxy indicators of economic benefits can be distinguished between Group 1 and Group 2, then the assumption that gentrification generates economic benefits is confirmed. The research hypothesis and the null hypothesis are presented as follows:

$$H_1 : \mu_{\text{group}_1} - \mu_{\text{group}_2} \neq 0$$

$$H_0 : \mu_{\text{group}_1} - \mu_{\text{group}_2} = 0$$

The t-test formula for comparing two independent samples can be written as (Trochim, 2002; Black, 1999):

$$t = \frac{\text{difference between group means}}{\text{variability of groups}} = \frac{\bar{X}_1 - \bar{X}_2}{SE(\bar{X}_1 - \bar{X}_2)}$$
where,

\[ \bar{X}_1 \] is the mean of Group 1, and the mean of Group 2 is written as \( \bar{X}_2 \); 

\( n_1 \) means number of gentrified tracts, and \( n_2 \) is number of non-gentrified tracts; 

\[ SE (\bar{X}_1 - \bar{X}_2) \] is called the standard error of the difference, and its formula is written as 

\[ \sqrt{\frac{\text{var}_1}{n_1} + \frac{\text{var}_2}{n_2}}; \]

A t-test should only be used when the data is normally distributed. However, the model is very robust so that to be approximately valid when the distribution sampled is not normal (Bickel and Doksum, 1977). As long as both samples are large enough (\( n > 30 \)), the central limit theorem to be invoked (Freund and Walpole, 1980) Thus, since the standard deviation of the sample shows that the difference is less than three times the mean, a t-test can be used (Bickel and Doksum, 1977).

Using a common t-test assumes that the two populations have equal variances resulting from the tolerance of the t-test for some difference in the distributions. Therefore, the formula for the degree of freedom is written as  

\[ df_c = df_1 + df_2 = (n_1 - 1) + (n_2 - 1), \] simplified to: 

\[ df_c = n_1 + n_2 - 2 \] However, this may increase the probability of a Type I error\(^{16}\) (Black, 1999) if the variances are unknown.

To avoid a Type 1 error, it is thus assumed that the variances of two samples are unequal

\(^{16}\) This happens when a true null hypothesis is wrongly rejected.
\( \sigma_1^2 \neq \sigma_2^2 \). Therefore, an adjustment has to be made before the t-test can be used in the unequal-variance approach. One of adjustments is the determination of a new value for the degrees of freedom, which is written as:

\[
df = \frac{\left( \frac{s_1^2}{n_1} + \frac{s_2^2}{n_2} \right)^2}{\frac{s_1^2}{n_1}(n_1-1) + \frac{s_2^2}{n_2}(n_2-1)}
\]

where,

\( S^2 \) means variance.

And the standard error of difference is written as:

\[
SE = \sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}
\]

Finally, the formula for t-test is presented as:

\[
t = \frac{x_1 - x_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}
\]

4.3 Analysis and interpretation

4.3.1 Gentrification and Housing Values

- Period One (1970-1980)

St. Paul's redevelopment programs were initiated in the early 1960s. Between 1964 and 1978, 17 F-test was used to determine whether two samples have different variances. The results showed that all variances of two groups were unequal.
the significant development of office, financial, and residential uses fueled its housing market, resulting in a spectacular increase of median housing values from $17,800 in 1970 to $52,000 in 1980, a 192 percent increase (Adams and VanDrasek, 1993). For gentrified areas identified by the three proxy indices, the median values of homeowner properties had a twofold increase, with 208 percent in G_occu, 210 percent in G_edu and 216 percent in G_both. The comparative percentages for the non-gentrified areas are 176 percent, 179 percent, and 180 percent increases in G_occu, G_edu, and G_both respectively (Table 4.1). This striking change can be attributed to the postwar housing boom that resulted from the late 1970s’ baby boom generation entering the housing market, and also to the city government’s attention to economic revitalization and real estate redevelopment in the mid 1970s (Borchert, 1987). According to the demographic explanations of gentrification, this new generation is one of the key elements that contributed to the tremendous demands on the housing supply (London et al., 1986). Thus, it is reasonable to expect increases in housing values through the market mechanism, and ultimately increases in property taxes that would benefit the city. Table 4.1 shows that the three t-values of G_occu, G_edu, and G_both (2.85, 2.24, 2.41) were far beyond their critical values (±2.02, ±2.01, and ±2.04) respectively using both inflation controlled and raw data. This implies that the research hypothesis is accepted. In other words, the results of statistical analysis in three types of gentrified tracts supports the expectation that gentrification benefits the city through the generation of an increase in property values.

