

REGIONAL DEVELOPMENT IN THE ZHUJIANG DELTA, CHINA, 1980-90

by

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**A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF
Doctor of Philosophy**

in

**THE FACULTY OF GRADUATE STUDIES
(DEPARTMENT OF GEOGRAPHY)**

**We accept this thesis as conforming
to the required standard**

THE UNIVERSITY OF BRITISH COLUMBIA

November 1994

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ABSTRACT

Against the background of a rapidly collapsing socialist empire in Eastern Europe and the former Soviet Union, socialist China has since the late 1970s consciously endeavored to develop a "socialist market economy with Chinese characteristics." This thesis assesses the process of economic and spatial transformation in the Zhujiang (Pearl River) Delta, one of the fastest growing economic regions in China. The purposes are to identify the general pattern of economic and spatial changes, to determine the key forces responsible for such changes, and to explore the theoretical implications of these changes in the broader context of interpretation about the operating mechanism of regional development. The overall objective is to understand how a regional economy under socialism is transformed after the intrusion of global market forces.

My analyses of regional data and indepth case studies reveal that the Zhujiang Delta has since 1979 moved away from the previous impasse of involutory growth or growth without development and entered a new era of real transformative development in which dramatic growth has occurred not only in agricultural and industrial output but also in labour productivity, per capita income, and employment. The take-off of the delta's regional economy has owed little to the expansion of state-run modern manufacturing, but has been fueled primarily by numerous small-scale, labour-intensive, and rural-base industries. The spatial outcome of this rural industrialization has been a rapid urbanization of the countryside, especially of the area adjacent to and between major metropolitan centres. There has been no increasing concentration of population in large cities as the conventional wisdom of urban transition might have predicted.

Regional development in the Zhujiang Delta during the 1980s was not an outcome of any active state involvement. It was instead a result of relaxed control

by the socialist central state over the delta's regional economy. Local governments, along with the collective and private sectors, are found to be the chief agents responsible for the transformation of the peasant economy and the development of the transport infrastructure. The penetration of global market forces via Hong Kong into the Zhujiang Delta has significantly facilitated the process of economic, spatial, and social transformation.

This study of the operating mechanism of regional development in the Zhujiang Delta presents a dialectical model of local-global interaction to combat the two prevailing schools of exogenism and endogenism. It also suggests that previous theories on Chinese regional development, which assumed a strong socialist central state monopolizing local economic affairs, might need fundamental modifications. For the Zhujiang Delta, the development of which is still in the early take-off stage, the establishment of a modern transport infrastructure has shown remarkable effects, leading to rather than following the growth of the delta's economy. Finally, the relocation of transnational capital and manufacturing production from Hong Kong to the Zhujiang Delta has not displayed a spatial tendency of high concentration in the primate city as the conventional theory of globalization would suggest. Non-economic factors such as historical, cultural, and social linkages between investors and their target regions are found to have played a major role which should not be overlooked in understanding the mechanism and spatial patterns of the internationalization of production.

TABLE OF CONTENTS

Abstract	ii
List of Tables.....	vi
List of Figures.....	viii
Acknowledgement.....	x
 PART I: DEFINITIONS AND THEORETICAL FRAMEWORK.....	 1
Chapter 1. Introduction.....	1
1.1 Introduction.....	1
1.2 Scope and Objectives.....	3
1.3 Research Questions.....	3
1.4 Research Method.....	5
A. Definition.....	5
B. Data Collection and Analysis.....	7
C. Research Procedure and Organization of the Thesis.....	11
Chapter 2. Definitions and Theoretical Context.....	14
2.1 Introduction.....	14
2.2 Definitions of Development and Regional Development.....	16
2.3 Theory of Regional Development: A Selective Overview.....	22
2.4 A Theoretical Framework for Chinese Regional Development.....	40
2.5 Summary.....	48
 PART II: REGIONAL DEVELOPMENT IN THE ZHUJIANG DELTA.....	 51
Chapter 3. Economic Restructuring and Spatial Transformation.....	51
3.1 Introduction.....	51
3.2 Definition of the Zhujiang Delta Region.....	52
3.3 Geographical Context and Historical Background.....	60
3.4 Economic Growth and Structural Change.....	66
3.5 Spatial Redistribution of Economic Activities.....	72
3.6 Spatial Redistribution of Population and Migration.....	79
3.7 Growth and Distribution of Urban Population.....	93
3.8 Reorganization of the Settlement System.....	105
3.9 Land Use Transformation.....	110
3.10 The Emerging Spatial Pattern: A Quantitative Analysis.....	116
3.11 Summary.....	126

PART III: EXPLANATION FOR REGIONAL DEVELOPMENT IN THE ZHUJIANG DELTA.....	130
Chapter 4. "Driving Forward on Five Wheels": Transformation of the Peasant Economy.....	130
4.1 Introduction.....	130
4.2 A Case Study of Nanhai.....	135
A. Historical Background.....	135
B. Economic Reforms.....	137
C. Agricultural Development.....	140
D. Rural Industrialization.....	149
E. Spatial Transformation.....	157
4.3 Summary.....	162
Chapter 5. "Economic Prosperity Comes from the Construction of Roads": Development of the Transport Infrastructure.....	167
5.1 Introduction.....	167
5.2 A Case Study of Panyu.....	170
A. Geographical and Historical Background.....	170
B. Transport Infrastructure Development.....	174
C. Economic and Spatial Consequences.....	182
5.3 Summary.....	201
Chapter 6. "A Window That Opens to the South Wind": The Influence of Hong Kong.....	203
6.1 Introduction.....	203
6.2 A Case Study of Dongguan.....	204
A. Geographic and Historical Background.....	204
B. Development of Export Processing Industry.....	208
C. Social Influence of Hong Kong.....	222
6.3 Summary.....	227
PART IV: SUMMARY AND CONCLUSIONS.....	230
Chapter 7. Summary and Conclusions.....	230
7.1 Introduction.....	230
7.2 Summary of Major Findings.....	231
7.3 Implications for Development Theories and Planning Practice.....	234
7.4 Prospect.....	242
Bibliography.....	244

LIST OF TABLES

Table 3-1. Basic Economic Indicators for Zhujiang Delta, 1990.....	58
Table 3-2. Selected Economic Indicators for Zhujiang Delta in Comparison with Guangdong and China, 1990.....	59
Table 3-3. Annual Growth of Output Production for Zhujiang Delta in Comparison with Guangdong and China, 1980-90.....	68
Table 3-4. Economic Growth for Zhujiang Delta 1980-90.....	69
Table 3-5. Changing Composition of Industrial and Agricultural Output Value for Zhujiang Delta, 1980-90.....	71
Table 3-6. Growth of GVIAO in Selected Cities and Counties in Zhujiang Delta, 1980-90.....	73
Table 3-7. Temporary Population in Zhujiang Delta and Guangdong Province, 1982-90.....	87
Table 3-8. Changing Distribution of Temporary Population in Zhujiang Delta, 1982-90.....	90
Table 3-9. Reasons for Migration in Guangdong Province, 1986-87.....	92
Table 3-10. Growth of Urban Population in Zhujiang Delta, 1982-90.....	97
Table 3-11. Changing Nonagricultural Population for Zhujiang Delta, 1980-90.....	106
Table 3-12. Distribution of Nonagricultural Population among Cities and Towns in Zhujiang Delta, 1980-90.....	107
Table 3-13. Population Migration to and Within Guangdong Province, 1982-87.....	109
Table 3-14. Changing Land Uses in Zhujiang Delta, 1980-90.....	113
Table 3-15. Rotated Factor Matrix from Principle Components Analysis.....	120
Table 3-16A. Key Economic and Demographic Indicators for the Three Zones Grouped by Cluster Analysis for Zhujiang Delta.....	123
Table 3-16B. Key Economic and Demographic Indicators for the Three Zones Grouped by Cluster Analysis for Zhujiang Delta.....	124

List of Tables

Table 4-1. Industrial Ownership Structure for Nanhai, 1991.....	155
Table 4-2. Sectoral Composition for the Local Economy of Nanhai, 1991.....	165

LIST OF FIGURES

Figure 2-1. A Hypothetical Model for Chinese Regional Development.....	43
Figure 3-1. Zhujiang Delta as Defined According to Its Physical Geography.....	54
Figure 3-2. The Zhujiang Delta Open Economic Region, 1990.....	57
Figure 3-3. Per Capita Industrial & Agricultural Output for Zhujiang Delta, 1990.....	75
Figure 3-4. Rural Per Capita Income for Zhujiang Delta, 1980.....	76
Figure 3-5. Rural Per Capita Income for Zhujiang Delta, 1990.....	77
Figure 3-6. Population Density for Zhujiang Delta, 1980.....	81
Figure 3-7. Population Density for Zhujiang Delta, 1990.....	82
Figure 3-8. Annual Growth of Temporary Population for Zhujiang Delta, 1982-90.....	88
Figure 3-9. Percent Nonagricultural Population for Zhujiang Delta, 1990.....	99
Figure 3-10. Percent Urban Population for Zhujiang Delta, 1990.....	100
Figure 3-11. Annual Growth of Urban Population for Zhujiang Delta, 1982-90.....	102
Figure 3-12. Annual Loss of Cultivated Land for Zhujiang Delta, 1980-90.....	117
Figure 3-13. Result of Cluster Analysis for Zhujiang Delta.....	122
Figure 4-1. Location of Nanhai Shi.....	134
Figure 5-1. Location of Panyu Shi.....	171
Figure 5-2. Changing Composition of Fixed Asset Capital Investment in Panyu, 1978-91.....	176
Figure 5-3. Key Transport Projects in Panyu Shi, 1986-90.....	178
Figure 5-4. Formation of Public-owned Fixed Asset Capital Investment in Panyu, 1991.....	183
Figure 5-5. Development of Highways and Bridges in Panyu, 1980-91.....	185

List of Figures

Figure 5-6. Annual Growth of GVIAO for Panyu in Comparison with Other Economically Advanced Places, 1980-85.....	187
Figure 5-7. Annual Growth of GVIAO for Panyu in Comparison with Other Economically Advanced Places, 1985-91.....	188
Figure 5-8. Growth of GVIAO and Transport Development in Panyu, 1980-91.....	190
Figure 5-9. Growth of Foreign Investment and Export Production as Related to Transport Development in Panyu, 1980-91.....	192
Figure 5-10. Growth of Temporary Population and Transport Development in Panyu, 1980-91.....	196
Figure 6-1. Location of Dongguan Shi.....	206
Figure 7-1. A Model for Regional Development in the Post-reform Zhujiang Delta, China, 1980-90.....	236

Acknowledgement

It has been an unspecified tradition for most doctoral theses to begin with a couple pages of acknowledgements in which the author expresses thankfulness to those who had provided assistance during the long course of research and writing. After completing a lengthy and carefully written dissertation, it must be as easy as "a piece of cake" for most Ph.D.s-to-be to draw a few paragraphs of kind words to show his/her appreciation. It is not, however, an easy task for me to handle because it refreshes my memory of the past five challenging years I have spent at UBC and in Asia.

To ensure a good preface for this dissertation, I have consulted many of my friends who have gone through the same process. Some have suggested that I should, first of all, thank my supervisor who has, while providing invaluable guidance and support for my research, given me enough rope to hang myself. Others have suggested that I should mention my parents who can, from now on, stop telling their neighbours that the poor kid is still in school. Still others have told me that I definitely have to thank my wife whose tolerance has already reached the breaking point. There is indeed so much to write that I have to exceed the space limit specified by the University.

The completion of this thesis and my doctoral program would not have been possible without the wise guidance and crucial support of Professor Terry McGee, my advisor and chair of my thesis supervisory committee. I am especially grateful to Dr. McGee for his critical comments on my research proposal and his meticulous reading of many drafts of this thesis which have helped me to clarify a number of ideas and organize the thesis in a coherent and structured form. I am also indebted to Professors Graham Johnson, Robert North, and David Edgington, members of the thesis supervisory committee, who have provided many constructive suggestions to improve several earlier versions of this thesis. My appreciation also goes to Dr. Francis Yee. During the course of writing, Francis has been a source of constant advice and consultation. He is probably the only one around who can understand and help to ease the frustration of working on Chinese data for Western audiences. Special thanks should go to Professors Peter Foggin, Thomas Hutton, Treavor Barnes, Setty Pendakur, Diana Lary, and Glen Peterson for their valuable comments, to Dorothy Wiebe for editing an earlier draft of this thesis, and to Dr. Xiaoming Cai for romanization of Chinese names into Pinyin.

I owe a special debt to Professor Laurence J.C. Ma. For no less than a hundred times since I started my doctoral program, I have intended to quit, not because of a lack of interest or shortage of energy and ability but because of the gloomy employment future in academia. It is Professor Larry Ma, my former supervisor at The University of Akron, Ohio, who has not only persuaded me to carry on and complete my doctoral program but also helped me to publish my work in refereed American, British, and Canadian journals. There is really no word that can adequately express my deep gratitude to Professor Ma.

I would also like to thank many scholars in Hong Kong and China who have provided assistance for my field work in the Zhujiang Delta. Particularly, I wish to thank Professor Yue-man Yeung, Wing Shing Tang, and Jun Chan in Hong Kong; Professors Xu Xueqiang, Zheng Tienxiang, Liu Qi, and Chen Lie of Zhongshan University in Guangzhou; and Professor Hu Zhaoliang of Peking University in Beijing.

The research and writing of this thesis have benefitted from two grants provided by the International Development Research Centre of Canada (IDRC) and Social Sciences and Humanities Research Council of Canada (SSHRC). Their generous financial support is gratefully acknowledged.

My greatest appreciation belongs to my wife Stacey Ruoshan Huang for her tolerance and understanding. I can not justify to Stacey and my parents why I have spent the five best years of my life on something that will do more harm than good in marketing myself. Nor can I explain why everyday, including weekends and holidays, I am always in a hurry. I can assure Stacey, however, that I will accept her constructive proposal and do my part to instruct our yet-to-be-born son and/or daughter not to be and not to marry someone doing a Ph.D. for years for no reason. I will also warn our kids with the words of Chairman Mao: "The more books one reads, the more stupid one becomes."

Five years ago today, I first arrived in Vancouver and entered UBC. With this dissertation, I wish to close the most prolonged chapter of my life, except that I will carry with me a pleasant memory of the numerous hours I spent in the swimming pool of the UBC Aquatic Centre where many great and fresh ideas for this thesis were generated. I can only hope that the future will be less enduring and more productive than the past.

August 29, 1994
in Vancouver, Canada

PART I: DEFINITIONS AND THEORETICAL FRAMEWORK

CHAPTER ONE. INTRODUCTION

"At a time when the death of socialism is being lauded in eastern Europe and elsewhere, it is right that attention is drawn to the achievements of many socialist countries in the third world and to the struggles for socialist models of development which continue to inspire men and women in the periphery."

----Stuart Corbridge, 1991, "Third World Development"
Progress in Human Geography. 15(3): 311-321.

1.1. Introduction

In the contemporary history of global development, the decade of the 1980s was probably one of the most significant milestones featuring the dramatic collapse of socialism, the end of the cold war, and fundamental restructuring of the political economy at global and regional scales. It was also a time of theoretical reorientation in development studies, when many concepts and models of development were critically reevaluated and reformulated in the light of rapidly changing reality. As the "counter-revolutionary" tide swept the socialist world, theoretical questions were raised by scholars concerning the impasse and irrelevance of the Marxian doctrine for development (Booth, 1985; Vandergeest & Buttle, 1988; Sklair, 1988; Mouzelis, 1988). Since then, important efforts have been made to seek a new paradigm of "post-Marxism" (Corbridge, 1989; Schuurman, 1993), to conceptualize the spatial consequences of the restructured capitalist world (Aglietta, 1976; Lipietz, 1987; Scott, 1988; Peet and Thrift, 1989; Bourne, 1991), and to speculate on the emerging new world order in the post-cold-war era (Cohen, 1991). In contrast, development under the seemingly dying socialist mode of production, which has never been a subject of mainstream enquiry, seems to be relegated further to the periphery of development studies.

In recent years, however, there is growing evidence to suggest that abrupt and complete destruction of the socialist system might not be the only form of change for all socialist nations and that conscious economic reforms in some socialist countries such as China and Vietnam could have significant impacts on the interdependent development of the world economy. In socialist China, a series of new economic policies and reform programs has been introduced since 1978 to stimulate local and individual enthusiasm for production, to attract foreign capital and advanced technology, and to develop a "socialist market economy with Chinese characteristics." The results of economic reforms have been profound structural and spatial changes which are no less significant than what has occurred elsewhere in the world. Its double digit economic growth ever since the 1980s has little parallel among other nations. Its national economy is rapidly expanding to take the world's third largest position. An unprecedented experiment affecting one-fifth of mankind and shaping a vast country of continental scale is in the making.

The Chinese case of socialist development deserves special scholarly attention not only because the speed, extent, and magnitude of changes taking place there are truly fascinating but also because its patterns of growth and development are distinct from those of the Western capitalist world or the former Soviet Union and eastern Europe. An investigation of development in post-reform China will shed important light on how a socialist economy is gradually transformed rather than abruptly destroyed by global capitalism. It will enrich our knowledge about the dynamism of economic and spatial transformation in both capitalist and socialist worlds in the post-cold-war era. Moreover, as global interdependent development prevails, what is happening in the socialist world is bound to affect the restructuring of the Western capitalist economy. Any interpretation of global restructuring or interdependent development could hardly

be complete and sensible without a good understanding of the internal mechanism and external effects of changes taking place in socialist countries.

1.2. Scope and Objectives

This thesis assesses the transformation of a regional economy in socialist China during the 1980s, using the Zhujiang (Pearl River) Delta as a case study. The purposes are to identify the general pattern of economic and spatial changes, to determine the key forces responsible for such changes, and to explore the theoretical implications of these changes in the broader context of interpretation about the mechanism of regional development. The overall objective of research is to understand how a regional economy under socialism is transformed after the intrusion of global market forces. Undesirable problems that have emerged from regional development of the Zhujiang Delta will also be discussed and necessary government actions or planning measures will be suggested, but the prime concern of research will be on the actual development process and its theoretical implications.

1.3. Research Questions

Until recently, studies of the issue of spatial development in socialist China have tended to focus on the patterns of Chinese urbanization and national development in the Maoist era (Ma, 1980; Pannell, 1990; Kwok, 1981; Chang, 1981). Much has been written on the ideological and strategic reasons for the distinct Chinese pattern of slow urbanization (Murphey, 1976; Ma and Hanten, 1981; Kirkby, 1985; Lo, 1987; Chan, 1992), on the Chinese approach to the development of the interior region as opposed to the coastal zone (Cannon, 1990; Kirkby and Cannon, 1989; Goodman, 1989; Linge and Forbes, 1990), and on the changing spatial inequality among Chinese macro-regions and provinces since the

Communists seized power in 1949 (Wu, 1987). In contrast, there is a dearth of literature on the process of spatial transformation in post-reform socialist China. Although the implementation of new economic policies in China since 1978 has recently been documented by a growing number of scholars (Yeung and Hu, 1992; Kwok et al, 1990; Foggin et al, 1993; Hu and Foggin, 1993, 1994; Laquian, 1989; Kwok, 1987; Johnson, 1992; Ma and Lin, 1993), the operating mechanism of development in a regional or national setting in the post-reform era remains obscure. Little is known, for instance, about the driving forces acting behind the scene of dramatic development in China after the reforms. How could a socialist economy which had been isolated and stagnant for three decades suddenly grow in double-digit rates? Where is the source of energy or what are the internal and external forces responsible for the growth and development of the new Chinese space economy? Is the take-off of the Chinese socialist economy driven by external market demand, as the conventional theory of economic growth has suggested, or is it based on local initiatives and indigenous resources as some development specialists have prescribed?