■ Period Two (1980-1990)

Between 1980 and 1990, St. Paul’s growth in median housing values shrank dramatically. Although values increased 42 percent from $52,000 to $73,800, when controlling for
Table 4.1 Gentrification & Median Housing Values, 1970-1980-1990, St. Paul, MN.

| Median Housing Values | Period One—1970-1980 | | Period Two—1980-1990 | t-Value (Critical Value of t (|t|)) |
|----------------------|-----------------------|----------------|----------------------|----------------------------------|
|                      | (dollars)             | Growth Rate (%) | (thousand dollars)   | Growth Rate (%)                 | 70-80 | 80-90 |
| **St. Paul**         |                       |                 |                      |                                  |
| without inflation control | 17,800               | 52,000          | 119.81              | 73,900                           | 42.00 |       |
| with inflation control | 60,000                | 82,700          | 37.68               |                                   |       |       |
| **Model-I**          |                       |                 |                      |                                  |
| without inflation control | 18,100               | 55,700          | 207.85              | 56,000                           | 41.31 |       |
| with inflation control | 61,000                | 88,600          | 45.24               | 89,000                           | -11.13| 2.85  |
| **Model-II**         |                       |                 |                      |                                  |
| without inflation control | 19,600               | 61,500          | 209.81              | 60,300                           | 47.87 |       |
| with inflation control | 66,900                | 97,800          | 46.17               | 95,900                           | -7.00 | 2.24  |
| **Source**: 1970, 1980, and 1990 Census of Population and Housing.**

**Notes:**
1. Model-I consists of census tracts whose boundaries accord with the definition of 1970 census data; Model-II consists of census tracts whose boundaries accord with the definition of 1980 census data.
2. The alpha level is .05 (p = .05).
3. To control inflation, the consumer index price based on 1989 was used. Therefore, for 1969's the real dollar value in 1980 was multiplied by 3.38; and for 1979 the real dollar value in 1989 is multiplied by 1.71 (http://www.jsc.nasa.gov/bu2/inflateCPI.html).
inflation there is 14% decline. Comparatively, property values in other central cities that have experienced gentrification such as San Francisco, San Diego and Seattle appreciated rapidly with over 100 percent increases (Wilson, 1996). St. Paul did not perform as well as other cities which also have experienced gentrification. This could be used to explain the results of t-test in table 4.1. For gentrified areas, the median housing values increased by 40 percent, 48 percent, and 41 percent, compared to 42 percent, 35 percent, and 41 percent for non-gentrified areas respectively. It shows that gentrification did not have significant contribution to the increases in housing value in the 1980s.

The education-based gentrified tracts presented the highest median property values and the greatest increase ratio from $60,300 in 1980 to $89,100 in 1990, a 48 percent increase in both model-I and -II. The other types of gentrified areas also had 41 percent increases. However, comparing gentrified with non-gentrified tracts by either occupation or “both” indicators, table 4.1 shows that in non-gentrified tracts only minor increases occurred in median housing values, with 1 percent growth ahead of gentrified tracts in Model-I. The result of comparative statistical analysis did not alter the outcome of t-test. Tests of housing values controlled for inflation and the nominal values presented the same results. Both t-values of $G_{occu}$ and $G_{both}$ (0.35 and 0.31 in Model-I; 0.17 and 0.53 in Model-II) fell within the range of its critical values ($\pm 2.02$, and $\pm 2.05$ in Model-I; $\pm 2.01$ and $\pm 2.05$ in Model-II). This means that there are no significant differences in the changes of median property values. In addition, both models show no difference in the outcomes of the test. In sum, between 1980 and 1990 in the both $G_{occu}$ and $G_{both}$ tracts, the analysis revealed that the differentials were not significant to distinguish whether or not the mean is related to gentrification. Thus, the results of t-test did
not support the hypothesis that increase property values result from gentrification; only in \( G_{\text{edu}} \) tracts the hypothesis was accepted.

### 4.3.2 Gentrification and Employment

Table 4.2 shows that St. Paul's employment has shrunk since 1970. The employment rate declined from 96.43 percent in 1970 to 93.96 percent in 1990. A possible explanation relates to the worldwide context of industrial and occupational transformation and suburbanization. One characteristic of a postindustrial society is a new economic transformation from manufacturing dominance to services and government sectors, possibly leading to contraction of the labor market in St. Paul, which has more jobs in manufacturing and transportation and fewer in trade, finance, and services industries (Adams and VanDrasek, 1993).

- **Period One (1970-1980)**

Between 1970 and 1980, employment experienced negative growth rates of -0.81 percent in \( G_{\text{occu}} \), -0.43 percent in \( G_{\text{edu}} \), and -0.44 percent in \( G_{\text{both}} \). Similarly, the non-gentrified tracts also experienced negative growth in employment rates, with -1.23 percent in \( G_{\text{non-occu}} \), -1.39 percent in \( G_{\text{non-edu}} \), and -1.29 percent \( G_{\text{non-both}} \). Only the t-value of \( G_{\text{edu}} \) (2.08) exceeded its critical value (2.00). This implies that the relationship between employment and gentrification was only distinguished in tracts under education-based gentrification. The other two types of gentrified tracts, in which t-values fell within their critical values, cannot be recognized by their relationship to the labor market. Thus, there are no systematic differences in the change in employment for the gentrified tracts and for the comparison tracts under the
occupational and "both" approaches.

Table 4.2 Gentrification & Employment, 1970-1980-1990, St. Paul, MN.

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>(percentage) Growth (%)</td>
<td>(percentage) Growth (%)</td>
<td>(Critical Value of t (</td>
</tr>
<tr>
<td>St. Paul</td>
<td>70</td>
<td>80</td>
</tr>
<tr>
<td>Model-I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Goccu</td>
<td>96.04</td>
<td>95.26</td>
</tr>
<tr>
<td>non-Goccu</td>
<td></td>
<td>95.05</td>
</tr>
<tr>
<td>Gedu</td>
<td>96.65</td>
<td>95.23</td>
</tr>
<tr>
<td>non-Gedu</td>
<td>96.31</td>
<td>94.97</td>
</tr>
<tr>
<td>Gboth</td>
<td>96.46</td>
<td>96.03</td>
</tr>
<tr>
<td>non-Gboth</td>
<td>96.14</td>
<td>95.18</td>
</tr>
<tr>
<td>Model-II</td>
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<td></td>
</tr>
<tr>
<td>Goccu</td>
<td>96.64</td>
<td>94.93</td>
</tr>
<tr>
<td>non-Goccu</td>
<td></td>
<td>94.57</td>
</tr>
<tr>
<td>Gedu</td>
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<td>95.72</td>
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<tr>
<td>non-Gedu</td>
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<td>94.57</td>
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<tr>
<td>Gboth</td>
<td>97.04</td>
<td>95.74</td>
</tr>
<tr>
<td>non-Gboth</td>
<td></td>
<td>94.72</td>
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</tbody>
</table>

Notes: 1. Model-I consists of census tracts whose boundaries accord with the definition of 1970 census data;
   Model-II consists of census tracts whose boundaries accord with the definition of 1980 census data.
   2. The alpha level is .05 (p = 0.05).

- **Period Two (1980-1990)**

St. Paul's employment was 130,000 in 1980, and by 1990, it was 133,000, an increase of 3,000 persons during the decade. Although the number of employed had increased, the situation of the labor market was worse than the 1970s. The proportion of employment declined from 95.34 percent in 1980 to 93.96 percent in 1990, a 1.45 percent decrease. In both models, all the gentrified tracts experienced slight decreases in the labor market, from 0.9 to 1.77 percent. For non-gentrified tracts, the percentage of the growth rate of employment also declined, ranging from -1.51 to -2.16 percent. The t-values in the three
types of gentrification indicators in both models are located within their critical values. In sum, the results of the statistical analysis indicated that there is no significant relationship between employment and gentrification, and that the assumption that gentrification leads to increased job opportunities is not confirmed by the examination of the employment rates within gentrified and non-gentrified tracts.