Conventionally, a socialist nation is understood as being dominated by a powerful state which monopolizes all economic affairs ranging from production and circulation to distribution. How has this situation changed in China since the reforms? What is the new role played by the socialist state in the process of economic and spatial transformation?

We have been informed of the fact that under the newly implemented opening-up policy, socialist China has been increasingly incorporated into the orbit of the international division of labour. But to what extent or in what manner have global market forces shaped the Chinese space economy after the reforms?

Finally, what are the spatial consequences of the transformation of the Chinese national and regional economy? Does rapid industrialization result in an

increasing concentration of population in large cities as the conventional wisdom of urban transition might have predicted? What are the differences and similarities between the process of spatial transformation taking place in post-reform China and the one which has already occurred in advanced free-market economies? These questions have significant implications for both development studies and planning practice but they have never been systematically investigated.

Recent development in the Zhujiang Delta region of southern China has provided an excellent case for studying the important issues identified above. In this thesis, I will focus my investigation on three specific questions: what economic and spatial changes have been taking place in the Zhujiang Delta region since new economic policies were introduced in 1978, what key forces have been responsible for such changes, and what implications does the delta's development experience have in terms of the conceptualization of the operating mechanisms of regional development? The first question will be addressed in Part Two (Chapter 3). The second and third questions will be discussed in Part Three (Chapters 4-6) and Part Four (Chapter 7) of this thesis respectively.

1.4. Research Method

A. Definition

Within the academic community, it is not uncommon to find that certain concepts had gained a great popularity among scholars long before their exact meanings or definitions were clarified and specified. Concepts such as Fordism, postmodernism, and sustainable development are only a few examples one could easily identify, and regional development is one to be added to the list. The ambiguity and controversy surrounding the definition of the concept of regional

development will be discussed in detail in Chapter Two. For the research purpose of this thesis, regional development will be used as a concept to denote a process of economic and spatial changes in a region, which includes three specific aspects: sectoral changes of production and employment, spatial redistribution of population and human settlements, and the transformation of land resources.

The study area of this thesis will be the Zhujiang Delta region which is delineated as an area including the officially designated Zhujiang Open Economic Region and the city of Guangzhou as well as Shenzhen and Zhuhai. Administratively, it consists of thirteen cities officially designated before 1991, two Special Economic Zones, and sixteen counties, covering an area of 47,430 square kilometers and housing a population of about 20 million in 1990. The *raison d'être* for such regional delineation will be discussed in Chapter Three.

To choose the Zhujiang Delta as my study area is based on the consideration that the delta is currently one of the most rapidly changing economic regions in China. With its geographic proximity to Hong Kong and a long tradition in foreign trade and sea transportation, the Zhujiang Delta has been one of the first regions in China opened for foreign investment. It has also been allowed by the central government to move ahead of the nation in developing a free market economy. A detailed investigation of the development of this region in the past decade will generate significant insight on how a regional economy under socialism is transformed after the intrusion of global market forces. It will also provide valuable experience for testing the validity of many theoretical assumptions and for assessing the effectiveness of government policies and planning approaches. It is acknowledged that, as other Chinese regions are opened to foreign investment, the Zhujiang Delta may no longer be able to maintain its leading economic position in the nation and its development experience will gradually lose much of its uniqueness. If this is the case, then this study of the development of a "pioneer"

region will provide important lessons for other recently developing Chinese regions which have just been exposed to similar global market forces.

For the purpose of data comparability and consistency, the time period of study for this thesis will be limited to the years 1980-90, the first decade of economic reforms. Economic and spatial changes before 1980 will also be discussed if they are relevant to the understanding of regional development after 1979.

B. Data Collection and Analysis

Data for this dissertation were gathered through field investigations, interviews, and documentary research. My field study of regional development of the Zhujiang Delta began in October 1980, when I participated in a research project initiated by Zhongshan University to study economic reforms and development in Shunde County which is located in the core of the Zhujiang Delta. I was responsible for investigating economic and spatial changes in the two communes of Leliu and Longjiang. This initial field trip gave me the first impression of the Zhujiang Delta region and stimulated my research interests in its development.

Since 1980 I have made more than a dozen trips to different cities and counties of the delta for research and planning purposes. From April to July 1981 I worked with my colleagues from Zhongshan University to prepare a Master Plan for Zhaoqing City, which is a major urban centre in the western part of the delta. On another occasion of working in a comprehensive research project of urban development for the entire delta conducted in 1984, I toured almost all of the designated cities in the region. In December 1984, I directed a planning project for all towns and villages in Dongguan County, which is located in the eastern wing of Zhujiang Delta. Between September and November 1985 I directed

another regional planning project for Huaxian, which is a suburban county of Guangzhou in the northern part of the delta. These field trips for research and planning purposes have all provided me with first-hand experience about the historical background of development and constantly updated my knowledge about the transformation of the delta regional economy.

With support from the Social Science and Humanities Research Council of Canada and International Development Research Centre of Canada, I revisited the delta and conducted extensive field research there to gather new data and information for this dissertation. From July to December 1992. I visited eight major cities, nine townships, and quite a number of rural villages. A total of 57 interview sessions involving 81 people were held. These interviews, all unstructured or open-ended, were either in group form or on a one-to-one basis. A typical interview session lasted for one to two hours. Interviewees ranged from officials of the provincial government to mayors, county or township governors, economists, planners, statisticians, transport engineers, university professors, researchers, students, factory supervisors, company managers, workers, farmers, and policemen. These interviews, along with my on-the-spot field surveys, have provided insightful information about recent economic and spatial changes taking place in the delta region.

In addition to unstructured interviews and field investigations I have conducted extensive documentary research in the University Service Centre of The Chinese University of Hong Kong and the library of Zhongshan University in Guangzhou. Although detailed statistical data and information about Chinese economic development have become increasingly available to Western researchers since the opening up of China in 1979, these newly published data are not all problem-free. A careful examination of data from Chinese sources could easily reveal discrepancies. It is not uncommon to find, for instance, that a figure

published in one source differs from the one in another. One may also find that data for all individual cases of a region or the whole nation do not add up to the regional or national total. Sometimes information released from government documents, newspapers, or even statistical yearbooks does not exactly reflect what has actually occurred.

Discrepancies of Chinese data are further exacerbated by the existence of different measurements (e.g. current price versus constant price, gross value versus net value), by inaccurate translation of some Chinese key words that have multiple and different meanings (e.g. "*shi*" could mean municipality, city region, city proper, or built-up area of a city; "*tudi*" could mean cultivated land, farmland, or sowing area of land with double cropping per annum), by frequent changes of administrative boundaries, and by shifting exchange rates between Chinese *yuan* and American dollars.¹⁾

Existing problems of data from Chinese sources do not mean, however, that such data are completely useless. When handled with care, Chinese data can be valuable and they are indeed indispensable to scholars who study China. In view of the problems associated with Chinese data, I have taken the following steps to minimize the distortion potentially caused by data discrepancies and to ensure data accuracy and consistency that are necessary to generate meaningful research findings.

First, I have made special effort to collect a wide range of data from all possible sources including published materials and classified internal documents generated by provincial, prefectural, municipal, county, and township governments. This has allowed me to check the accuracy of data from different

1) Land area in China is measured by *mu*. 1 *mu* = 0.0667 hectare = 0.1647 acre. The average official exchange rates between US\$1 and Chinese *yuan* were 2.32 in 1984, 2.94 in 1985, 3.45 in 1986, 3.72 in 1987 and 1988, 3.77 in 1989, and 4.78 in 1990. This thesis uses the 1990 official exchange rate (US\$1 = 4.78 *yuan*). See International Monetary Fund, 1991, International Financial Statistics. 44 (3-4): 164.

sources. Before using any given data set, I first assessed its reliability by comparing it with that from other sources. Data from published statistical yearbooks, for example, were cross-checked with those published in internal government documents. Data from the provincial government for a certain county or township were checked with the actual record of that particular local place. When certain data were found inconsistent with what appeared in other sources or what actually happened, interviews with experienced local people and field surveys were carried out to find out why there was discrepancy and which data set was closer to the reality.

Secondly, I have limited myself to using only those data that are historically and geographically comparable. When assessing the temporal tendency of economic growth for the Zhujiang Delta region during the years 1980-90, for instance, I used only those data that are in 1980 constant prices, so that the calculated growth rate would not be exaggerated by the use of current prices, which fluctuated because of inflation. When analyzing the spatial pattern of population distribution and land use changes, I consistently used data that are at the level of county and city proper, because administrative boundaries at this level were relatively constant during the 1980s. Several counties were promoted to city status (for example, Zhongshan and Dongguan) during this period, but their original county level boundaries remained unchanged.

Finally, I have purposely used Chinese names in *Pinyin* and Chinese units of measurement throughout this thesis to avoid possible misunderstanding caused by translation from Chinese to English. All places discussed in the thesis are identified by their names in *Pinyin* followed by their Chinese administrative status. For example, Dongguan, which has been officially designated as a "*shi*" (city) is identified as Dongguan *shi* instead of Dongguan City because Dongguan is virtually a region rather than a city by any standard. Similarly, all towns that

have official designated town status are identified as "*zhen*" rather than "town" because they contain a large area of the countryside in their jurisdictions. For consistency, all counties on the delta are referred as *xian*. The terms "city" and "town" are used only for those truly urban places defined by an established city or town proper which does not include any annexed rural counties.

C. Research Procedure and Organization of The Dissertation

This research is designed to follow a deductive procedure as reflected by the organization of the dissertation. It begins with an overview of existing literature on the concept and dynamism of regional development (Chapter Two). Based on an assessment of the strengths and weaknesses of existing theories, a theoretical model is then constructed which hypothesizes that regional development in socialist China is an outcome of dialectical interaction between local and global forces that include state intervention, local initiatives, and global capitalism.

The hypothetical model, presented in Chapter Two, is then tested against the reality of regional development of the Zhujiang Delta. My empirical study of the actual pattern of development of the Zhujiang Delta consists of two main parts: a chapter on the general patterns of change for the whole region (Chapter Three) and three chapters of detailed case studies on the key components of the development process (Chapters Four to Six).

In Chapter Three, I provide a systematic assessment of the economic and spatial changes that occurred in the delta region during the 1980s. My qualitative and quantitative analyses of regional data have both revealed a spatial pattern of change wherein production activities and population become increasingly concentrated in the triangle zone bordered by Guangzhou, Hong Kong, and Macao. There was no excessive growth of population and production activities in the

primate city of Guangzhou as the conventional wisdom of urban transition might have predicted.

In Chapters Four, Five, and Six, three detailed case studies are presented to show how various local and global forces have contributed to the transformation of the regional economy of the Zhujiang Delta. The selection of factors and sites for my case studies needs an explanation. It was suggested by almost all Chinese scholars with whom I met on my field trip that economic and spatial transformation of the delta region is an outcome of multiple forces. The question of what factors can be considered as the key elements of the development process has, however, remained a subjective issue for debate.

From the existing literature, two key factors seem to have been favoured by most Chinese scholars. The first one is the transformation of the peasant economy after the implementation of the production responsibility system in the countryside. The second relates to the influence of Hong Kong on the delta region, particularly the inflow of investment from Hong Kong and overseas. These two factors have been identified by many scholars as the key driving forces responsible for the recent transformation of the delta regional economy (Xu et al, 1988; Lo, 1989; Johnson, 1992).

When I visited the Zhujiang Delta, however, I was struck by the existence of a third strong operating force. Transport infrastructure development has been considered by many local officials and economic planners as the key to attract foreign investment and achieve economic prosperity. Many government officials I interviewed have reported that the transport sector has in recent years become a top priority in budget allocation. Wherever I visited, I saw widespread construction of highways, bridges, harbors, and roads on incredibly large scales. Whether such a "transport first" approach is appropriate has yet to be studied. It was quite clear to me that transport development must be included as a key

operating force that has shaped regional development in the Zhujiang Delta. After many sessions of discussion and consultation with local Chinese scholars and planners, I have finally decided to focus my investigation on three key factors: transformation of the peasant economy, development of the transport infrastructure, and influence from Hong Kong. This involved field work in three case study areas. Data were collected in order to provide information on economic, political, land use, and social changes.

The selection of my case study areas also requires an explanation. No single place was able to represent the development process of the entire Zhujiang Delta region. Sometimes a certain place seems to be a good representation of a certain aspect of development, but systematic data on such a specific aspect did not exist. Dongguan *shi* was originally selected as a sole place for my field work, but almost all Chinese researchers I met warned me of the extreme difficulty of obtaining data and doing interviews in Dongguan because local officials there are unwilling to cooperate. A similar difficulty existed in Shunde and Zhongshan. As a result of careful investigation and extensive consultations with experienced Chinese researchers, three places were selected for case studies: Nanhai, Panyu, and Dongguan. The reasons for choosing them will be discussed in detail in the chapters where their development experiences are analyzed.

The major findings of this research and their theoretical and practical implications are summarized in Chapter Seven, in which I revise my theoretical hypotheses concerning the operating mechanism of regional development in socialist China and present a model of local-global interaction to conceptualize what has been taking place in the Zhujiang Delta region in the post-reform era. The findings from my research are also used to evaluate the relevance of existing development theories to the Chinese reality.

CHAPTER TWO. DEFINITIONS AND THEORETICAL CONTEXT

"....everyone, it seems, knows what development is except the experts!"

W.B. Stohr and D.R.F. Taylor, 1981, Development from above or below? New York: Wiley, p. 453.

2.1. Introduction

In the study of Chinese geography and modernization, there is no shortage of documentation on the Chinese approach to the problem of regional development. As data and information on China's spatial changes become increasingly available, a growing number of studies have been conducted by scholars within and outside China to reveal how Chinese planners managed to transform the space economy of the country (Foggin et al, 1993; Kwok, 1981, 1987; Linges and Forbes, 1990;), what motives were responsible for such a transformation (Kirkby, 1985; Cannon, 1990; Chan, 1992), and what consequences have resulted from this process of spatial transformation (Hu and Foggin, 1993; Xu and Li, 1990; Laquian, 1989; Lo, 1989). There is also a fairly large body of literature generated by scholars in China on Chinese urbanization (Zhou, 1991, 1988; Xu, 1992, 1988, 1984; Yao and Wu, 1982; Ye, 1989; Song and Gu, 1988; also see Pannell, 1990 and Kirkby, 1994, 1985 for a detailed review of works by Chinese scholars). While significant progress has been made to unfold the complex patterns of spatial changes in China, the existing literature has rarely addressed the conceptual or theoretical issues associated with the Chinese experience of regional development. Conceptualization or theorization of the Chinese experience is usually considered as a task too risky to pursue, firstly, because many features of development found in China are perceived as unique and incomparable with those of other countries in the world, and secondly, because China is identified as a vast country with

great geographical variation, which seems to make it unsuitable for any nationwide theoretical generalization. Consequently, studies of China's regional development have been by and large isolated from the mainstream enquiry of development. There have been in recent years a few commendable attempts to incorporate the Chinese case of development into the framework of some well-known theories such as Friedmann's models of core-periphery, agropolitan development, and functional/territorial planning (Wu and Ip, 1981a; Lo, 1989; Chu, 1992; Xu and Li, 1990). These theoretical applications have, however, left much to be desired because the models utilized were originally built on the basis of the development experiences of other developing countries, mostly in Latin America, which are fundamentally different from the Chinese case. Given the fact that socialist China has demonstrated many unique features of political and economic change in the past several decades, it is necessary to develop a special theoretical framework to conceptualize the Chinese experience of development. Such a framework should be specific enough to summarize special features of development in socialist China. It should also be general enough so that it can link the Chinese model closely with the existing body of development theory.

The purpose of this chapter is to develop a conceptual framework for understanding the operating mechanism of regional development in Zhujiang Delta, one of the fastest growing economic regions in China. This chapter consists of three sections. In the first section, I examine different definitions of the concept of "regional development" from the existing literature and provide a version of my own which will be used all through this thesis. This will be followed by a selective assessment of some current competing interpretations on the mechanism of regional development which are, from my own perspective, centered around the two opposing schools of exogenism and endogenism. Finally, as an attempt to relate current theoretical debates to the changing Chinese reality, I construct a

hypothetical model for conceptualizing regional development in the Zhujiang Delta. This hypothetical model will be tested in the empirical section of this thesis.

2.2. Definitions of Development and Regional Development

The concept of regional development is not new, it has been used in numerous scholarly publications and government documents. Despite the great currency it has gained in the academic community and among the public, the exact meaning of regional development is far from clear. No precise definition has ever been spelled out, and regional development has become a term individually defined by individual writers. It seems that scholars are more concerned with the conception of "development" and they tend to see "regional development" as a by-product which deals with the "spatial aspects of development" (Brookfield, 1975: 85), however "spatial aspects" may be defined. To comprehend the meaning of regional development, it is necessary first to examine different interpretations of "development."

In the writing of the school of modernization, the concept of development was understood as essentially economic, growth oriented and being able to replicate itself from developed to developing countries. As Baster (1972: 1) has noted, the term "development" was usually equated to "economic development." Its definition was first precisely and technically specified by economists as "the process by which an economy is transformed from one whose rate of growth of per capita income is small or negative to one in which a significant self-sustained increase of per capita income is a permanent long-run feature" (Adelman, 1961: 1). Development is thus equated with economic growth and it can be measured by the growth of per capita income. This definition was later expanded to include a social dimension. Friedmann, for instance, defined development as "an innovation process leading to the structural transformation of social system" (Friedmann,

1972: 84). Similarly, Myrdal stated that "development means improvement of the host of undesirable conditions in the social system that have perpetuated underdevelopment" (Myrdal, 1968: 58). But the underlying assumptions here are still that development, as an evolutionary process, is driven by economic growth and that once growth is initiated, the benefits will automatically diffuse to the majority of the population.

The end of the 1960s and early 1970s witnessed some profound changes in the interpretation of development and corresponding regional development. The pebble that caused the turbulence in the stream was the finding that although considerable economic growth had been achieved in some nations, it had not eliminated poverty. Instead, growth in per capita income had frequently been accompanied by growing income inequality, widening social disparity and a deteriorating natural environment. The discovery of these undesirable problems led to a fundamental rethinking of the meaning and nature of development. Growth of GNP or per capita income as an indicator of development was found inadequate and a number of "Social Indicators" such as reduction in poverty, unemployment, and inequality were suggested to form a humanist definition of development (Seers, 1972: 21-36; Baster, 1972: 1-20).

It is now generally agreed that development is not a mere economic phenomenon but one that has many social, political and ecological implications. There remain fundamental differences in the perception of development, however. Two different visions can be identified. First, there are development theorists such as Seers and Baster who contend that "development is inevitably a normative concept, almost a synonym for improvement" (Seers, 1972: 22). Baster defines development as the "fulfillment of the necessary conditions for the realization of human personality" (Baster, 1972: 4). Manning states that "development must be viewed as qualitative improvements, and it must include social, economic, and

ecological measures" (Manning, 1990: 291). Similarly, Simon conceives development as "a multifaceted process whereby the quality of life and 'personality' of individuals and groups improves" (Simon, 1990: xiv). Development thus defined is a process of improvement which is necessarily good, desirable or ideal.

A different vision of development is presented by Brookfield who takes a positivist approach and sees development as "goal-free." Development, according to Brookfield, "is the whole process of change brought about by the creation and expansion of an interdependent system. Development is therefore positive and negative, according to one's goals" (Brookfield, 1975: XI). Brookfield's positivist standing is shared by Hettne who conceives development as "an open-ended concept" that can only be "contextually defined" (Hettne, 1990:2). In Hettne's view, "development involves structural transformation which implies cultural, political, social and economic changes" (Hettne, 1990: 3). Thus, development is almost equivalent to change. Development is both good and bad; it could create persistent poverty in one area while producing wealth for another; it could raise real income for the present generation but, at the same time, cause scarcity for the yet-unborn.

The concept of regional development has been, to a great extent, affected by the changing interpretation of the concept of development. Early writers of the school of modernization tended to use regional development as a concept that describes the incidence of economic growth in a spatial setting (Friedmann and Alonso, 1964: 20; Siebert, 1969: 4). More precisely, regional development was defined as the transformation of regions from "backward" to "modern" (Dewar et al, 1986: 15). The term was used interchangeably with "regional economic growth" or "regional expansion" with growth being measured by the increase in the output of a region (Siebert, 1969: 4; Friedmann, 1966: 20-38).

The "Social Indicators" movement of the early 1970s, which resulted in a reorientation in the perception of development, also changed the interpretation and treatment of the concept of regional development. The early definition of regional development which treated it as equivalent to regional economic growth was gradually abandoned. Regional development has been increasingly perceived as a concept that embodies not only the shifting spatial distribution of industries, employment and production (Scott and Storper, 1992: 3-24) but also the achievement of self-reliance, mobilization of local resources, decentralization of decision making, and maintenance of the sustainability of the environment (Friedmann and Douglass, 1978: 163-192; Friedmann and Weaver, 1979: 193-204; Stohr, 1981: 40).

In a manner similar to the different perceptions of development, regional development as a concept has been interpreted and treated from two different angles. First, there are those who adopt a normative and interventionist approach and see "regional development as a policy issue" (Friedmann and Alonso, 1964: 1). Lo and Salih, for instance, explicitly define regional development as "an instrumentality" i.e. "the necessary means to achieving the goals of human development" (Lo and Salih, 1981: 123). This vision, now favoured mostly by planners, owes its origin to the pre- and post-war period when regional development programs were implemented in both Western Europe and the United States to assist the lagging regions (Scott and Storper, 1992: 3; Brookfield, 1975: 85). The prime concern here is not how regions develop but how to develop regions. The key issue is one of altering the existing regional patterns of development. The real duty, as Losch puts it, "is not to explain our sorry reality but to improve it" (quoted in Friedmann and Alonso, 1964: 77). Regional development thus defined is more a device for improvement, planning, or policy making than a natural empirical process of regional change. The term regional

development has frequently been used interchangeably with regional policy making, regional planning, or regional strategy in the current literature of planning and development (Scott and Storper, 1992: 3-24; Lo and Salih, 1981: 123-152; Friedmann and Alonso, 1964: 1-11;75-77). The conception of regional development as a means of spatial planning or spatial organization has also been favoured by planners of socialist command economies such as China and the former Soviet Union (Lavrov and Sdasyuk, 1988: 7; Kirkby and Cannon, 1989: 1-19; Cannon, 1990: 28-60). In Chinese development literature, the concept of regional development (*quyu fazhang*) has been frequently tied to "regional development policy" or "regional strategy"(Pan, 1991:1-6; Yie and Tan, 1990:1-6).

A closer examination of available development literature will uncover a different perception of regional development which stresses the explanatory aspect of the subject. The major concern here is not what should be done or how it should be done to improve the existing regional pattern of development. Instead, it focuses on understanding how development occurs and evolves at the regional setting. Regional development thus perceived is not an "instrumentality" of improvement but a concept that denotes the natural process of change or differentiation across space. Writers of regional development have very rarely spelled out or allied themselves with this positivist definition. But when Friedmann initiated his centre-periphery model to explain "the process of regional development" (Friedmann, 1966: 20-38), when Myrdal put forward his theory of cumulative causation to explain why and how regional inequalities exist and persist (Myrdal, 1957: vi), and when Siebert specified a list of questions to be dealt with by regional development theory (Siebert, 1969: 5), the term "regional development" was clearly understood as a natural process of change, although they have all suggested that a good understanding of this process could have implications for planning and policy making. This positivist definition of regional

development and its relationship with "spatial organization" on the one hand and regional planning on the other has been clarified by Friedmann and Alonso:

"Regional development concerns the incidence of economic growth. It is ultimately the result of the location of economic activities in response to differential regional attractions. Shifts in the location pattern have direct repercussions on income, employment, and welfare. Since spatial organization is a function of activity and interaction patterns, regional development is simply an expression of these patterns. And regional planning consequently endeavors to improve the organization of economic space in accordance with indicated criteria or goals."

(Friedmann and Alonso, 1964: 20).

The distinction between the positivist and normative perceptions of regional development is of fundamental importance to this thesis, although it tends to be blurred in the literature of planning and development. In this thesis, regional development will be used as a concept to denote the process of economic and spatial changes taking place in a delineated region, which includes three specific aspects: sectoral change in production and employment, spatial redistribution of population and human settlements, and transformation of land resources. It is acknowledged that regional development as a process of change over space is not devoid of the impacts of "value-judgement" or the pursuit of "goals." The process of regional development has always been shaped by forces of various dimensions including government intervention. Human intervention and the pursuit of goals are, however, understood here as the forces operating behind the scene of regional development. They are the causes of the phenomenon rather than the phenomenon per se. The purpose of this thesis is to understand how regional development is driven by various forces and this purpose can only be achieved when the causes and effects are clearly distinguished. Government actions and planning measures necessary for further development will be suggested at the end

of this thesis, but the prime task is to understand the growth dynamics of regional development, not to provide prescriptions for such development.

2.3. Theory of Regional Development: A Selective Overview

Scholarly interest in the problem of regional development is generally believed to have had its "abortive beginning" during the Depression years and immediately after World War II (Brookfield, 1975: 85; Scott and Storper, 1992: 3). Regional development, as a field of study, did not fully emerge until the 1950s when the concept of polarized growth was introduced and the notion of spatial polarization became a main theme of theorization. Throughout the 1950s and 1960s, studies of regional development were dominated by the neo-classic school of thought which prescribed an unbalanced approach to regional development. Whatever version of this school one wishes to examine, the essential position is that development only proceeds in a cumulative and discontinuous manner. It starts with a process of polarization whereby capital and labour are concentrated in a few industrial sectors or geographic cores. The benefits of polarized growth will then automatically diffuse from the core to the periphery of the region through backward and forward linkages. Regional inequalities caused by the initial unbalanced growth will eventually diminish to reach a relatively homogeneous development surface across the national territory (Perroux, 1950; 1955; Myrdal, 1957; Hirschman, 1958; Friedmann, 1966; 1969).

The undesirable outcome associated with polarized regional growth, namely persistent poverty, growing income inequality and regional disparity which became eminent toward the end of the 1960s, began to challenge the orthodoxy of the school of unbalanced development (Adelman and Morris, 1973; Edwards, 1974; Chenery, 1974; Elliott, 1975; Lipton, 1976). A number of new theories and models were then suggested to explore the dynamics of dependency and

underdevelopment (Baran, 1957; Frank, 1967; 1969; Emmanuel, 1969), to illuminate the global restructuring of investment and production (Frobel et al, 1980; Hymer, 1972; Cohen, 1981; Taylor and Thrift, 1982; Forbes and Rimmer, 1984), to promote basic need satisfaction and self-sufficient regional development (Seers, 1977; Friedmann and Douglass, 1978; Goulet, 1979; Friedmann, 1992), and to preserve the sustainability of the natural environment. None of them was, however, to everyone's satisfaction because they tended to emphasize only part of the complex issues of development and underdevelopment. Consequently, studies of development in general and regional development in particular are found currently to be in a stage of "crisis" or "impasse" because there is no prevailing paradigm and the discipline is said to be in a process of disintegration (Hettne, 1990: 232; Corbridge, 1989: 224-254; Schuurman, 1993). Whether development study as a discipline is actually disintegrating is a matter of subjective perception, but certainly theorization on the issue of regional development has been distinguished by its great diversity.

In this section, I assess some current thinking and debate on the operating mechanism of regional development. The literature of regional development is extensive and has been well summarized in a number of fine studies (Schuurman, 1993; Hettne, 1990: 36-251; Corbridge, 1989: 224-254; Armstrong and McGee, 1985: 17-40; Blomstrom and Hettne, 1984: 8-200; Stohr and Taylor, 1981: 15-72; Friedmann and Weaver, 1979: 108-180; Brookfield, 1975: 1-209; Keeble, 1967: 287-302; Friedmann and Alonso, 1964: 1-13). In this study, I will not attempt to describe all development theories particularly the works of Massey (1984) and Harvey (1989) since these works have yet little impact on Chinese thought on regional development. Instead, I will simply identify a number of unsolved theoretical questions which are directly relevant to my study of the Zhujiang Delta region. The purpose is to provide a theoretical context through which a conceptual

framework can be developed for this thesis and theoretical implications of my empirical research findings can later be addressed.

In deconstructing the intellectual currents of regional development, at least four key theoretical issues can be identified for scrutiny as they have been the subject for unsettled scholarly debates and competing interpretations. First, at the philosophical level, there is the fundamental question concerning the nature of regional development: is regional development a phenomenon internally motivated and self-sustained or a process primarily driven by external demand and innovation impulses? Secondly, there is the debate on whether transnational capital should be considered as a key factor responsible for increased urban concentration in the target regions of less developed countries. Thirdly, there are opposing interpretations on why and how socialist states of the Third World managed to control the problem of national and regional development. Finally, the interrelationship between "time-space convergence" (Janelle, 1969: 353) and the transformation of a regional economy continues to fascinate scholars and inspire incessant investigations. These four prominent theoretical issues are directly relevant to the main themes to be addressed in this thesis and they will be assessed briefly in what follows.

1) The Mechanism of Regional Development

Although the literature of regional development is characterized by its great diversity of interpretations, the operating mechanism of development in a regional setting is perhaps the most common and fundamental theme that has been elaborated by all development discourses and persuasions. Thus far, the focus of theoretical enquiry has been on the role played by external and internal forces in the process of regional development. Two different versions of interpretation have been suggested. In the early neo-classic model of polarized growth, regional

development was seen as a process motivated by external demand and driven by innovation impulses. Deriving inspiration from the seminal work of Myrdal (1957) and Hirschman (1958), this neo-classic school of thought held that regional development starts in only a few dynamic industrial sectors and geographic centres. Once started, growth will become polarized and its benefits will, either in a spontaneous or induced way, "trickle down" from the core to the periphery. It should be noted, however, that Myrdal was quite concerned about the vicious cycle of backwash effects while Hirschman tended to see the eventual convergence of regional disparity as the norm. According to this growth formulation, regional development is an externally stimulated process and the role played by external forces such as demand, capital investment, or innovation was seen as essential, positive, and generative.

The persistence of poverty and growing income inequalities after decades of development since the 1950s has resulted in disillusionment with the optimistic speculation of convergence of social and spatial disparities. The subsequent emergence of the school of underdevelopment, which centered around the concept of dependency (Frank, 1967, 1969), meant a complete switch in evaluating the external forces from the previous positive or generative assignment to a negative or parasitic formulation. But the underlying exogenous assumption remains unchanged. The pattern of development and underdevelopment was still perceived as being shaped by external factors.

Theoretical advances in the post-dependency era have shown significant signs of reorientation from the previous bias of exogenism to endogenism. This process of reorientation, called "indigenization" by Hettne (1990: 243), is marked by a shift of forces from external factors to intra-regional or domestic conditions. This trend of reorientation is evidenced from the suggestions of "another development" (Nerfin, 1977; Friedmann, 1992), basic need satisfaction (Seers,

1977; Goulet, 1979), and agropolitan development (Friedmann and Douglass, 1978; Friedmann and Weaver, 1979), which have all stressed the importance of internal mobilization of local indigenous resources to seek self-reliance.

Other theoretical developments in the post-dependency era have also demonstrated a significant tendency of movement towards an endogenous explanation. The world system theory (Wallerstein, 1974), which attempted to correct the exogenous bias associated with the dependency model, has virtually internalized the external factors by changing the scale of analysis from the national to global level. As such, the world system theory is in a way "a return to endogenism of a more grand scale, the endogenism of the world-system rather than the endogenism of the nation state" (Hettne, 1990: 245). Even the radical discourse of Neo-Marxism, which analyzes development under a broader global and historical context, has shown an apparent orientation toward endogenism. In explaining the pattern of development and underdevelopment, for instance, Marxists have maintained that new and higher production relations could not appear "before the material conditions of their existence have matured in the womb of the old society" (quoted by Hettne, 1990: 244). Development thus perceived is virtually an internally driven, automatic and repetitive process whereby the less developed countries fulfil the necessary "material conditions" so as to reach a higher level of production relation.

It is evident from the foregoing analysis that there exist two opposing schools of thought on the mechanism of regional development: exogenism and endogenism. Neither of these two schools can escape the criticism of over-stating and being side-tracked. In reality, there is hardly any region or nation that develops merely as a reflection of what goes on beyond its boundary. Similarly, there are no regions that could be completely self-reliant and isolated from the outside world. The issue of regional development is, as pointed out by Armstrong

and McGee, an outcome of the dialectical interaction between the internal social, cultural, economic and political situation and the external process of global capital penetration (Armstrong and McGee, 1985: 32). A more appropriate way to theorize the operating mechanism of regional development would, therefore, be to view the external and global forces as setting the broad parameters for the development process, while the internal political and historical variables help to explain more specific patterns. But the complex nature of interplay between external and internal forces and its spatial consequences have yet to be investigated through detailed empirical studies.

2) Trans-national Capital and Regional Development

In the current of the internationalization of capital investment and manufacturing production, transformation of a regional economy and its spatial development have increasingly found themselves been shaped by forces emanating from the restructuring of production and accumulation of capital on a global scale. The importance of the globalization of production in regional development has received much attention from scholars and development specialists. Existing literature, from the early dependency model (Frank, 1967; 1969), through the world-system theory (Wallerstein, 1974) and the concept of New International Division of Labour (Frobel, et al, 1980), to the recent Warren thesis (Warren, 1973; 1980), has, however, tended to be concerned more with the economic and social consequences of international capital investment and less with its spatial implications. Nevertheless, there have been some commendable efforts to document the impacts of trans-national capital on the spatial development of the target regions and some bold attempts to theorize this process.

One of the earliest attempts to theorize the spatial dimension of the transnationalization of capital was made by Hymer (1972), who asserts that

multinational corporations tend to be attracted to the core region or primary metropolitan area of a nation. Hymer's study was further elaborated by Cohen (1981), Friedmann and Wolff (1982), and Castells (1989), who introduced the concepts of "world cities" and "information city" as new urban forms shaped by transnational capital. There are also studies suggesting that, as a result of the circuit of transnational capital, new spatial pattern of urban-industrial agglomerations such as extended metropolis are emerging on the Asia-Pacific Rim (McGee, 1991b; Ginsburg, 1990; Kwok and Au, 1986; Taylor and Kwok, 1989).

While there is a growing consensus among scholars that the increasing scale at which production and distribution are organized within the world economy has a substantial impact on the spatial structure and process of regional development, the extent to which transnational capital has affected urban and regional growth remains poorly understood. What has become problematic and confusing is that existing literature often comes up with conclusions that contradict one another.

Proponents of the dependency school contend that trade and investment dependent upon global capital will exacerbate the problem of the growth of huge primate cities and hinder more equal income distribution. Kentor, for instance, applied the concept of dependency to examine the impact of "investment dependency" on urban concentration. He found from the data of 37 countries between 1950 and 1970 that investment dependence had promoted population concentration in the urban areas and increased the likelihood of "over-urbanization" (Kentor, 1981: 201-211). In another study, Sit and Mera have suggested that the internationalisation of production has contributed to urban primacy and exacerbated the problem of the growth of primate cities in Asian countries (Sit and Mera, 1982).

The dependency perspective on the relationship between trans-national capital and urban concentration in its target regions was disputed by other

scholars. Based on their cross-national survey of the Third World countries, Koo and Timberlake argued that "external economic dependency seems to have no significant short-run effects on urbanization patterns of developing countries", at least in the direction suggested by dependency assertion (Koo and Timberlake, 1977: 17). A more recent study by Kelley and Williamson also shows that a trans-national capital influx has had no effect on overall urban growth rates (Kelley and Williamson, 1984: 419-441). Fuchs and Pernia examined Japanese direct investment in East and South-East Asian countries in terms of their contribution to the spatial concentration of population and economic activity. They conclude that "Japanese investment per se does not exert a systematic and independent bias toward the metropolitan region" (Fuchs and Pernia, 1987: 110). High urban primacy, as displayed in some Asian countries, seems to reflect instead the country's level of economic development, the existing patterns of economic activity, population, and infrastructure. According to Fuchs and Pernia, whatever problems Asian nations may have, the spatial distribution of their economies and employment must be primarily the result of location decisions of indigenous rather than foreign investors (Fuchs and Pernia, 1987). Similar arguments can also be found in the empirical studies conducted by Williams (1988), Chenery and Syrquin (1975), Amsden (1979), Barrett and Whyte (1982), and to some degree, by Nemeth and Smith (1983). The assessment of the spatial consequences of the globalization of capital investment and production is thus a subject of unsettled debate that remains to be tested against real-world practice.

3) Regional Development in the Socialist Third World

Until recently, the issue of regional development in the context of "Socialist Third World" (Forbes and Thrift, 1987; Chatterjee, 1989) has never become a subject of mainstream enquiry partly because of the limited availability of

information and partly because of the long existing Eurocentric bias in development studies (Hettne, 1990: 36; Slater, 1989: 267; McGee, 1991a: 333). In recent years, however, planners and development specialists have increasingly recognized that regional development in the "Socialist Third World" deserves scholarly attention in its own right (Forbes and Thrift, 1987: 1-26; Corbridge, 1991: 311; Chatterjee, 1989: 140). It has also been suggested that the experience of regional development in the socialist Third World, as another "voice from the periphery," has provided an important counterpoint to the orthodoxy of much of the development literature (Forbes and Thrift, 1987: 1).

In assessing the experience of regional development in the socialist developing countries, two salient features stand out. First, the socialist developing countries under the doctrine of Marxism-Leninism have been noted for their declared commitment to equity and egalitarianism. Although the grand socialist ambition of equality is to some nothing more than rhetoric (Kirkby and Cannon, 1989: 1-19; Cannon, 1990: 28-51; Chan, 1992: 275-306), the enduring struggle of the people of the socialist Third World for poverty abatement and basic-need satisfaction has been, nonetheless, remarkable. As Corbridge has observed from the 1990 World Development Report, some socialist countries have fared even better than their capitalist counterparts in delivering basic needs to the poor (Corbridge, 1991: 311). In this regard, the practice of socialist China during the Maoist era has been frequently cited as an example of success. It is generally believed that between 1950 and 1976, socialist China, with little outside help, managed with considerable success to bring food, health care and other necessities to the masses and overcome the contradictions that existed between town and countryside and between developed coastal regions and the backward interior (Sen, 1989: 779; Bhalla, 1990: 1097-1110; Wu, 1987: 53-97). The Chinese experience of egalitarian development, according to Friedmann and Weaver, stood in sharp

contrast to the American doctrine of unequal development, in which efficiency calculations drown out all thoughts of equity and justice (Friedmann and Weaver, 1979: 164).