4.3.3 Gentrification and Incomes


Generally, housing prices in the U.S. in the 1970s increased faster than median family incomes (MFIs) (Rose, 1984). St. Paul’s growth of MFIs is 97 percentage from $10,500 in 1970 to $20,700 in 1980. This lags behind its median housing values which increased by 120 percent during this period. However, after controlling for inflation, it does not appear to be a positive increase but a decrease of 0.47 percent. The average of MFIs in occupation-based gentrified tracts is $9,800, which is less than that in non-gentrified tracts with $10,400 in 1970. Conversely, for gentrified tracts identified by education and “both,” their average median family incomes exceed their comparison groups. Increases in MFIs for all types of gentrified tracts are over 100 percent compared to 86 percent for the non-gentrified tracts. After controlling for inflation, gentrified tracts still record a positive increase in MFIs in the range of 2 to 7 percent, compared to 4 to 6 percent decrease for the non-gentrified areas. The t-values in the three types of gentrification indicators are far beyond their critical values (2.37 > ±2.00, 3.63 > ±2.04, and 3.11 > ±2.06 in occupation, education, and both indicators of gentrification respectively). Controlling for inflation did not affect the results of t-test. This implies and confirms that gentrification is highly related to the increase of family incomes.
**Period Two (1980-1990)**

Between 1980 and 1990, St. Paul’s growth rate of MFIs had shrunk to 63 percent. Similarly, the growth of median housing prices also declined, but much more steeply from 120 to 42 percent between the 1970s and the 1980s. All three types of gentrified tracts experienced roughly 80 percent growth rate of MFIs. Compared with the previous decade, they lost around 20 percent of the MFIs’ growth rate. However, after controlling for inflation, the growth rate of MFIs in the 1970s appeared to increase less than that in the 1980s. For instance, $G_{occu}$ tracts in the 1970s experienced only 2.36 percent increase in MFIs, but by the 1980s the MFIs increased to 5.44 percent. The non-gentrified tracts, when controlled for inflation, experienced an obvious decrease in MFIs. Both models presented a slight difference in the percentage changes of MFIs. This does not affect the result of t-test. All the t-values use real and nominal values in both models are within the acceptable and hypothesis that gentrification leads to an increase in incomes is accepted. Therefore, the statistical analysis suggests that gentrification is highly correlated with an increase in incomes.
Table 4.3 Gentrification & Median Family Incomes, 1970-1980-1990, St. Paul, MN.

<table>
<thead>
<tr>
<th>St. Paul</th>
<th>Median Family Incomes</th>
<th>t-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Period One—1970-1980</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(dollars) 70 80</td>
<td>Growth Rate (%)</td>
</tr>
<tr>
<td>without inflation control</td>
<td>10,500 20,700</td>
<td>96.73</td>
</tr>
<tr>
<td>With inflation control</td>
<td>35,600 35,500</td>
<td>-0.47</td>
</tr>
<tr>
<td>Period Two—1980-1990</td>
<td>32,800 80 90</td>
<td>63.04</td>
</tr>
<tr>
<td>Growth Rate (%)</td>
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<td></td>
</tr>
<tr>
<td>t-Value (Critical Value of t (</td>
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<td>))</td>
</tr>
<tr>
<td>70-80</td>
<td>2.37</td>
<td>2.27</td>
</tr>
<tr>
<td>80-90</td>
<td>(2.00)</td>
<td>(2.04)</td>
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Model-I

<table>
<thead>
<tr>
<th>St. Paul</th>
<th>Median Family Incomes</th>
<th>t-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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<tr>
<td>without inflation control</td>
<td>9,800 19,800</td>
<td>102.33</td>
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<tr>
<td>non-Goccu</td>
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<td>with inflation control</td>
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<td>Goccu</td>
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<td>Non-Goccu</td>
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<td>Model-I</td>
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<td>Growth Rate (%)</td>
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<td>t-Value (Critical Value of t (</td>
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<td>2.27</td>
</tr>
<tr>
<td>80-90</td>
<td>(2.00)</td>
<td>(2.04)</td>
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Model-II