A second feature of regional development under the context of the socialist Third World has been the phenomenon of what Forbes and Thrift called "polarization reversal" (Forbes and Thrift, 1987: 6; Chatterjee, 1989: 140). It was observed that in many socialist developing countries, rapid industrial growth was not accompanied by an increase of urban primacy or uncontrolled urbanization. Instead, polarization, if defined as the concentration of population in large urban centres, was deliberately "reversed" by the state. In countries like Tanzania, Vietnam, and Kampuchea, the size of the large cities was reduced through policies of de-urbanization; others have used a variety of instruments to contain the growth of large cities, including residence registration, limiting access to housing and schooling, controlling work and food permits, and forced resettlement schemes (Fuchs and Demko, 1981: 78-84). While the growth of large cities was strictly contained, rapid industrialization appears to have been achieved in many socialist countries especially China, North Korea and Vietnam. The socialist practice of seeking rapid industrialization without a parallel population concentration in large cities has provided another deviant case challenging the conventional development wisdom which normally assumes a direct cause-effect relationship between industrialization and urban concentration.

In explaining the socialist practice of egalitarian development and polarization reversal, two major theories of interpretation have been suggested. The first one perceives the socialist pattern of urban and regional development as a product of the socialist ideological conviction to equity and egalitarianism which is considered a basic tenet of Marxism. Specifically, it was noted that to eliminate urban-rural differences is a socialist mandate specified by the classic writings of

Marx and Engels and that in fulfilling this mandate, the Communist regimes took a strong anti-urban or pro-rural standing, as evidenced in the implementation of programs such as the forced mass removal of urban residents to the countryside, the suppression of urban consumption and the promotion of rural development (Fuchs and Demko, 1981; Chatterjee, 1989; Murphey, 1976). The notions of egalitarianism and anti-urbanism appear to be a thoughtful attempt to account for the dynamics of industrial and urban development in such countries as China, Vietnam, Kampuchea and North Korea where the Communist revolution originated from peasant rebellion.

The ideological explanation of socialist regional development has recently been repudiated by a group of scholars who take a pragmatic position that sees the socialist commitment to equality as rhetoric and superficial. In assessing the Chinese approach to regional development, for example, Kirkby and Cannon contend that the issue of regional equity per se had never been a major concern of the Chinese leaders in the Mao period (Kirkby and Cannon, 1989: 5). Instead, regional development in terms of investment in Maoist China was considered as being motivated "almost entirely for strategic reasons" (Cannon, 1990: 39). According to Kirkby and Cannon, it is the pragmatic consideration for national security and possibly "economic rationality" that has shaped China's regional development, not abstract notions such as egalitarianism or anti-urbanism (Kirkby, 1985: 14; Cannon, 1990: 39; Kirkby and Cannon, 1989: 6). A similar position was taken by Thrift and Forbes (1986) who, in a case study of urban development in Vietnam, highlight the importance of civic factors such as warfare, external security threats, and ethnic rivalry and conflict.

While the two competing interpretations have both shed significant light on the mechanism of regional development in socialist developing countries, they have tended to overemphasize one of the two elements of pragmatism and rhetoric

which are not always mutually exclusive. Moreover, these assertions have both been formulated based upon socialist development in the cold-war era when war planning was a prime concern to most Communist regimes and when everything had to be justified according to the principles of Marxism-Leninism. Given the fact that many socialist developing countries are undergoing dramatic reforms in their political economy, it is necessary to search for a more up-to-date paradigm of socialist regional development by investigating the mechanisms of reform in these nations and their social and spatial implications.

Currently, many socialist countries are shifting the focus of regional development from self-reliance, spatial equality and economic egalitarianism toward openness, economic efficiency and individual creativity (Forbes and Thrift, 1987; Wu, 1987: 93; Ma and Nobel, 1986: 279). What, then, are the spatial consequences of this policy reorientation? If the grand socialist ambition of egalitarianism is no longer a major concern of the post-reform Communist regimes, what will happen to the relationship between town and country, backward and advanced regions, and among social classes of different income? In the cold-war era, socialist developing countries were characterized by state monopoly of all spheres of the national economy ranging from production and circulation to consumption. Interregional and rural-urban migrations were also effectively contained by the state. In recent years, practical reform programs have been implemented in socialist developing countries such as China and Vietnam and market forces have played an increasingly important role in the national and regional economy. If state monopoly is gradually giving way to laissez-faire market forces, what will happen to the spatial concentration of production and population? Will polarization reversal and slow urban growth remain a unique feature of socialist regional development? If so, what are the factors responsible for the persistent pattern of polarization reversal? If not, what are the forces that

have broken the chain limiting urban and regional growth? Studies of these questions will, without doubt, enrich our knowledge about the interplay between political economy and regional development and enhance our understanding of the dynamics of regional development under socialism. As Corbridge (1991) has recently suggested, at a time when the socialist empire has collapsed in the Soviet Union and Eastern Europe and the death of socialism is being highly lauded worldwide, it is necessary to make a sober and critical review of the performance of various socialist countries in the Third World and draw some attention "to the struggles for socialist models of development which continue to inspire men and women in the periphery" (Corbridge, 1991: 311). Such a retrospective assessment can also serve as a benchmark of socialist models with which to compare post-socialist development models.

4) Transportation and Regional Development

For years, the role of transportation in fostering regional economic growth and changing land use structure has been of great interest to academics, planners, investors, and politicians. After decades of theoretical and empirical research, however, no consensus has been reached regarding the exact function of transportation in the process of national and regional development. In assessing the economic impacts of transport infrastructure development, three different interpretations have been suggested.

The first and most common vision sees transport infrastructure development as a precondition or prerequisite for regional economic growth. That economic growth requires adequate and effective transportation services is axiomatic. Rostow, for instance, claims that the railroad was "...historically the most powerful single initiator of take-offs" (Rostow, 1960: 25). Similar assertions have been made by Owen (1964; 1987), Savage (1959), Hunter (1965), and Hawkins

(1962). Even after the mid-1980s, there remains a strong conviction that improved transportation is instrumental to the diffusion of technological innovation, the delivery of basic needs to the poor, and the overcoming of hunger and poverty (Owen, 1987: 17). As summarized by Leinbach and Chia, "transport is an essential element of both the theory and practice of the spatial development of a nation" (Leinbach and Chia, 1989: 3).

The positive and pervasive interpretation of the role of transportation in regional development was, however, disputed by others as overstated, incomplete and misleading. In the second type of conception, transportation, as one of the many elements of development, plays only a permissive or passive rather than inductive role. According to this perspective, transport facilities will expand to meet economic demands, and will not, themselves, induce new economic activity. Transport is interpreted as a "lag" rather than "lead" sector of development. This permissive interpretation of the role of transportation was endorsed by some historians who reinterpreted history to show that transport followed, rather than preceded, economic development (Cootner, 1963; Fogel, 1964; Fishlow, 1965; Barloon, 1965). In a detailed study of regional development of Soviet Siberia, North has concluded that "despite the prominence of transport problems in Siberian development, few changes in the spatial relationships of the region can be related directly to reduced transport costs resulting from technical advances" (North, 1979: 222). To these writers, development is not a deterministic process. To single out transportation as a single causal agent of regional development is "a gross oversimplification of a very complex problem" (Gauthier, 1970: 613). Transportation thus perceived is a "necessary but not sufficient" interactor with development. It is only one of the many, albeit critical, services and elements that are required in order for development to move forward (Leinbach and Chia, 1989: 2).

The third vision of the role of transportation speculated that investment in the transport sector may have a detrimental impact on regional development simply because it diverts funds from other investments more essential to the area's growth. Essentially, this argument is based upon the concept of opportunity cost which suggests that transport investment could absorb a great portion of the scarce capital that should be invested elsewhere (Gauthier, 1970: 614). There were also concerns that transport development may accelerate the backwash effect of regional polarization. Specifically, transport expansion in one region may help to drive out some previously established businesses and attract capital, management, and labour away from other regions hence exacerbating regional disparities and stifle overall regional development (Wilson, 1966: 10).

Along with competing interpretations of the role of transport infrastructure in regional economic growth, there have been studies to document the spatial impacts of transport development in terms of the transformation of land use, changing distribution of economic activities, and reorganization of human settlements. One of the earliest attempts to theorize the interrelationship between transport development and the growth of cities was made by the British scholar Charles Cooley in 1894. Cooley introduced the principle of a break in transportation and suggested that a commercial city will rise wherever there is a junction or transfer of different types of transportation modes (Cooley, 1894: 75-76). But the classic work on the spatial development of transport networks was done by Taaffe, who formulated a model to describe the relationship between the evolution of transport network and the formation of urban landscapes (Taaffe et al, 1963: 504). Since then, transport development and its spatial consequences have become a fascinating subject provoking not only incessant investigation but also endless debate and contemplation.

A great number of new concepts have been created to describe how transport innovations facilitate the "spatial reorganization of human activities" (Janelle, 1969: 353). To name a few, there are concepts such as "time-space convergence"(Janelle, 1969: 351), "collapsing space and time" (Brunn and Leinbach, 1991: xviii), "annihilation of space through time" (McGee and Lin, 1993: 128), and "a shrinking world" (Abler, 1975). There are also hypothetical models and theories which attempt to foresee the possible forms of human settlement as a result of the revolutionary advances in modern transportation and communications. Among the most noticeable are the models of "development corridors" (Whebell, 1969: 4; Rimmer, 1990: 3-6; Yeung and Lo, 1992), "Megalopolis" (Gottmann, 1961), "Ecumenopolis" (Doxiadis, 1963: 250), "Galactic metropolis" (Lewis, 1983: 23-49), "dispersed metropolis" (Ginsburg, 1961: 631-640; Hayes, 1976: 3), and recently "extended metropolitan regions" (McGee, 1991; Ginsburg, 1990).

Despite the considerable advances in conceptualization and theorization of the subject, there remain fundamental differences and disputes regarding the cause-effect relationship between transport development and the process of "spatial reorganization" or land use transformation. This is evident in many empirical investigations which have presented completely different findings. On the one hand, there have been quite a number of case studies which revealed that transport development, particularly highway and transit systems, has significantly shaped and reshaped the spatial structure of urban and nonurban places in North America . Particularly, intersections or highway interchanges are recognized as the points at which the impact of the artery is the greatest. There are empirical studies which suggest that the intersections of interstate highways have the ability to alter traffic flow and patterns, stimulate commercial activity, displace and recreate housing opportunities, and influence industrial location decisions (Moon,

1987:10; Mason and Moore, 1973: 19-33; Babcock and Khasnabis, 1973: 34-37). There are also studies to link the development of a highway system with the economic growth of the adjacent nonurban local communities. Eyerly et al, for instance, examined the economic changes that occurred from 1970 to 1980 in communities adjacent to selected nonurban interchanges on the interstate highway system of Pennsylvania. After comparing indices of economic growth, both conventional (i.e. housing, income, employment, population) and new (assessed market value of real property), they concluded that the interstate highway system tends to encourage the economic growth of the adjacent local communities (Eyerly, et al, 1987: 7). The processes of growth and spatial concentration that take place around the interchanges of major transport arteries have been conceptualized by Erickson and Gentry as "suburban nucleations" (Erickson and Gentry, 1985: 19).

The revealed causal relationship between the development of transport facilities and spatial changes has, however, contradicted the findings of other empirical studies. Cribbins et al, for example, assessed the economic impact of selected sections of interstate routes on land value and land use. After studying five sections of highways, they concluded "that the controlled-access facilities under investigation have done little to stimulate or depress surrounding property values and development" (Cribbins et al, 1965: 30). Similarly, in an investigation of the relationship between interstate highway systems and development in nonmetropolitan areas, Briggs has shown that "while counties with freeways as a group have higher average growth rates, even after conforming factors such as proximity to metropolitan areas and presence of urban population concentrations are controlled, the presence of a limited access highway is far from an assurance of development for an individual county" and that "the interstate system was less able to explain the spatial pattern of development than nontransportation factors" (Briggs, 1981: 9). In a review of the studies of land use impacts of highway and

transit development, Giuliano concludes that "transportation investments do not have a consistent or predictable impact on land use.... Rather, availability of developed land, favourable economic conditions, and local political support have been identified as key factors in most studies" (Giuliano, 1986: 277).

The assessment of the economic and spatial impacts of transport development is thus a debatable topic that requires further investigation. While theoretical contemplations have generated interesting concepts, ideas, and models on the issue, the exact role of transportation in regional development is far from clear. From the existing literature, it appears that the nature and extent of the interrelationship between transport development and economic or spatial transformation are not universally consistent or historically predictable. Instead, such a relationship seems to have changed over space and through time. Thus, investigation of the subject conducted in the mature stage of highway development in the United States, for example, may present findings different from those derived from studies of the developing countries where transport development is in the infancy stage. This geographical inconsistency and historical instability associated with the function of transport development will entail a contextual approach as the appropriate way of understanding the complexity of the subject. Therefore, it seems certain that to comprehend the role of transportation in regional development, extended empirical research is needed, covering not only different geographical regions but also different stages of the development process.

The four controversial issues highlighted above represent only some of the unsolved theoretical questions that have continued to intrigue scholars for competing interpretation. While the endless scholarly debates have undoubtedly clarified certain conceptual ambiguity about the issue of regional development, existing theories and models have seldom related themselves to the practice of regional development and they remain to be proven in the light of reality. The

validity of various hypotheses and assumptions about regional development will not be determined as a result of theoretical and ideological debate but in the realm of practice. It appears that a thorough empirical investigation of specific cases of development in different world regions is badly needed not only for the testing of many assumptions underlying various development persuasions but also for the making of sensitive and realistic policies to assist people of the less developed world in their struggle for economic prosperity and social justice. As Simon has correctly pointed out: "in view of the fact that, notwithstanding changing emphases and some increasing sophistication, real-world practice seems generally to be lagging far behind, still largely fixated on space, this task has great urgency" (Simon, 1990: 18).

2.4. A Conceptual Framework for Chinese Regional Development

Until recently, regional development in socialist China has been effectively shaped by a strong state which, by launching political campaigns and implementing economic policies, manipulated China's space economy in such a way that spatial changes would not either jeopardize the grand socialist-communist enterprise or endanger China's national integrity and security. The national dimension, characterized by a strong socialist state,²⁾ is essential to understanding changes in the Chinese national economy and regional development. Even after the 1979 economic reforms, the role of the socialist state remains noticeable and under special circumstances crucial, as evidenced by the remarkable effects created

2) In this thesis, the concept of state is politically defined as the central state or central government. Economically, it refers to the state-owned sector. In China, however, there are several levels of state organization ranging from the central government to the province, county, township, and village. The argument of this thesis is that central government's involvement at the local level in the Zhujiang Delta has not been a major factor in its post-reform development which has been characterized by active direction of local organizations at the county, township, and village level. In making this argument I realize that the central government has continued to make macro policies which encourage local economic growth including export industrial development in Guangdong and the Zhujiang Delta.

by drastic policy changes immediately following the 1989 Tiananmen incident and after Deng Xiaoping's "unofficial visit" to Guangdong in 1991.

State intervention is not, however, the sole driving force responsible for Chinese regional development. Since the late 1970s, newly introduced reform programs have decentralized much power of economic decision-making from the central state to local governments and at the same time opened up the nation for foreign investment and international trade. This has brought into play new forces that have emanated from both the global economy and local places. To comprehend the operating mechanism of regional development in socialist China in general and in the Zhujiang Delta in particular, three essential dimensions will have to be carefully scrutinized: national, regional or local, and global dimensions.

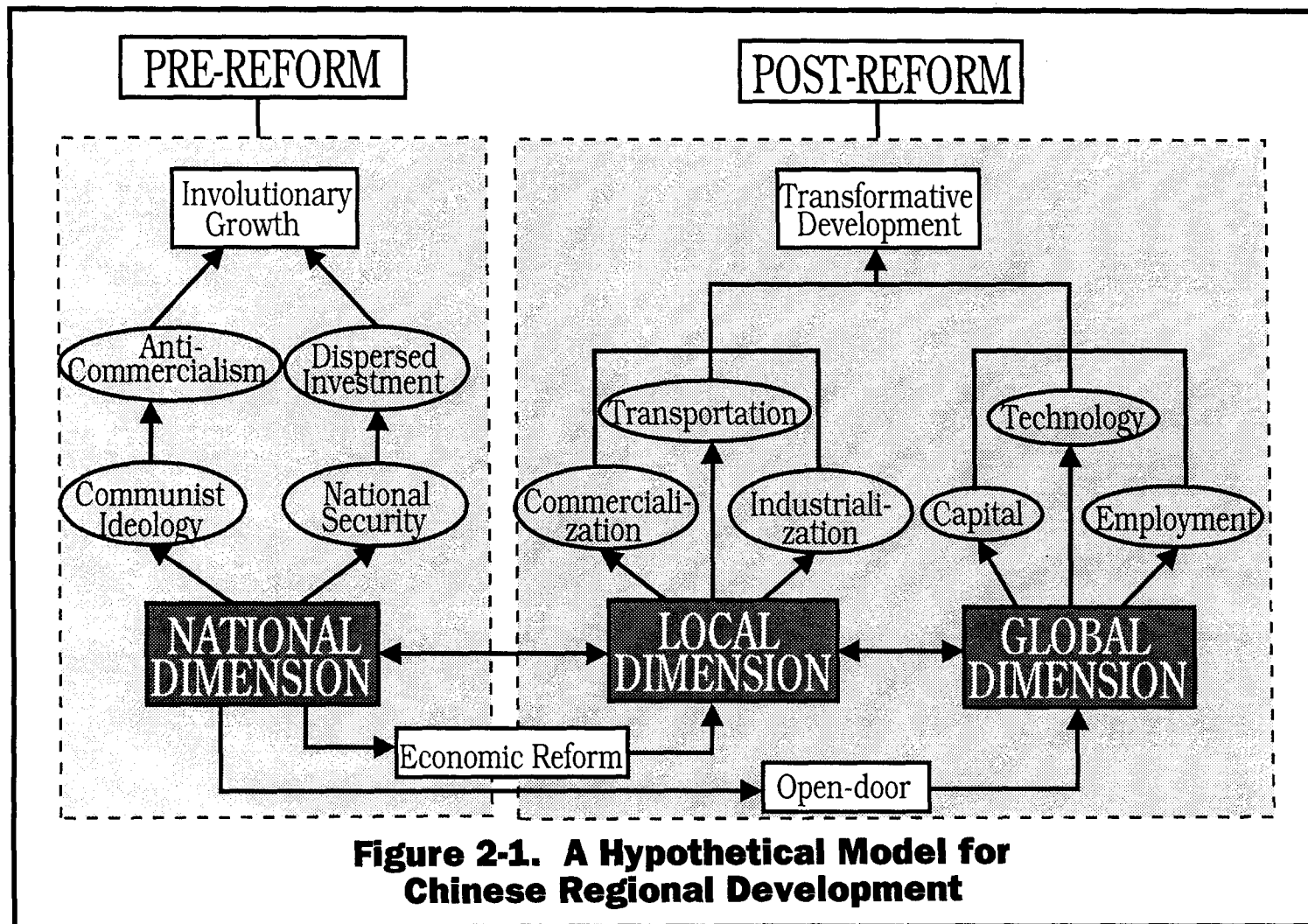
National Dimension: The national dimension of the operating mechanism of regional development in the Chinese context is basically concerned with the role played by the socialist state in the process of regional development. For decades, the Chinese government followed the Soviet practice of socialism and engaged itself in building up a system whereby the state monopolized nearly all political, economic, and social affairs of the Chinese people. Politically, the Chinese socialist state was until recently preoccupied by two major tasks: to keep the Chinese people away from the "contamination" of capitalism and to protect the nation from possible attack by hostile global powers. To pursue these two goals, the Chinese state adopted some extraordinary development policies which, on the one hand, severely assaulted the function of urban consumption and limited commercial activities, since commercialism was considered to be the root of capitalism, and on the other hand, dispersed capital investment away from the coastal zone to the interior regions because the coastal area was perceived as vulnerable to naval

attacks from Taiwan and the United States (Cannon, 1990: 28-60; Kirkby and Cannon, 1989: 1-19; Yeung and Hu, 1992; Linge and Forbes, 1990).