<table>
<thead>
<tr>
<th>St. Paul</th>
<th>Median Family Incomes</th>
<th>t-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>without inflation control</td>
<td>10,100 21,400</td>
<td>111.98</td>
</tr>
<tr>
<td>non-Gedu</td>
<td>10,100 18,900</td>
<td>87.35</td>
</tr>
<tr>
<td>with inflation control</td>
<td>35,500 37,800</td>
<td>6.32</td>
</tr>
<tr>
<td>Gedu</td>
<td>33,200 31,100</td>
<td>-6.43</td>
</tr>
<tr>
<td>Non-Gedu</td>
<td>30,200</td>
<td>-12.21</td>
</tr>
<tr>
<td>Model-II</td>
<td>22,000 41,000</td>
<td>86.76</td>
</tr>
<tr>
<td>Growth Rate (%)</td>
<td>18,700 29,700</td>
<td>59.14</td>
</tr>
<tr>
<td>t-Value (Critical Value of t (</td>
<td>lt</td>
<td>))</td>
</tr>
<tr>
<td>70-80</td>
<td>3.11</td>
<td>2.56</td>
</tr>
<tr>
<td>80-90</td>
<td>(2.06)</td>
<td>(2.07)</td>
</tr>
</tbody>
</table>


Notes: 1. Model-I consists of census tracts whose boundaries accord with the definition of 1970 census data;
    Model-II consists of census tracts whose boundaries accord with the definition of 1980 census data.
2. The alpha level is .05 (p = .05).
3. To control inflation, the consumer index price based on 1989 was used. Therefore, for 1969's the real dollar value in 1989 has to multiply 3.38; and for 1979 the real dollar value in 1989 is multiplied by 1.71 (http://www.jsc.nasa.gov/bu2/inflateCPI.html).
4.3.4 Summary

For the first period (1970 and 1980), the data shows a significant relation between median values of homeowner properties, median family incomes and gentrification. Conversely, there is no relationship between gentrification and employment as all t-values fall within their critical values. For the second period (1980-1990), both models show no difference in the outcomes of analyses. Generally, the analysis indicates that there is no difference between the means of the gentrified and non-gentrified tracts when using the employment indicator. This implies that gentrification in St. Paul did not bring benefits of increases in employment opportunity. Conversely, when using median family incomes, the results of t-values in the three types of gentrification indicators are located outside their critical values. This means that there are significant differences between the means. Therefore, the contribution of gentrification to income growth is confirmed. By utilizing housing values to assess whether or not gentrification is associated with economic benefits to the city, it is found that only tracts classified by education show a difference between the means of gentrified and non-gentrified tracts. Both models indicate that the statistical distribution of housing values can be distinguished only when employing education as a proxy indicator of gentrification.

The results of t-test present consistency between these two decades, except when employing housing values as a variable. In the first period, all types of gentrified tracts show highly distinct differences as compared to non-gentrified tracts. However, in the second period, “occupation-identified” and “both-identified” tracts appear to exhibit no differences in the means among gentrified and non-gentrified areas. Therefore, it only can be concluded that
there is a significant relationship between gentrification and upgraded housing values in the 1970s but not in the 1980s. One possible reason for this inconsistent outcome is attributed to the difference of St. Paul’s redevelopment programs between the 1970s and 1980s. In the 1970s, the redevelopment programs focused much more on reconstructing old building, and later centered on economic revitalization and real estate redevelopment (Adams and VanDrasek, 1993). Another explanation of this inconsistency in the results may be the source of the data. Housing values as reported in the census are based on house owners’ assessment rather than by professional assessors. Such self-reporting could lead to either over-valuation or devaluation.

In conclusion, gentrification is strongly related to incomes, has a less significant relationship to housing values, and almost no relationship to employment. The results of the test provide ambiguous evidence that gentrification significantly provides economic benefits for the city.
CHAPTER 5
CONCLUSION

5.1 Summary of the findings

The purpose of this study is to answer the question of whether the process of gentrification provides economic benefits to the city. The study assumed that cities derive economic benefits from gentrification. First, the study classified St. Paul census tracts into gentrified and non-gentrified areas. Selection of indicators relied on the core definition of gentrification, that is, “class transformation.” Therefore, education and occupation were selected as proxy indicators for gentrification. By employing the occupational indicator, it was revealed that the 1970s’ distribution of gentrification generally occurred around the western parts of St. Paul. Utilizing the educational indicator, the spatial distribution of gentrification showed a higher concentration around west St. Paul. By the 1980s, its distribution exploded to include the southwest and northwest edges of St. Paul. The two models presented only slight differences in the 1980s’ distribution of gentrification.

Median values of homeowner properties, employment rates, and median family incomes were used as indicators of gentrification-derived benefits. By examining census data from 1970 to 1990 and using a t-test, the relationship between gentrification and median family incomes was confirmed. However, the data did not support a relationship between employment and gentrification. Only when employing the educational indicator in the first period of 1970-1980, did the result of the t-test indicate that a change in employment rate was associated with gentrification. For the relationship between median housing values and
gentrification, the results were different for the two periods of 1970-1980 and 1980-1990. In the first period, the change in median housing values was significantly different for gentrified and non-gentrified tracts. This difference faded away when gentrification was defined by occupation and “both” indicators during 1980 and 1990 (the second period). In conclusion, the analysis documents that gentrification indeed has generated some economic benefits for the city.

5.2 Discussion

Does gentrification benefit the city? Beauregard (1986) argues that the view that gentrification benefits the city as a whole is not true. Some studies attempt to reverse the negative perspective of gentrification by evaluating the degrees of impacts on the existing poor residents; suggesting that gentrification helps the poor more than it hurts them (Vigdor, 2001; Libaw, 2003). However, the long-term effects of replacing original residents shift the focus of the research to gentrification-derived displacements. Indeed, gentrification has two opposite impacts on central city neighborhoods. A discussion of the negative impacts of gentrification is beyond the scope of this study. However, there are certain degrees of economic benefits that do result from the process of gentrification which profits the entire city. In the case study of St. Paul, the results of the analysis suggest that gentrification has produced economic benefits for the city.

Within the theoretical framework of the rent gap, a precondition of the gentrification process in inner city neighborhoods is de-investment of housing stock for a long period. This is then followed by private or public capital reinvestment in older inner city neighborhoods to attract
the middle class to (re)settle. This process is assumed to stimulate increased housing prices, ultimately resulting in the escalation of property taxes which is beneficial for the city. The results of the statistical test are inconsistent between the periods of 1970-1980 and 1980-1990. In the first period, gentrification was shown to result in increases in housing values. Conversely, there was no relationship between median housing values and occupation-based or both-based gentrification in the 1980s. Thus, a convincing argument as to whether or not gentrification contributes to an escalation in housing values cannot be concluded.

Looking at changes in employment rates over the three decades, the analysis reveals that there is no relationship between employment and gentrification. Therefore, the claim that gentrification attracts managerial and professional occupations, and therefore stimulates the expansion of the secondary labor market and increases job opportunities for existing residents, is erroneous. From the demand-side interpretation of gentrification, Berry (1999) asserts that a precondition of gentrification is the significant growth of offices in the inner city as an incentive to attract the middle class to (re)settle in the city by providing more professional jobs. However, he also finds that some cities such as Detroit, Cleveland, and Newark are not experiencing job growth. In other words, an increase in job opportunities is not necessarily a consequence of gentrification. Therefore, the absence of job growth in professional and managerial occupations as a trigger of the secondary labor market is reasonably explained by the lack of relationship between gentrification and employment opportunities in the study. Another possible explanation of the finding in the study is the displacement of lower skilled employees by professional and managerial workers. For
example, in New York between 1977 and 1984, over 215,000 jobs were created, most of which were either in the business service sector or in the financial industries, accompanying over 100,000 blue-collar jobs displaced (Deutsche and Ryan, 1984). In Mission Bay, it was projected to add 30,000 more jobs in high-tech industries, and Wetzel (2000) worried that working people in San Francisco might lose their jobs because some companies might be driven out of business or forced to relocate to suburban sites.

Bourne (1993a,b) argues that 30 or more years of gentrification in Canadian inner cities did not contribute to the inner-city economy because residents on average are still poorer than their suburban counterparts. However, while the comparative study is done at a much more micro level, the growth of income significantly resulted in the process of gentrification, at least in this study. The data revealed that increases in St. Paul’s median family incomes during the two periods significantly related to gentrification.