The political context described above was unfavourable to those regions on the coast such as the Lower Yangtze and Zhujiang Delta because of their unsecured frontier locations and their undesirable tradition in trade and commercial production. Economically, the UN economic sanctions against Chinese involvement in the Korean War since the 1950s had forced the Chinese state to develop a self-reliant economy wherein grain production was universally taken as the key link that should be given a top priority in the allocation of land and manpower for production. This economic policy was reinforced by a set of effective measures which, by rationing the supply of foodstuffs, housing, and education, restricted rural to urban migration. Such an extraordinarily strong state intervention in almost all local affairs left little room for local initiative in carrying out specialized commercial production, marketing, and trade, or in arranging land resource and manpower in a way suitable to local conditions. Consequently, regional economic growth was stagnant and perpetuated at a subsistence level with no sign of substantial development at the national or regional scale. The result was what Philip Huang has called "involutionary growth" or "growth without development" (Figure 2-1).³⁾

The death of Mao in 1976 and the subsequent takeover of a pragmatic leadership led by Deng Xiaoping ushered in a new state which plays a different role in China's national and regional development. Being aware of the deficiency and inefficiency of the previous rigid socialist state, the new administration has introduced a series of reform programs that decentralize much administrative

3) The concept of involution was used by Philip Huang to denote a process wherein agricultural output expands, but labour productivity and per capita income improves little because of growing population pressure. With involution, added employment for diminished returns per workday at the margins can still increase the total annual income of a peasant household. This kind of growth of household income by added employment or added workdays, not by technological advance or efficient division of labour, is called "involutionary growth." See Huang, 1990: 13.



power to local governments in order to stimulate local enthusiasm. Economic decision-making no longer has to be justified according to the classic writings of Marx, Lenin, and Mao. Local governments are encouraged to engage and specialize in those economic activities that can utilize local strengths to the greatest extent, including trade and commercial production. Many cities and regions in the coastal zone were given special authority to attract foreign investment and acquire modern technological knowhow (Yeung and Hu, 1992; Ho and Huenemann, 1984). In the countryside, the previously existing national state-monopoly network for the procurement and distribution of farm products (*tongguo tongxiao*) was abolished and the administrative system of commune-brigade-team was dismantled (Johnson, 1982, 1986a; Ash, 1988; Walker, 1984). Control over migration has also been relaxed since 1984 and peasants are now allowed to move into towns nearby, provided that they can satisfy their own needs for foodstuffs and accommodation (Ma and Noble, 1986; Ma and Lin, 1993: 587). The implementation of these new policies has made state intervention less rigid than it used to be and has created some significant impacts on China's national and regional development. But the nature of the role of this new state in China's regional development in the post-reform era and its spatial consequences have yet to be investigated.

Regional/Local Dimension: The regional or local dimension of the operating mechanism of regional development refers to the role played by local governments and people of the collective units in creating and altering the economic landscape of a Chinese region. Prior to economic reforms, local governments and people of the local community, either individually or collectively, could hardly do anything beyond satisfying the political and economic demands of the state. Under the rigid socialist command economy, the state was the chief economic agent which set

production targets, provided most of the raw materials for production, and distributed major agricultural and industrial products. After fulfilling the production targets set by the state, a local community would then get a certain amount of capital from the state to maintain production facilities, repair or replace obsolete machinery, and undertake urban construction. Such a system deprived local people of their freedom and creativity in doing those activities for which they had special skills or geographic comparative advantages.

Since the reforms, a new management system in the name of "fiscal responsibility" (*caizeng baogong*) has been introduced under which local governments are allowed to decide what and how economic activities are to be conducted provided that they agree to hand over a lump-sum amount of production profits to the state. The portion of profits that is beyond and above the lump-sum quota can be retained by local governments for their consumption. The implementation of this new policy has greatly inspired local governments to engage themselves in those economic activities that can generate a high profit such as sideline commodity farming, livestock husbandry, aquatic production, and especially manufacturing, which are all generally known to be more profitable than traditional paddy rice cultivation. As a result of such profit-seeking local initiatives, agriculture has been increasingly commercialized and the rural economy rapidly industrialized (Byrd and Lin, 1990; Johnson, 1992). Furthermore, as production profits increase, the local revenue base has grown and consequently more development funds are available for infrastructure development and urban construction. This has significantly fostered the pace of urban development. The combined result of commercialization and industrialization has

been a process of what Philip Huang calls "transformative development" whereby the productivity of labour and land has been substantially improved (Figure 2-1).⁴⁾

More importantly, local initiative⁵⁾ has played a crucial part in mobilizing capital from various sources to build a modern transport infrastructure system which is generally considered by Chinese planners as a prerequisite for economic growth and for attracting foreign investment. In the Zhujiang Delta, to build a modern telecommunication system and an efficient road transport network has in recent years become the top priority of the development agenda of many cities and countries. By building bridges, roads, highways, harbours, ports, and even airports, economic planners of the Zhujiang Delta have managed to overcome the friction of distance and create a transactional environment conducive to economic development. This process of spatial annihilation or reorganization has significant implications for the redistribution of economic activities, population movement, and land use transformation. But the detailed cause-effect relationships between local initiative and regional development remain to be assessed.

Global Dimension: The global dimension of the operating mechanism of regional development concerns the impact of global market forces on the transformation of regional economies in socialist China. Although national and regional development in China in the Maoist era was not devoid of the impacts of changing international situations, large scale penetration of global market forces into this socialist country has been a fairly recent phenomenon. It started in the late 1970s when the opening up policy was introduced, under which foreign investors are offered

4) Development is seen here as a concept virtually different from growth. Growth only means increase in output, whereas development means improved productivity and incomes per workday. Growth may occur with or without development. "Transformative development" is a concept used by Philip Huang to denote a process of change that has occurred in the Yangtze Delta since 1980, in which labour productivity and per capita income experienced substantial increase. See Huang, 1990: 13-18.

5) In this thesis, local initiative refers to development initiatives made by county and township governments, the collective organizations, and the private sector.

preferential treatment including tax concessions and duty-free imports of machinery and equipment. Driven by the incentives of seeking low-priced labour and cheap unregulated land, a growing number of overseas manufacturers, most of them from Hong Kong, have moved into China to set up joint ventures, export processing plants, or compensational trade businesses (Ho and Huenesmann, 1984; Thoburn et al, 1990).

Geographically, foreign investment has concentrated in the four newly established Special Economic Zones in Guangdong and Fujian, in the coastal cities that have been granted special authority to do business with foreign investors, and in the officially designated Open Economic Regions such as the Zhujiang Delta (Yeung and Hu, 1992; Edgington, 1986; Yee, 1992). By creating employment opportunities for the local population, the inflow of foreign investment has helped to absorb surplus rural labour, facilitated industrialization of the rural economy, and contributed to the process of "transformative regional development" in the post-reform era (Figure 2-1).

The influences of global market forces are especially evident in the Zhujiang Delta region where personal connections with overseas Chinese are extensive and economic linkages with Hong Kong are strong (Leung, 1993; Xu and Li, 1990). In the Zhujiang Delta, the intrusion of global forces is primarily a result of its renewed interaction with Hong Kong which has played a leading role in bringing into the mainland investment, modern technological knowhow and marketing information as well as Westernized ideas of consumption and recreation (Johnson, 1992; Guldin, 1992; Vogel, 1989). The influence of Hong Kong has in recent years become a major driving force responsible for many economic, social, and spatial changes taking place in the Zhujiang Delta region, wherein much of the rural labour force and farmland have been turned over for export processing and a development corridor stretching between Hong Kong and Guangzhou is rapidly

taking shape. The penetration of global market forces, mostly from Hong Kong, is indeed a critical dimension that should not be overlooked in understanding the dynamism of regional development in post-reform China in general and in the Zhujiang Delta in particular.

2.5. Summary

Over the past several decades, development theorists and planning practitioners have been constantly searching for a paradigm or a correct formula to understand and resolve problems of regional development. While regional development as a concept has been used in numerous publications, its exact meaning remains ambiguous, elusive, and controversial. For those who favoured a normative approach, regional development was an instrumentality or a necessary means to achieve the goals of human development. For those who subscribed to positivism, regional development simply represented a process of change that could generate both positive and negative impacts on mankind and the natural environment. For the research purpose of this thesis, regional development is used as a concept to denote a process of economic and spatial changes occurring in a delineated region, which includes three specific aspects: sectoral change of production and employment, spatial redistribution of population and human settlements, and transformation of land resources.

My selective assessment of the intellectual currents of regional development has identified four controversial theoretical issues that require further investigation. The first and most fundamental issue concerns the nature of regional development, on which scholarly interpretations are found to have been polarized around the two opposing schools of exogenism and endogenism. Then at the global level, the increasing importance of trans-national capital has raised the question concerning the role played by global forces in regional development of the

less developed countries. At the national level, the state of the socialist Third World has been generally seen as the key agent in manipulating the socialist space economy, but the motivation of the socialist states for controlled urban and regional development remains a topic for debate. At the regional level, the interrelationship between transportation and regional development has been a subject of incessant investigation for decades but no consensus has yet been reached among scholars. Essentially, these four theoretical issues are all concerned with the operating mechanism of regional development. They are all centered around the question of how various external and internal forces function to transform a regional economy. Neither exogenism nor endogenism could escape the criticism of being one-sided and a dialectical approach is needed for a better understanding of the actual operating mechanism of regional development

Against the theoretical background of exogenism versus endogenism, regional development in the Chinese context is conceptualized as a phenomenon shaped by three interrelated key forces: state intervention, local initiative, and the penetration of global capitalism. Prior to the reforms, state monopoly of all political and economic affairs did not allow local initiative or global forces to play any significant part in the process of regional development. Since the 1978 economic reforms, decentralization of power for economic decision-making has greatly stimulated local enthusiasm and inspired local people to improve their livelihood by themselves with all necessary means including restructuring the regional economy and reorganizing space. At the same time, the opening up of China to the Western world after decades of isolation has exposed Chinese national and regional development to the penetration of global market forces which have not only altered the economic landscape of this socialist country but also silently Westernized thought patterns, behaviour, and lifestyle of the Chinese population. State intervention, local initiative, and global market forces are

therefore three essential dimensions that should be carefully studied in order to understand the complexity of regional development in post-reform China. This conceptual model is, however, hypothetical and needs to be tested against development reality. In what follows, I will use this three dimensional model as a conceptual framework to investigate the real case of development in the Zhujiang Delta, where dramatic economic and spatial changes have been taking place since the 1980s and from which significant insights on the operating mechanism of regional development can be obtained. The empirical study will begin with a general investigation of changes that have occurred in the delta region. This will be followed by three detailed case studies through which an explanation for the identified patterns of development can be found.

PART II: REGIONAL DEVELOPMENT IN THE ZHUJIANG DELTA

CHAPTER THREE. ECONOMIC RESTRUCTURING AND SPATIAL TRANSFORMATION

"In my travels around China's southern provinces of Guangdong and Fujian in April of this year, I discovered that roads are being built so fast, in so many new directions, that no maps are accurate. The guidebooks cannot keep up with the hotels and restaurants that have opened--every one is out of date. So are telephone directories and company listings. These explosive changes make China terra incognita.....To make way for cities erected in a matter of months, mountains are being moved, rice paddies filled in, forests cleared....The dynamo of capitalism has been loosed, and the "creative destruction" that economist Joseph Schumpeter called the defining feature of nineteenth century American capitalism is on display in the China of 1993. It is a sight the likes of which few people alive today have seen."

Paul Theroux, 1993, "Going to see the Dragon", Harper's Folio, October, 1993, pp. 33, 35.

3.1. Introduction

The Zhujiang (Pearl River) Delta region is one of the most populous and productive regions in China. Located on the southern coast of the mainland, the delta has long been China's southern gateway for foreign trade and sea transportation, hence, one of the earliest regions open to the outside world (Zheng et al, 1991: 44; Sit, 1984: i; Xu and Li, 1990: 51; Lin, 1986: 7). The delta is also the richest rice bowl of southern China. Its warm subtropical monsoon climate, fertile alluvial soils, combined with an ample water resource, which is suitable for year round irrigation and transportation, have made it one of China's major agricultural production regions, leading the nation in the production of sugar cane, pond fish, silkworm cocoons, as well as tropical fruits such as lychees and bananas (Xu, 1986: 5; Wong and Tong, 1984: 6; Sit, 1984: 202; Johnson, 1992: 185-220). Its traditional leading role in foreign trade and agricultural production has been

greatly enhanced since 1979 when the open door policy was initiated. Taking full advantage of its close proximity to and excellent connections with Hong Kong, the delta region has been allowed to move ahead of the nation in attracting foreign investment and developing a market economy. Two of China's four special economic zones were set up in the delta. In 1985, the whole delta was officially designated an open economic region. Growth and development have been phenomenal ever since then. Capital investment has been flowing in from Hong Kong and overseas; joint ventures and compensatory trade enterprises are being established and expanded rapidly; numerous bridges, freeways, ports and harbors are being built; and new farming systems and technology are being practised. The delta, increasingly intertwined with Hong Kong, has quickly emerged as one of the fastest growing and most dynamic regions on the West Pacific Rim (Leung, 1993: 273; Vogel, 1989: 442; Li, 1989: 38; Yeh et al, 1989:1).

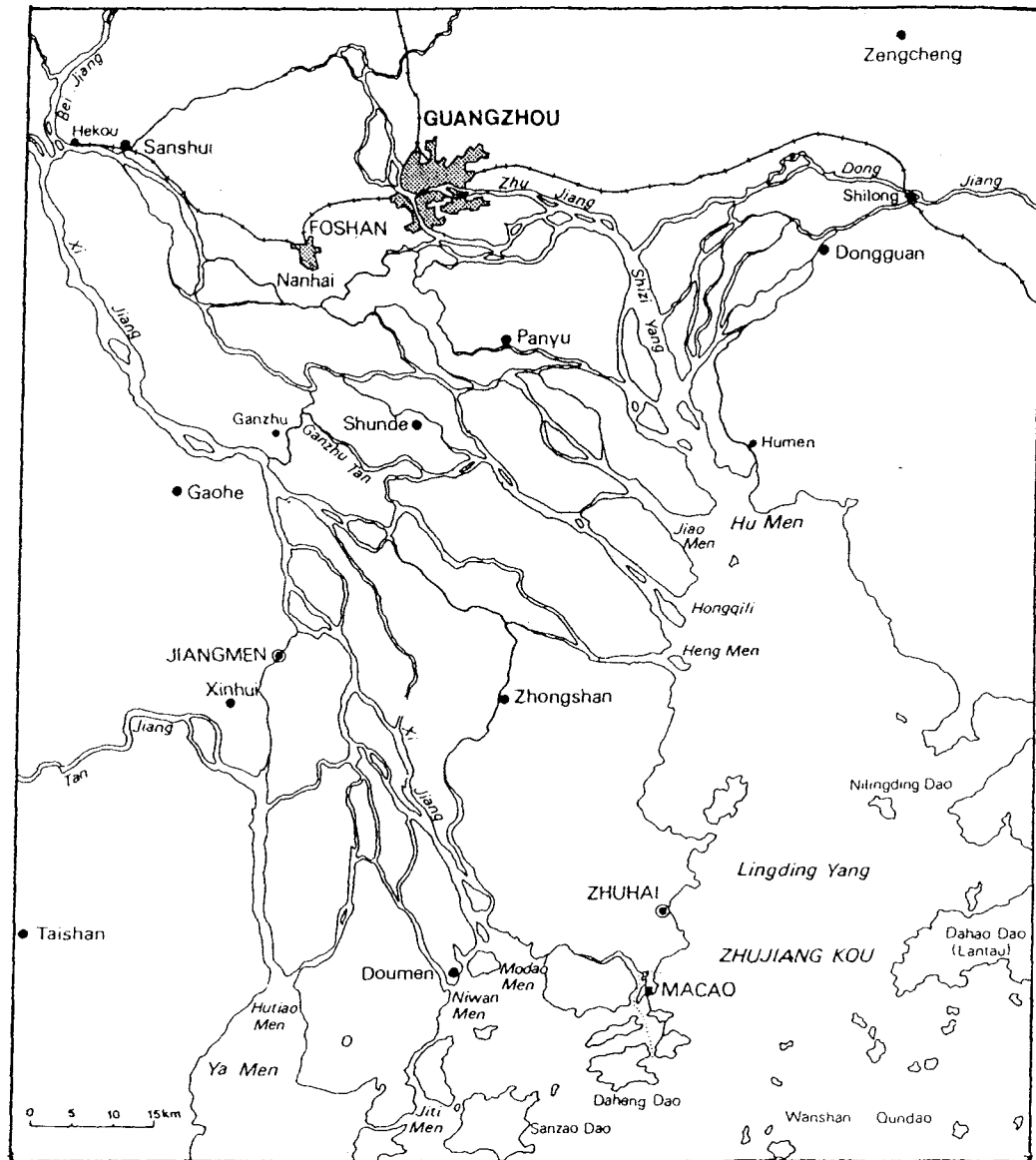
3.2. Definitions of the Zhujiang Delta Region

The importance of the Zhujiang Delta region and its dramatic development in recent years have received much scholarly attention. A great number of conferences have been held and numerous publications, generated both in Chinese and English, have documented the economic and spatial developments taking place in the delta (Sit, 1984; Yeh et al, 1989; Xu et al, 1988; Zheng et al, 1991; Vogel, 1989; Johnson, 1992; Lo, 1989, Xu and Li, 1990; Chu, 1992; Leung, 1993). Despite the outpouring of scholarly work on the subject, no consensus has been reached regarding the definition of the Zhujiang Delta. The issue of definition for the delta has, in fact, generated much confusion, frustration, and controversy. As a Hong Kong scholar has described, "different authors, different government departments and even different time periods tend to have different definitions of the boundary of the [delta] region" (Li, 1989: 38). Indeed, from available

literature, it seems that there are as many definitions of the Zhujiang Delta as articles and monographs on the subject (Chu, 1992: 7-10; Li, 1989: 38; Lo, 1989: 295; Yeh et al, 1989: 1; Wong and Tong, 1984: 3-5; Johnson, 1992: 185; Leung, 1993: 277). The delimitation of the Zhujiang Delta is no less obscure and confused even among local Chinese geographers. It has been a subject of a long lasting and unsettled scholarly debate among Chinese geographers since the 1930s (Chen G. D., 1934; Wu and Zhang, 1947; Huang and Zhong, 1958; Zhong and Li, 1960; Xu, 1973; Xu et al, 1988; Miao Hongji et al, 1988). But in spite of the great variety of conceptions of the Zhujiang Delta, three main versions of definition can be identified from the existing literature.