Finally, it is possible to criticize the above analysis as too narrow for defining gentrification only in terms of economic profits, by merely selecting housing values, employment, and family incomes variables. Another criticism of this study would be the restrictive definition of the geographic distribution of gentrification that relied solely on educational and occupational indicators. Both indicators are considered as higher indices for the inner city in Ley’s study of six Canadian cities. However, Bourne (1993a) argued that such indices could be misleading to measure the dimension of gentrification process without controlling for other variables such as age structure and household status. This technique failure results from using simple criteria to measure such complicated social change. Another arguable point is
the size of sample. Only studying one city may not provide strong evidence to claim that
gentrification does generate economic profits for the city. However, the purpose of the study
is to offer some insight into the gentrification debate with two contributions: first, the
gentrified areas were distinguished from other urban neighborhoods; second, the results
provide justification that gentrification benefits the city economically.

5.3 Conclusion and Suggestion

The main assumption of the study is that gentrification produces economic profits, benefiting
the city. The results of tests of the three sub-hypotheses presented no consistency, and
therefore a definite conclusion cannot be provided. However, the findings suggest that
gentrification significantly relates to increases in family incomes and influences property
values. Accordingly, it is too bold to claim that gentrification certainly produces economic
benefits for the city. However, the results of the study echoes previous studies (Lang 1986;
DeGiovanni, 1984), which suggested that gentrification produces some benefits for cities.
Lang’s research provides evidence that gentrification produces a net growth of revenues for
the city when computing expenditures on the newcomers’ demands for civic improvement.
DeGiovanni accords with the results of this analysis by concluding that reinvestment which
leads to gentrification indeed produced some benefits for cities. It has been confirmed that
gentrification has positive influences on cities. Although, it is utilized as good urban policy
by city leaders to cure urban problems, such as decaying neighborhoods, increasing vacancy
rate of housing units, declining population, and so on, gentrification has not been widely
accepted by citizens, particularly by existing residents who live in areas susceptible to
gentrification.
More recently, the issue of gentrification has become a controversial target in the platform of political competition. For example, in the 1999 mayoral election of San Francisco, the flag of anti-gentrification was erected to attract ballots (Kennedy and Leonard, 2001; Vigdor, 2001). It is unconventional in the case of San Francisco, where most literature claims that the process of gentrification is welcomed by city officials. However, it implies that the majority of San Francisco’s citizens were hostile toward gentrification. While government leaders and the media continue to praise gentrification for revitalizing deteriorating neighborhoods and for improving the urban livability, the image of displacement caused by gentrification has not been erased.

There is a trend in urban policy to employ gentrification as a tool for revitalizing neighborhoods. Thus, some current research has turned the focus on creating policies to prevent negative effects from gentrification. For example, Kennedy and Leonard (2001) promote ten steps to eliminate its adverse impacts that generally involved certain tips, including the comprehension of gentrification by the regional, city and community; organizing these groups; developing implementing plans and regulations; and finally, creating education toolkits to reverse negative perspectives of gentrification. Others groups such as the PolicyLink organization, which aims at preventing the displacement of existing residents provides four types of toolkit (providing affordable housing, controlling development, utilizing financing strategies, and promoting income & asset tools) to achieve
the goal of equitable development\textsuperscript{18}. One of the early public surveys done by Rutgers Forum found that only half of citizens supported gentrification (Lang, 1986). It also indicated that if gentrification was utilized by the city as an urban policy, the government should provide a policy of protection against the adverse impacts of gentrification.

Finally, this study successfully achieves the goal of measuring economic benefits derived from gentrification, and provides the scientific evidence through the quantitative approach. The evidence of gentrification-derived profits in terms of the city’s economics is reconfirmed, although the research does not indicate that an increase in employment is related to gentrification in the studied city. For future studies, if policy makers or city leaders promote gentrification as a cure for urban illnesses, and if the process of gentrification is the inevitable consequence of the nature of urban development, researchers thus have to devote much more effort to the prevention of its adverse impacts on the inner-city neighborhoods.

\textsuperscript{18} Information is available from http://www.policylink.org
BIBLIOGRAPHY


Lee, Barret and Hodge, David. 1984. “Social differentials in metropolitan residential displacement.” In Palen and London (ed.). *Gentrification, displacement and*