The first version of delimitation of the delta was proposed and popularized by local Chinese geographers based on physical geographic considerations. The underlying principle of demarcation is the natural mechanism of delta formation which is essentially a result of the interaction between tide and stream flow. It was suggested that the boundary of the delta should go as far as the places where the stream water meets and interacts with the ocean tide which slows the velocity and transporting power of the water and results in the deposition of the sediment carried down by the stream water. Such places of tide-river interaction usually take the form of what has been called "a transitional zone" (Wong and Tong, 1984: 10). It has been conventionally accepted that the upper reach of this tide-river interaction zone extends to Sixianjiao of Sanshui *xian*(county) to the north, Shilong *zhen*(town) of Dongguan *shi*(Municipality) on the east, Linyoungshia of Zhaoqing *shi* in the west, and the Tan River of Kaiping *xian* in the southwest (Miao Hongji et al, 1988: 1-3; Xu Xueqiang et al, 1988: 31; Wong and Tong, 1984: 5). The Zhujiang Delta thus delimited covers an area of 17,200 sq km. Figure 3-1 outlines the area extent of the Zhujiang Delta according to the physical geographical delimitation.

Figure 3-1. Zhujiang Delta as Defined According to
Its Physical Geography



Source: Wong and Tong, 1984: 5.

This conception of the delta, while geographically sound, gained little popularity outside the academic community because it is inconsistent with the administrative boundaries of the participating municipalities and counties. Many counties lying in the periphery of the delta are divided by the delta boundary imposed by geographers, which leads to problems in data gathering and research.

A second definition of the Zhujiang Delta region was officially established in 1985. For the purpose of deciding which counties could enjoy the special permission of offering preferential treatment to foreign investors, the "Zhujiang Delta Open Economic Region" was officially established in January 1985. This officially demarcated region included four municipalities (*shi*) (Foshan, Jiangmen, and two former counties, Zhongshan and Dongguan) and thirteen counties (Doumen, Baoan, Zengcheng, Panyu, Nanhai, Shunde, Gaoming, Heshan, Xinhui, Taishan, Kaiping, Enping, and Sanshui which was initially excluded but later added in 1986), covering an area of 22,800 sq km. This official definition of the delta is now commonly called "Inner Delta" or "Smaller Delta" (*xiao sanjiaozhou*) by local Chinese officials and researchers as well as by Western scholars (Xu Xueqiang et al, 1988: 32; Chu, 1992: 9; Vogel, 1989: 161; Lo, 1989: 298; Pan et al, 1991: 145).

A third definition of the Zhujiang Delta is virtually an expanded version of the second one. In an effort to quicken the economic growth of the mountainous area surrounding the delta region, the State Council announced in November 1987 that the previously designated "Zhujiang Delta Open Economic Region" be expanded to include three municipalities (Qingyuan, Huizhou and Zhaoqing) and eight counties (Huaxian, Chonghua, Huiyang, Huidong, Boluo, Gaoyao, Sihui, and Guangning) which were mostly in the relatively underdeveloped mountainous area. The "Inner Delta" or "Smaller Delta" was thus expanded into a "Greater Delta" (*dasanjiaozhou*) containing seven municipalities and twenty-one counties

and covering an area of 45,005 sq km. This latest official definition of the delta region has now been employed by the local government, statistical bureau, and academics as well as the public media.

It should be noted, however, that the official designation of the delta region, either the 1985 version of inner delta or the 1987 demarcation of greater delta, was mainly for the purpose of attracting foreign investment. No effective regional authority has ever been set up to govern development within the demarcated delta region. More importantly, Guangzhou, which has traditionally served as the chief economic centre of the delta, and the two Special Economic Zones of Shenzhen and Zhuhai, were excluded from the officially demarcated Zhujiang Delta region, as they had already been granted special power to deal with foreign investment affairs. Many scholars felt it inappropriate to separate the Zhujiang Delta region from Guangzhou, Shenzhen, Zhuhai and even Hong Kong and Macao (Chu, 1992: 10; Zheng et al, 1991).

The definition of the Zhujiang Delta region in this thesis includes the latest officially designated Zhujiang Open Economic Region, Guangzhou, Shenzhen and Zhuhai. It comprises thirteen municipalities officially designated before 1990, two Special Economic Zones, and sixteen counties, covering an area of 47,430 square kilometres and housing a total population of about 20 million in 1990 (Figure 3-2).

The delta region is currently the most developed in South China, accounting for a dominant proportion of industrial production, exports, foreign investment and retail revenue of Guangdong Province. Table 3-1 lists some of the basic economic indicators for the delta region and their contribution to the provincial and national economies. With 33 percent of Guangdong's population and about 26 percent of its land area, the delta region produced for the province an overwhelming 68 percent of agricultural and industrial output, generated 77 percent of the province's export revenue, and received 77 percent of its total realized amount of

Figure 3-2. The Zhujiang Delta Open Economic Region, 1990

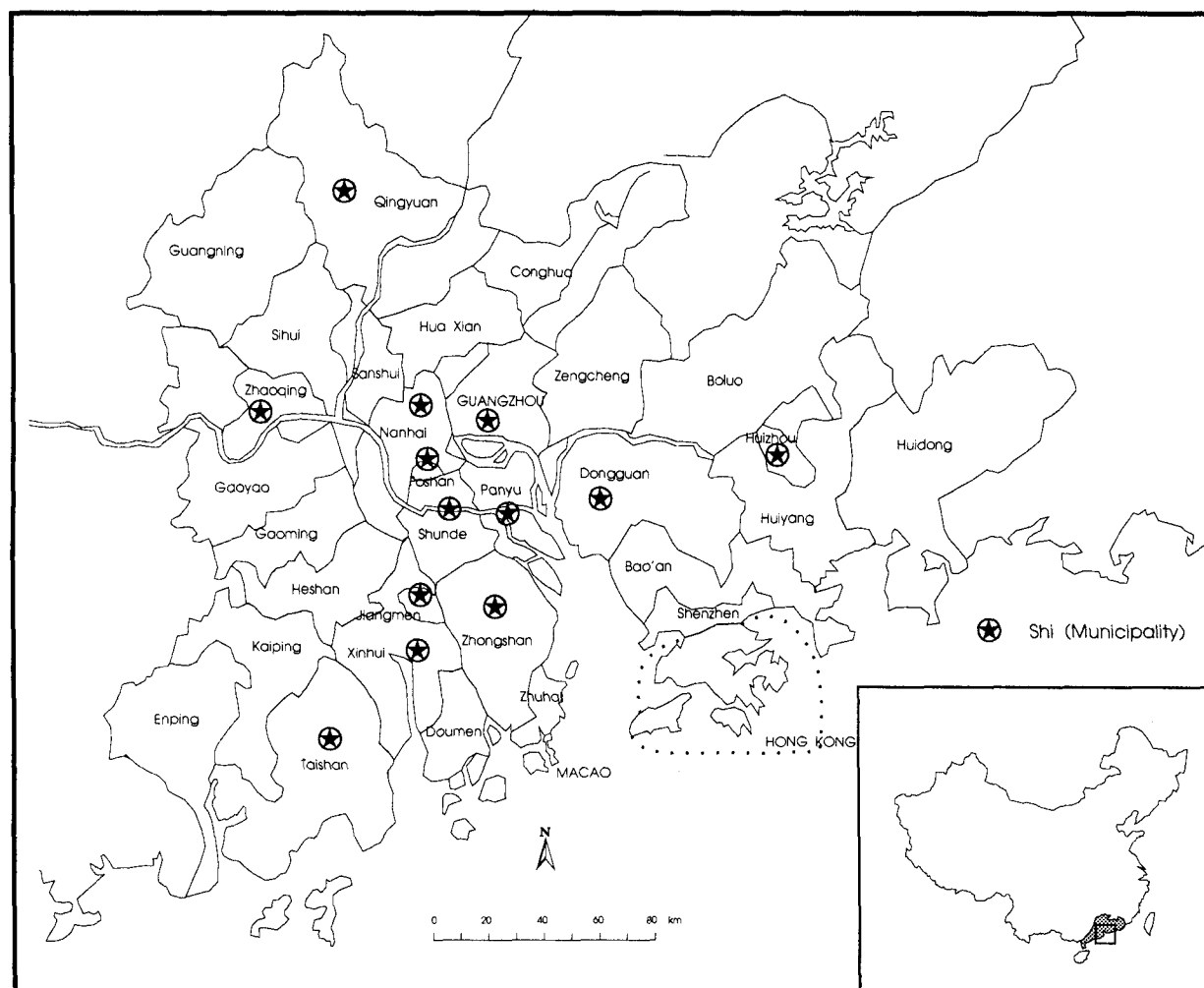


Table 3-1. Basic Economic Indicators for Zhujiang Delta, 1990

Items	Unit	Delta ¹⁾	Delta as % of Guangdong ²⁾	Delta as % of China ³⁾
Total Population*	million	20.75	33.21	1.85
Area	thous. sq kms	47.43	26.66	0.49
GVIAO**	billion Yuan	113.82	68.88	6.51
Rice	million tonnes	6.72	35.43	1.50
Sugar Cane	million tonnes	8.26	39.44	16.44
Fruit	million tonnes	1.38	42.10	9.04
Fish	million tonnes	0.84	40.57	7.44
Retailing	billion Yuan	45.62	62.30	6.51
Export	billion \$	8.18	77.44	17.34
Realized Foreign Investment	billion \$	1.57	77.41	18.95

Notes:

* Total population includes migrants who have resided in the region for ten months or longer. For the definition of total population, see Guangdong, Statistical Bureau, 1991a: 503.

** GVIAO stands for Gross Value of Industrial and Agricultural Output. Data are in 1980 constant price.

Sources: 1) Guangdong, Statistical Bureau, 1992b: 65-67.
2) Ibid, pp. 71-72.
3) China, State Statistical Bureau, 1991a: 2.

Table 3-2. Selected Economic Indicators for Zhujiang Delta
in Comparison with Guangdong Province and China, 1990

Items	Unit	Delta ¹⁾	Guangdong ²⁾	China ³⁾
Population Density	Person/sq km	437	351	119
Nonagricultural Population % of Total	%	36.80	23.65	19.42
Per Capita GVIAO [*]	Yuan/person	5488.09	2645.17	2756.25
Per Capita Income ^{**}	Yuan/person	3425.56	1812.60	1250.73
Per Capita Export Output	\$/person	394.20	169.20	54.30
Per Capita Realized Foreign Investment	\$/person	75.49	32.39	8.99

Notes:

* Data are in 1980 constant price.

** Data are in 1990 current price.

Sources:

- 1) Guangdong, Statistical Bureau, 1992b: 65-67.
- 2) Guangdong, Statistical Bureau, 1991a: 40-47.
- 3) Guangdong, State Statistical Bureau, 1991a: 2, 18, 82, 102.

foreign investment in 1990. The delta's disproportionate contribution to China's national economy in terms of foreign investment, export and subtropical farming products such as sugar cane, pond fish, and fruit is also remarkable (Table 3-1). When the selected economic indicators are calculated on a comparable per capita basis, the delta clearly stands out as one of the most advanced economic regions in the country, far ahead of provincial and national averages for almost all indicators (Table 3-2).

It is acknowledged that the Zhujiang Open Economic Region, Guangzhou, Shenzhen, Zhuhai, Hong Kong, and Macao have been increasingly integrated to become an inseparable social and economic entity. A meaningful analysis of the development issues of the delta region would not be possible without taking into account all participating urban centres and their interaction. For the purpose of data comparability, however, the Zhujiang Delta region defined in this thesis will exclude Hong Kong and Macao because of their existing different political and economic systems as well as their different ways of data gathering and organization. The exclusion of Hong Kong and Macao from the statistical analysis of this thesis is by no means to ignore their importance in the development process of the delta region. The social and economic impact of Hong Kong and, to a less extent, Macao, on the mainland side of the delta region has been tremendous and it will be fully addressed in this thesis. The emphasis will be, however, to assess the impact of Hong Kong on the recent development of the delta region, not to detail the development process of Hong Kong and Macao themselves which has already been well documented.

3.3. Geographical Context and Historical Background

Just as many development theorists have suggested, economic growth and spatial transformation of a region is the complex outcome of the interaction of

various geographic, historical and social forces. The development of the Zhujiang Delta region is no exception. First of all, geographical factors are important to the delta's development as they form a physical setting within which growth and development take place. The Zhujiang delta is geomorphologically formed by sediment carried down by the West, East and North rivers on their way to the South China Sea. The delta is distinctive in that it is not a single piece of extensive flat plain of low relief. Instead, it is a composite of several basins drained by a number of rivers and their tributaries (Wong and Tong, 1984: 8; Lo, 1989: 12). The confluence of the rivers and the conjunction of their basins takes place near Guangzhou (Canton), the biggest urban centre of the region (Lin, 1986: 2; Vogel, 1989: 162). This composite delta is interlaced with many rivers and their branches, most of which are navigable year round. Such a special physical setting has made waterways the major traditional means of transportation. It also has necessitated the construction of numerous bridges in the contemporary period as door to door highway transportation has become prevalent. This issue will be discussed in greater detail in Chapter Five.

The delta region is also distinguished by its natural endowment which is most favourable for agricultural production. With a subtropical location, the delta enjoys a monsoonal climate, warm temperatures (21-22 C yearly average), abundant precipitation (1600-1700 mm annually), and ample sunshine (Solar radiation 110 kilocalories/cm annually), which result in a year-long growing season suitable for the double cropping rice (Zhong, 1982: 192; Wong and Tong, 1984: 10; Lo, 1989: 16). Such favourable conditions, combined with superior fertile soil and a well established waterway system for transporting and marketing farm products, have led to the development of an intensive farming system, capable of supporting a dense and rapidly growing rural population.

While the delta region is rich in agricultural resources, it has for many years suffered from the absence of major mineral deposits such as coal, iron ore and other raw industrial materials. It was not until fairly recently that petroleum potential has been discovered underneath the nearby South China Sea. The delta's shortage of industrial mineral resources, a factor usually overlooked by most previous studies on the region, has suggested that the region is essentially agriculture oriented, that large scale and urban manufacturing is difficult to create, and that industrialization must be primarily a small scale and rural-based phenomenon. This peculiar combination of natural endowment of the delta region has a striking similarity with the one described by Fei Xiaotong in his study of rural industrialization in *Wujiang xian* of Southern Jiangsu Province (Fei, 1986). The importance of agricultural development and rural industrialization in the delta region will be further discussed in Chapter Four.

From a national perspective, the unique geographical location of the delta region merits special attention. By virtue of its location, the delta is relatively remote being at the southern end of the mainland far away from either the political centre of Beijing or the economic centre of Shanghai. This remoteness is increased by the existence of a wide range of high mountains (The Nanlingshan) which physically separates the delta from the vast territory of the nation. The physical barrier of the mountains may not be a major concern in the face of modern telecommunication and transportation, but it has been a crucial geographical factor underlying the historical development of the region for thousands of years. The delta's remote location is vividly described by the local folk saying that "the mountains are high, the Emperor is far away" (*shangao huangdiyuan*). Implied in this folk saying is a keen understanding that many local decisions can be made without conforming to the rules and principles laid down by the "Emperor" who is far away in Beijing.

The important implication of remoteness of the Zhujiang Delta has never been fully addressed by the existing literature. It is this remoteness that has given the local people considerable flexibility in seeking development, and, in some circumstances, the possibilities of rebellion or revolution as evidenced by the 1910 republican revolution led by a delta native, Dr. Sun Yat-sen.

On the other hand, the frontier location of the delta region has made it China's traditional southern gateway for foreign trade and sea transportation. Historical records indicate that Guangzhou, the biggest port city on the delta, was one of China's earliest trade outlets with a history that can be traced back to the Qin Dynasty (221-206 B.C.) (Lin, 1986:7). More importantly, the delta's coastal frontier position and its close proximity to Hong Kong and Macao have enabled it to become the first region to benefit substantially from China's open door policy initiated in 1979. In the words of the local people, the delta is China's "window to the south wind" (*nanfeng chuang*) that can bring the fresh air of capitalism into the country under socialist rule.

The unique geographical location of the delta region, relatively remote from China's heartland but close to Hong Kong, suggests that the economic, social, and cultural impact of Hong Kong on the delta's development is no less significant, if not greater, than the impact of Beijing. In fact, "the wind from the south" has since 1979 become even stronger than "the wind from the north." This issue will be further addressed in Chapter Six.

The physical environment as outlined above has provided the local people of the delta with a number of opportunities which have, throughout history, been fully explored. An intensive farming system had existed long before the turn of this century, based on the production of rice, sugar cane, mulberry, and fruit as well as silk cocoons and pond fish (Zheng, et al, 1991: 42). The increased

production of farm commodities had given rise to thriving industries such as sugar refining, fruit processing, fish canning, silk and textile production, paper making and ceramic/porcelain production, which were primarily based on local resources. Thus, despite the fact that the delta region was not richly endowed with energy and mineral resources, agricultural and aquatic production had been able to provide a raw material base diversified enough for the flourishing of small scale manufacturing (Wong and Tong, 1984: 14). The increased output in farming and manufacturing had in turn led to increased trade and prosperity as marketing and transport networks developed and grew. The concentration of commercial activities and the specialization of production had resulted in the agglomeration of population in towns and cities. By the late 19th Century, the delta region had become one of the most urbanized economic regions in the country, next only to the lower Yangtze region (Skinner, 1977: 211-249).

The victory of the Communist revolution in 1949 led the delta region to enter a distorted stage of development. The trade embargo imposed by the United Nations in the early 1950s deprived the delta of its role as the nation's leading outlet for trade and export. In the countryside, traditional commercialized agricultural production, which had been the economic base of the delta region for decades, was terribly disrupted by the socialist campaigns of collectivization and communization. Grain production was universally taken as the "key link" of the rural economy and other economic activities were discriminated or ignored. With such an one-sided emphasis in the rural economy, farmers had few goods either to sell in the markets or to process in local factories. The rural economy of the delta region was further assaulted in the late 1950s when the state implemented the policy of "unified procurement and distribution" (*tonggou tongxiao*) of grains, cooking oil, cotton and other essential materials. The policy made the state the sole monopolizer of trade, which further eroded the naturally evolved commercial

system in the delta. During the Great Proletariat Cultural Revolution (1966-76), rural sideline production and commercial activities were seen as "the tails of capitalism" which must be and were indeed cut. Many rural factories, workshops, and retail establishments were forced to shut their doors as they lost the necessary resources and market for production.

In the urban areas, investment in manufacturing and infrastructure was limited partly because of the vulnerability of the delta's frontier position to the perceived naval attack and partly because of Mao's declared commitment to eradicate the urban-rural and coastal-interior differences. Consequently, the average annual rate of urban growth of the inner delta region over the period of 1957-78 was a meagre 0.75 percent which was even lower than the national average (Xu and Li, 1990: 53). Free rural-urban migration was next to impossible because of the strict household registration and grain rationing system. Border control was tight and those who attempted to escape to the capitalist enclaves of Hong Kong or Macao were prosecuted and given life sentences. This was the scenario of regional development in the delta prior to 1978. As Vogel commented, "That the Inner Delta, long known for its commercial dynamism, could be transformed so completely into the same system of collective communes, state commerce, and tight border controls as that put into effect elsewhere testifies to the strength of the Communist control system at its height" (Vogel, 1989: 164).

The death of Mao in 1976 and the subsequent demise of the ultra-leftist radical leadership in the late 1970s opened a new chapter of development for the Zhujiang Delta region. The opening up of Guangdong and Fujian provinces for foreign investment, the establishment of four special economic zones (two of which are in the delta), and the recent designation of the Zhujiang Open Economic Region have all provided great impetus for the delta not only to resume its traditional position as China's largest trade outlet but also to play a new leading

role in attracting capital investment from Hong Kong and overseas. Meanwhile, a series of new economic policies were implemented, which has given the local people greater flexibility to produce according to market demand and provided incentives to those who are willing to work harder for more material production. The original collectivized agricultural production system was abandoned and replaced by a new responsibility system under which farmers are to fulfill output quotas contracted with local authorities and then can maintain or sell all products above the quotas. Commercialization and diversification of agriculture were encouraged and local markets were revitalized. Sizable capital was mobilized through various public and private channels and directed to the construction of housing and transportation infrastructure. Consequently, the regional economy of the delta has experienced an unprecedented economic growth and restructuring.

3.4. Economic Growth and Structural Changes

That the Zhujiang Delta region is one of China's fastest growing economic regions has become a fact widely recognized and documented (Yeh, et al, 1989: 2; Li, 1989: 38; Lo, 1989: 298). Documentation of the delta's unprecedented economic growth was not, however, systematic, consistent and convincing partly because the definition of the delta region varies considerably among different researchers and partly because the data that have been used were in different measurements from various sources. The Chinese authorities have published quite a number of statistics showing the fascinating expansion of the delta's regional economy in terms of GNP, GDP and national income. Such data have to be used with care, however, as the Chinese statistics of GNP (*guomin shengchan zhongze*), GDP (*guonei shengchan zhongze*), and national income (*guoming shouru*) are not exactly the same as statistics under the Western standards albeit the terms are seemingly identical. Moreover, the production of these key economic indices are

frequently counted in current prices in Chinese *Yuan*, which are distorted by the inflation factor and hence incomparable over time.

A more appropriate index for measuring the economic growth of the delta's regional economy is the Gross Value of Industrial and Agricultural Output (GVIAO or *gongnongyie zhongchangze*). Table 3-3 lists the statistics of a number of key economic indices for the Zhujiang Delta region and compares them with those for Guangdong Province and for China. It is clear from Table 3-3 that the Zhujiang Delta region has indeed experienced spectacular economic growth since 1980. Its production of industrial and agricultural output has expanded at the extraordinary growth rate of 19 percent per annum, which is much faster than both the provincial and national averages. The most dramatic growth occurred in the acceptance of the realized foreign capital investment and the export of local products, which were recorded at an astonishing annual increase of 31 percent and 29 percent respectively. Apparently, the delta region has taken full advantage of the newly implemented open door policy and moved quickly enough to attract capital investment from Hong Kong and to export its local products. At the local level, the rapid revitalization of commercial activities, trading and market exchange has also been remarkable, as indicated by the data on total retail value which show an annual increase of 20 percent, almost triple the national average. There is little doubt that the Zhujiang Delta region has moved more than "one step ahead" of the whole nation in attracting foreign investment, practicing with free market forces, and achieving a remarkable take-off for its regional economy.

From a local perspective, the dramatic economic growth of the delta region has brought significant improvements in productivity, the employment rate, and income as indicated by the data listed in Table 3-4. Again, the most impressive increase occurred in the realized amount of foreign capital investment and export production on a per capita basis, but the improvement in rural per capita income

Table 3-3. Annual Growth of Output Production for Zhujiang Delta
in Comparison with Guangdong Province and China, 1980-90 (%)

Items	Delta ¹⁾	Guangdong ²⁾	China ³⁾
GVIAO *	19.24	17.1	11.2
Industrial Output Value *	21.23	19.7	12.6
Agricultural Output Value *	6.86	7.6	6.4
Export Output Value **	29.28	17.0	13.1
Realized Foreign Investment *	31.54	25.2	22.8
Retailing Exchange	20.08	18.3	7.3

Notes:

* Raw data are in Chinese Yuan in 1980 constant price.

** Raw data are in US dollars.

Sources:

1) Guangdong, Statistical Bureau, 1992b: 65-67.

2) Guangdong, Statistical Bureau, 1992a: 48-49.

3) China, State Statistical Bureau, 1991c: 21-23.

Table 3-4. Economic Growth for Zhujiang Delta 1980-90

Items	Unit	1980	1990	% Increase 1980-90
Per Capita GVIAO *	Yuan/person	113.34	5488.09	+ 392.94
Employment Rate	%	50.70	58.70	+ 15.38
Rural Per Capita Income *	Yuan/person	238	1288	+ 441.18
Per Capita Export Output	\$/person	35.64	394.20	+ 1,00.06
Per Capita Realized Foreign Investment	\$/person	5.74	75.49	+ 1215.16

Note: * Raw data are in 1980 constant price.

Source: Guangdong, Statistical Bureau, 1992b: 65-67.

and per capita industrial and agricultural production are also significant. The employment rate, defined as the proportion of the total population who were employed between the ages of 16 and 65, shows only a slightly increase probably because of the continued expansion of the aging population, teenagers, and newborn babies.

Accompanying the rapid economic growth were significant structural changes. Table 3-5 lists the changing composition of the delta regional economy between the years of 1980 and 1990. The general picture of structural change during these years was a large proportional increase in manufacturing production and a simultaneous decline in the share of agricultural production. Clearly, agriculture as a traditional key economic sector is gradually giving way to manufacturing. Based on this agriculture-manufacturing transition, one may go even further and argue that the process of industrialization is gradually taking shape in the delta region.

The process of industrialization in the delta was not fueled by the development of large scale, capital intensive, modern manufacturing which is, as noted above, difficult to develop in this region. The production of heavy industry, which is mostly modern machinery manufacturing, has declined proportionally since 1980 (Table 3-5). The biggest gain in terms of the share of total output of production goes to the rural industry sector defined by the provincial authority as industry located in the countryside (Guangdong, Statistical Bureau, 1991a). Such rural industry is mostly small scale, labour intensive, and market oriented (Lo, 1989: 299). The production of rural industry has since 1980 recorded not only the highest growth rate but also the biggest proportional increase in industrial production (Table 3-5). It appears that rural industry has become the most dynamic sector of growth in the process of industrialization of the Zhujiang Delta region.

Table 3-5. Changing Composition of Industrial and Agricultural Output Value for Zhujiang Delta, 1980-90 (%)

Industry	1980	1990	Annual Growth (%) [*]
GVIAO	100.00	100.00	19.24
Agriculture	38.60	19.33	6.86
Industry	61.40	80.67	21.23
Agriculture	100.00	100.00	6.86
Food Grain	75.31	49.19	3.62
Forestry	1.82	2.98	8.89
Livestock Husbandry	11.29	21.13	10.52
Sideline	6.28	14.05	12.66
Fishery	5.29	12.65	13.11
Industry	100.00	100.00	21.23
Light Industry	63.23	64.91	22.05
Heavy Industry	29.31	23.89	19.26
Rural Industry	7.46	11.20	27.90

Note:

* Growth rates are calculated based on output value in 1980 constant price.

Sources:

- 1) Guangdong, Statistical Bureau, 1991b: 14-407.
- 2) Guangdong, Statistical Bureau, 1992b: 65-66.

Alongside the process of rural industrialization, agriculture has become increasingly diversified and commercialized. While agricultural production has proportionally decreased, its absolute amount of the gross value of output production has nonetheless continued to grow although at a much slower pace. Within the agricultural sector, food grain production dropped proportionally from a predominant 75 percent to only 49 percent during the ten years of 1980-90. At the same time, engagement in market-oriented and high profit industries such as forestry, livestock husbandry, sideline businesses, and aquaculture has grown at a faster speed, with its combined share of the total production rising from only 25 percent in 1980 to 50 percent in 1990 (Table 3-5). It is clear that agriculture in the Zhujiang Delta has been restructured from the traditional one-sided emphasis on food grain production into a more diversified cropping pattern whereby commercial crops have gained an increasingly large share of production.

3.5. Spatial Redistribution of Economic Activities

The phenomenal economic growth and structural changes in the Zhujiang Delta region have brought about a transformation in the spatial distribution of production activities, population, settlements, and land use. Just as the growth of production did not occur evenly among various economic sectors, the magnitude of production change has varied significantly among the cities and counties. The general picture of spatial changes is characterized by the weakening of Guangzhou as a primate dominant economic centre in the region and the accelerated growth of the counties and cities located in the areas between Guangzhou, Hong Kong, and Macao. Table 3-6 lists the growth of industrial and agricultural production among selected cities and counties in the delta region. It is not surprising that the two newly established Special Economic Zones of Shenzhen and Zhuhai have topped the whole region in the growth of industrial and agricultural production. Next to

Table 3-6. Growth of GVIAO* in Selected Cities and Counties
in Zhujiang Delta, 1980-90 (%)

Place	Annual Growth	Regional Share	
		1980	1990
Shenzhen	68.54	0.39	12.48
Zhuhai	39.31	0.69	3.27
Baoan	36.15	0.66	2.48
Huizhou	35.48	0.45	1.63
Zhongshan	23.28	4.73	6.60
Dongguan	23.10	4.54	6.24
Foshan	21.99	4.62	5.80
Shunde	20.96	5.06	5.83
Zhaoqing	20.66	1.21	1.37
Nanhai	19.79	5.09	5.33
Xinhui	19.74	2.98	3.11
Panyu	19.34	3.09	3.12
Jiangmen	17.14	3.33	2.79
Guangzhou	11.44	44.00	22.36

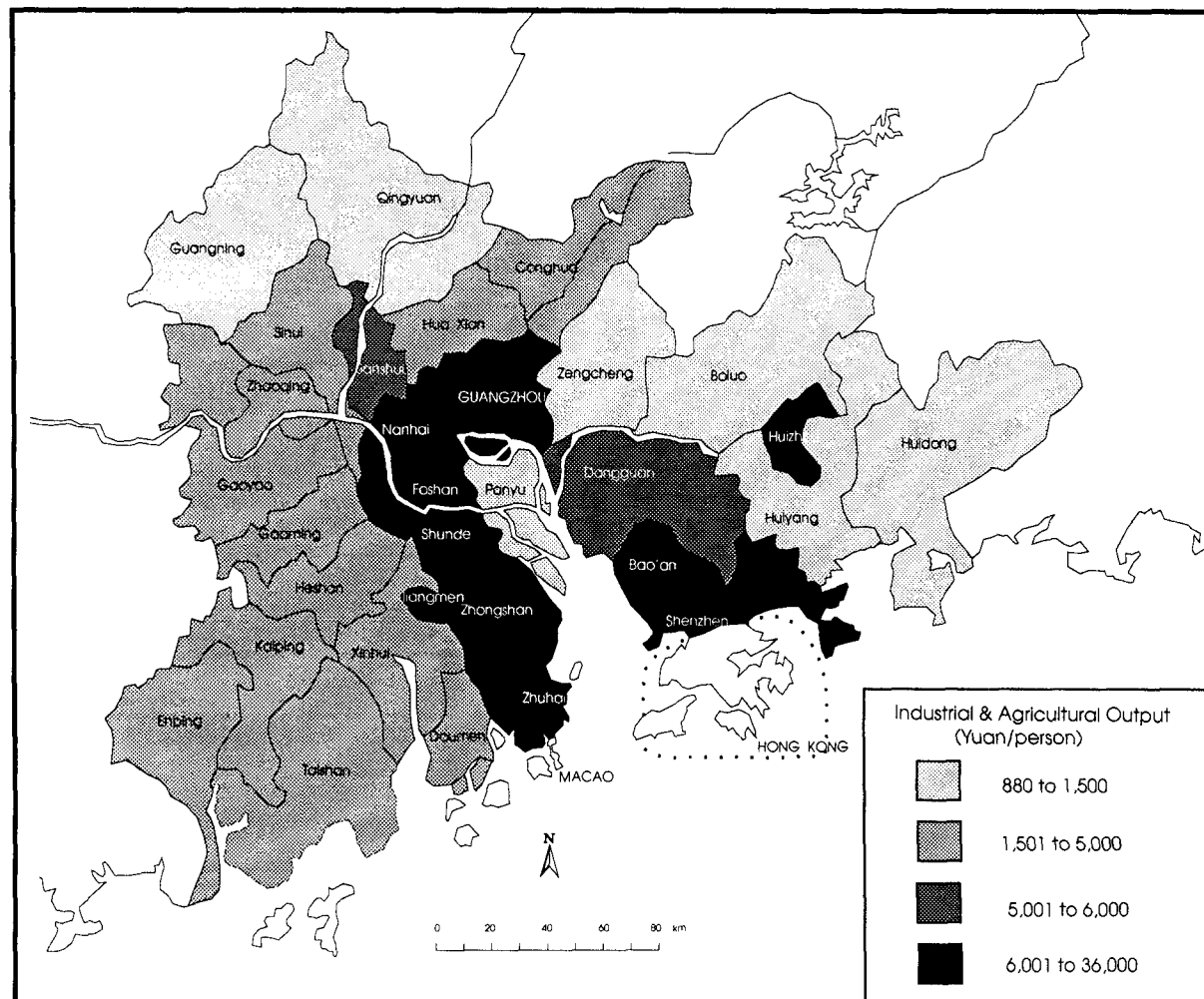
Note: * GVIAO stands for Gross Value of Industrial and Agricultural Output. Raw data are in 1980 constant price.

Source: Guangdong, Statistical Bureau, 1992b: 83-206.

the SEZs come the newly developing counties and cities such as Baoan, Zhongshan, Dongguan, Shunde, Nanhai, Xinhui, and Panyu which are mostly located in the Guangzhou-Hong Kong-Macao corridors. Medium-sized cities such as Huizhou, Foshan, and Zhaoqing have also continued to grow. By contrast, Guangzhou, the traditional primate city and chief economic centre of the region, recorded a much lower growth rate. Among the 31 counties and municipalities of the delta region, Guangzhou's growth of production during the 1980s was the second lowest, being higher only than that of Qingyuan *shi* which is a mountainous underdeveloped municipality. The weakening of Guangzhou's economic role in the region is clearly shown not only by its slower pace of economic growth but also by its share of the total regional production value which dropped from 44 percent in 1980 to 22 percent in 1990 (Table 3-6).

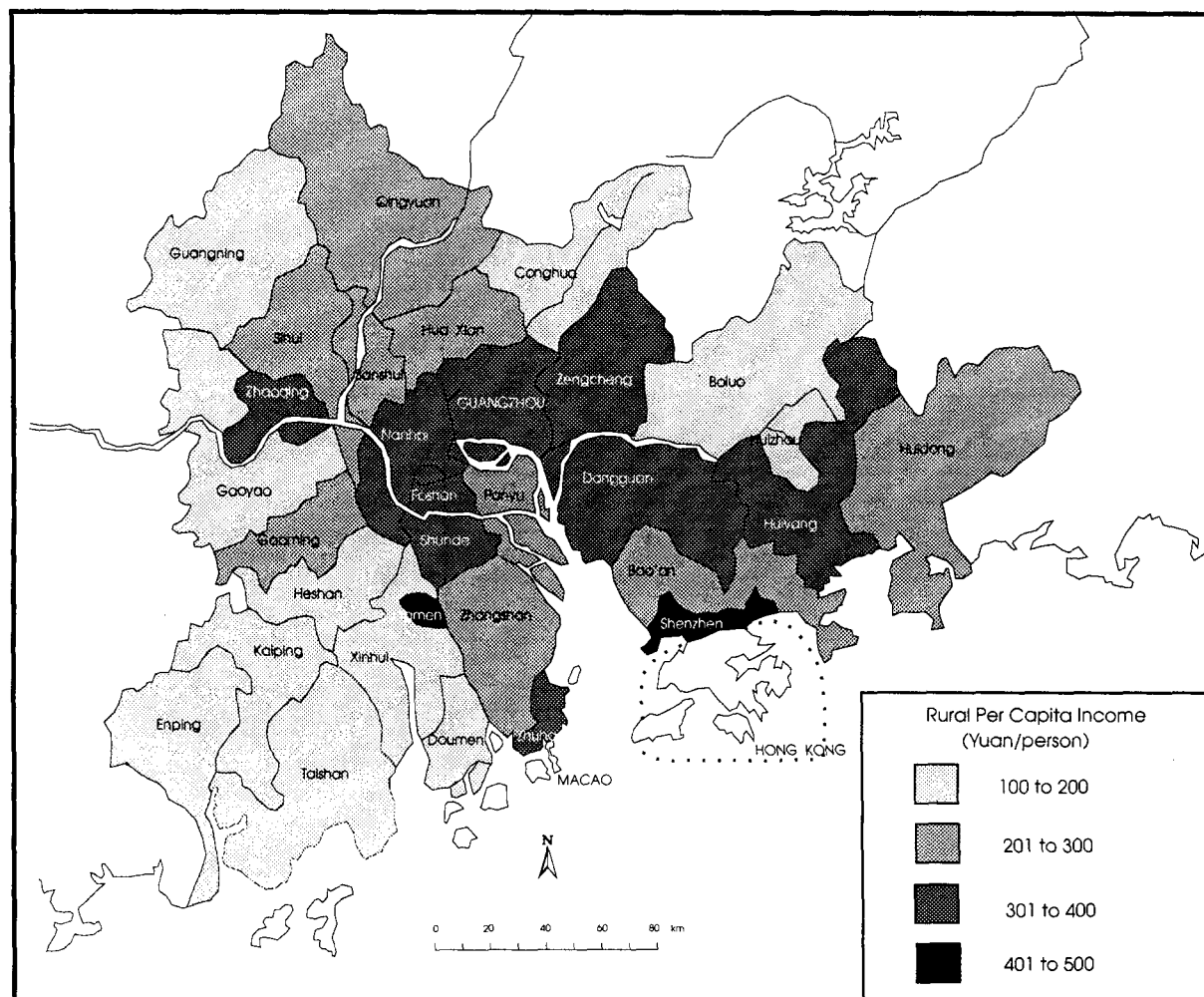
While the dominance of Guangzhou in the region has weakened, the area between Guangzhou-Hong Kong-Macao has quickly emerged as a developing zone where production activities are concentrated. Figure 3-3 shows the spatial distribution of the output production value of the cities and counties of the delta on a comparable per capita basis. Clearly a high degree of productivity has been concentrated in the zones between Guangzhou, Hong Kong and Macao. A similar pattern also existed in the spatial distribution of rural per capita income. Interestingly, higher rural per capita income occurred mostly around the central city of Guangzhou in 1980 (Figure 3-4). In 1990, the spatial pattern of distribution changed to concentrate in the Guangzhou-Macao and Guangzhou-Hong Kong corridors (Figure 3-5). It should be noted that although many counties and cities that have high rural per capita income were found in the Guangzhou-Macao corridor, they are in fact more closely connected with Hong Kong than Macao. Dongguan *shi* did not show high rural per capita income because it has since 1980 relied on compensational trade (*sanlai yibu*) as its major source of income but such

Figure 3-3. Per Capita Industrial & Agricultural Output for Zhujiang Delta, 1990



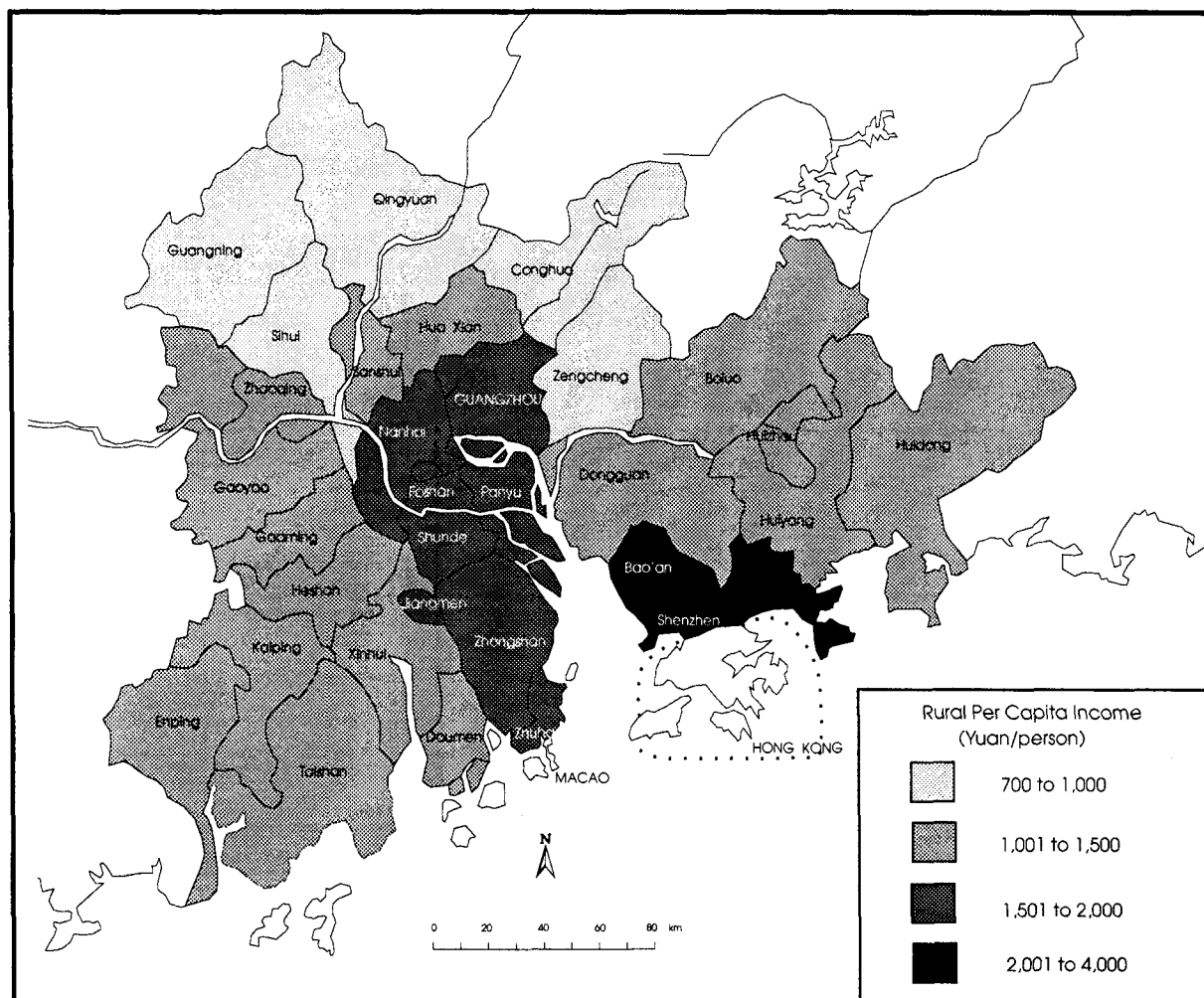
Data Source: Guangdong, Statistical Bureau, 1991b: 14-407.

Figure 3-4. Rural Per Capita Income for Zhujiang Delta, 1980



Data Source: Guangdong, Statistical Bureau, 1991b: 14-407.

Figure 3-5. Rural Per Capita Income for Zhujiang Delta, 1990



Data Source: Guangdong, Statistical Bureau, 1991b: 14-407.

income was counted separately by the local authority as a processing fee (*gongjiaofei*) under the industrial category.

Does the declining degree of production concentration in Guangzhou mean a decreasing spatial disparity of production and income for the whole region? Is the declining primacy of Guangzhou City an indication of the cessation of polarization and the taking over of a "trickle-down" effect as some scholars have suggested (Xu and Li, 1990: 67)? It is unfortunate that available data do not permit a calculation of *Gini* coefficient to show the changing spatial disparity. Nevertheless, data do allow a calculation of variants and standard deviation based on both the Gross Value of Industrial and Agricultural Output and rural per capita income. The results of calculation show that there is a significant increase in standard deviation for both per capita GVIAO and rural per capita income, with the former rising from 775 to 6,893 *Yuan* and the latter increasing from 103 to 645 *Yuan* from 1980 to 1990. This means that, despite the declining dominance of Guangzhou City in the region, spatial disparity in terms of per capita production output or rural per capita income has remained considerably large. It has, in fact, widened throughout the 1980s. This finding contradicts those of previous studies which claimed a discovery of the "trickle down" effect in the delta region.

A closer examination of the spatial development of the delta region suggests that there exist three spatial components: 1) the traditional economic centre of Guangzhou which has become less important; 2) the newly developing triangle formed by Guangzhou, Hong Kong, and Macao, which has experienced accelerated growth, and 3) other counties and cities in the mountainous periphery of the delta which have been left far behind in the process of development. Data show that while production activities have become increasingly concentrated in the Guangzhou-Hong Kong-Macao triangle zone, the regional share of the production

output value of those counties and cities in the periphery area have dropped from 19.16 percent in 1980 to 17.59 percent in 1990. It is probably the persistent backwardness of the periphery area of the delta that has been overlooked by those scholars who argued for the emergence of a "trickle-down" effect in the delta region. It appears that the spatial development of the delta region has remained pretty much in a stage of polarization which is based not in the primate city but in the corridors stretching between major urban centres. Such a stage may or may not necessarily be followed by the theoretically expected stage of regional convergence, but it seems too early to claim that polarization as a passing stage is over and that a convergence effect has begun to take effect in the Zhujiang Delta.

3.6 Spatial Redistribution of Population and Migration

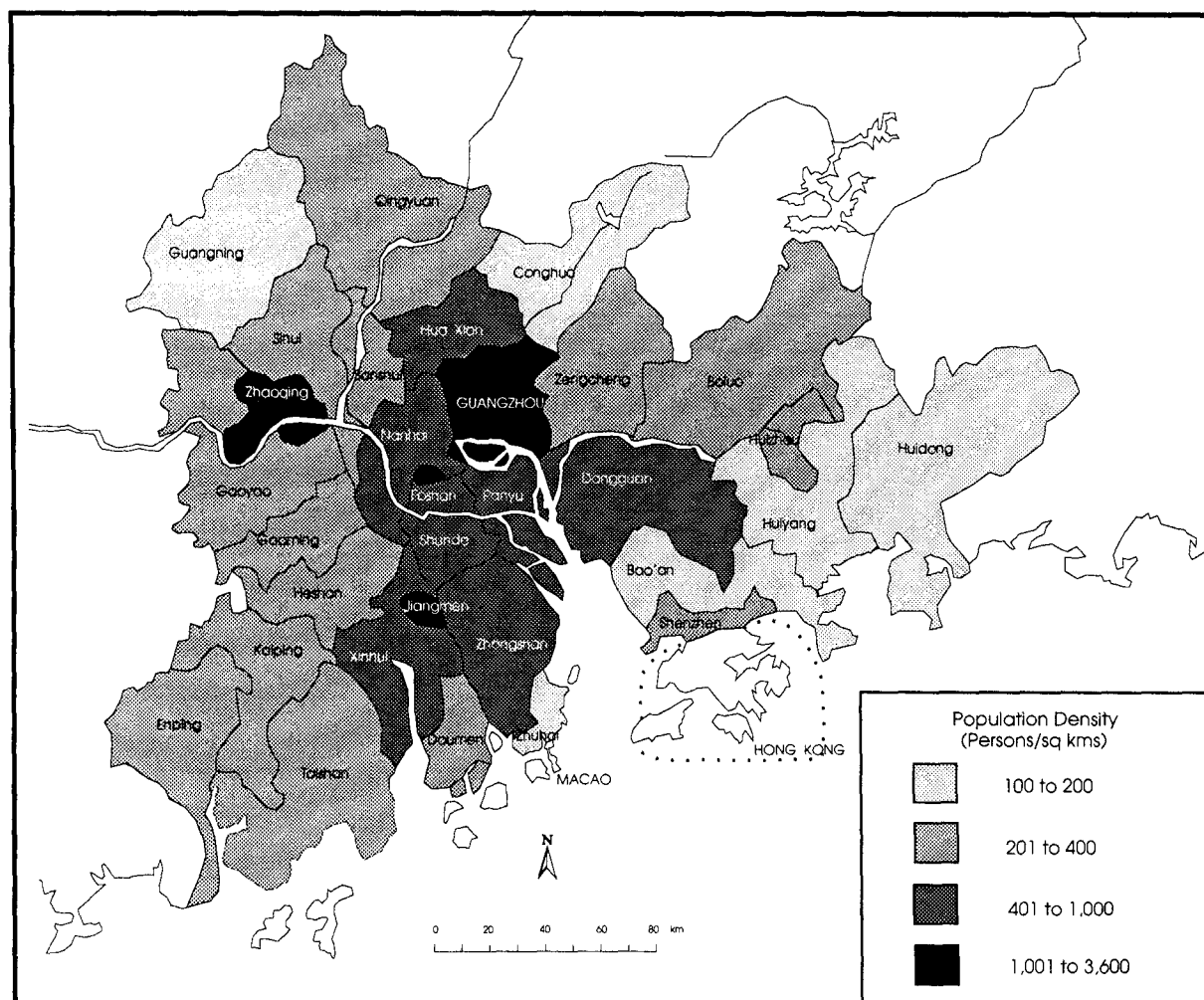
How and to what extent has the sectoral and spatial restructuring of production activities affected the spatial redistribution of population? Theoretically, rapid economic growth and the spatial reorganization of economic activities in a region should be followed by a corresponding change in population distribution particularly urbanization. While this may be the case under perfect conditions in market operation, it cannot be applied to the Zhujiang Delta region without major modification. The growth and spatial movement of population in the delta region have been effectively blocked by powerful government intervention which is not always consistent with the operation of free market forces. It is true that the Chinese government has recently relaxed its strict control on rural-urban migration, but such a relaxation is by no means a complete lift of the ban on population growth and migration. Limitation on the natural increase of population remains very tight; rural to city migration is still effectively blocked; unauthorized immigrants (*mangliu* or blind influx) found in cities have frequently been deported; people who wanted to move to economically advanced

areas, such as the Special Economic Zones of Shenzhen and Zhuhai, have had to apply for permits which are issued by the local authority on a limited basis according to a pre-set yearly or monthly quota. Even the migration of the surplus rural labourers into small towns nearby is closely monitored by a well established "lodging card" registration system. Under such powerful government intervention, one cannot find a pattern of population growth and redistribution that is perfectly consistent with the pattern of economic growth and restructuring as indicated above. Nevertheless, the increasing intrusion of market force has interacted with government intervention and brought about some significant changes in population distribution and migration in the delta region.

A remarkable spatial configuration in the transformation of the delta's regional economy is the reinforced concentration of population in the Guangzhou-Hong Kong-Macao triangle zone, where economic growth and restructuring have been the most dramatic. Figures 3-6 and 3-7 show the distribution of population density in the delta region for the years of 1980 and 1990 respectively. Overall, population density for the entire region has increased from 370 to 437 persons per square kilometres during the decade of the 1980s. As the natural increase of population was low because of the effective national campaign of family planning, any significant increase in population density must be primarily the result of in-migration (Lo, 1989:301; Xu and Li, 1990: 55-57).

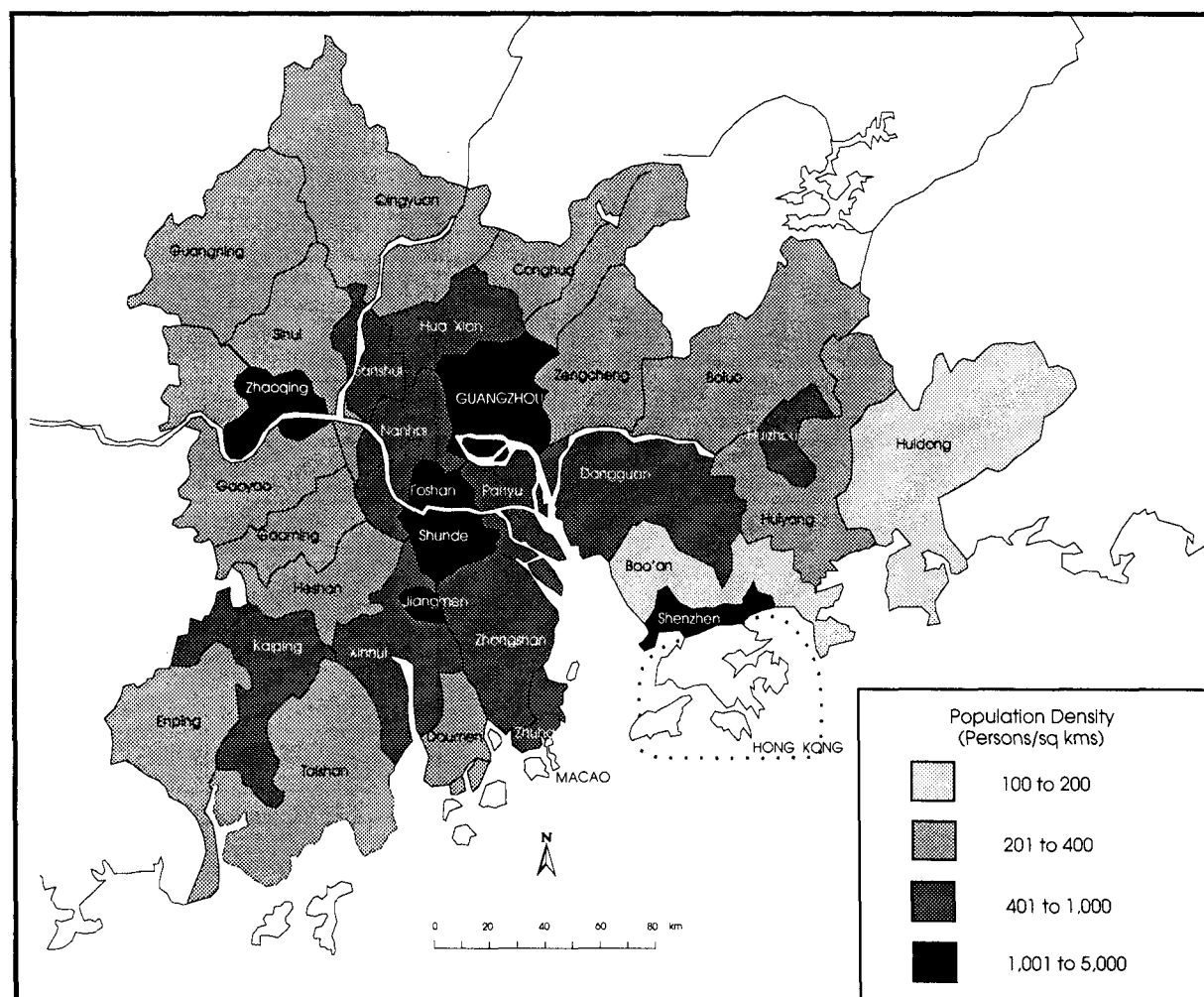
When the spatial pattern of population density is examined, it appears that high population density in 1980 occurred mostly in the central delta with the designated cities of Guangzhou, Foshan, Jiangmen, and Zhaoqing being the most populous places. This pattern was carried on into the 1990s. It is no surprise that the Special Economic Zones of Shenzhen and Zhuhai have become much more populated than anywhere else in the delta due to their economic attraction. Shunde and Huizhou have also increased their ranks as a result of their new

Figure 3-6. Population Density for Zhujiang Delta, 1980



Data Source: Guangdong, Statistical Bureau, 1991b: 14-407.

Figure 3-7. Population Density for Zhujiang Delta, 1990



Data Source: Guangdong, Statistical Bureau, 1991b: 14-407.

industrial developments. The two counties of Sanshui and Kaiping, which seemingly jumped to a higher rank on the 1990 map, have not, in fact, changed very much. The pattern of population distribution has remained one of high concentration or polarization. The degree of spatial variation measured by the standard deviation of population density has increased from 719 in 1980 to 944 in 1990. Clearly, the spatial pattern of population distribution, which concentrated in the central delta at the expense of the periphery, has been maintained and reinforced during the decade of the 1980s. This pattern resembles the one displayed by the distribution of industrial and agricultural production as identified in Section 3.5.

While the overall pattern of population concentration remained virtually unchanged, except for a slight increase in regional variation, the mobility of population within the delta region has significantly increased as a result both of the process of economic restructuring and of the recent relaxation of governmental control on population movement. As indicated in the previous section, economic restructuring in the delta region was characterized by a relative decline of traditional farming and the rapid surge of rural industry. This process of economic restructuring has significantly increased the potential mobility of the population in the region. On the one hand, the demise of traditional food grain production has released a sizeable number of surplus rural labourers from the field. On the other hand, the flourishing of numerous rural industries and the revitalized commercial activities in small towns have created phenomenal employment opportunities for the rural exodus. The combined effect of these "push-and-pull" forces has inevitably necessitated a movement of people from farming to nonfarming activities and from rural to urban settlements. Such movement was not, however, possible in China until the mid-1980s when the state relaxed its restriction on rural-to-town migration.

The Chinese government has recognized the growing number of surplus rural labourers that has emerged as a result of economic restructuring in the country. In 1984, the State Council announced a new policy which permitted peasants to move to officially designated towns for settlement and to do nonagricultural jobs. In 1985, the state further relaxed its control on rural-to-urban migration. Under the new policy, peasants are allowed to move into towns nearby to establish stores, do construction work, or be engaged in transportation and other service jobs. They are treated like other town residents, except that they must provide their own food grains without state subsidies (*zilikouliang*). It should be noted, however, that while rural-to-town migration has been permitted, migration to the city has remained restricted.

The restructuring of the delta regional economy combined with more liberal government policies for population movement has resulted in extensive migrations to and within the delta region. Before relevant data on migration are presented and analyzed, it is necessary to clarify the terminology and typology of migration in a Chinese context as their misuse has been source of much confusion and frustration. Basically, there are three major types of population movement in the delta. The first type of movement involves long distance migration whereby people move into the delta either from other areas of the province or from other provinces. No data are available to show the exact number of these immigrants, but it is believed that they accounted for only a small proportion of the total migrants found in the delta (Xu and Li, 1990: 55-56). According to an official survey conducted by Guangdong Province in 1988, immigrants who originated from areas outside of Guangdong accounted for only 11 percent of total migrants (Guangdong, Office for Population Census, 1988: 546-553). Among these new comers, over 60 percent are unmarried young females (Guangdong, Office for Population Census, 1988: 546; Li, 1989: 43). Most of them work in factories and

they speak various Chinese dialects different from Cantonese. It is probably because of their distinct gender, occupation and linguistic characteristics that they have commonly been referred to by the local people as "the working girls (*dagong mei*)" or "the girls from outside" (*wailai mei*). Statistically, these immigrants are counted as "temporary population" (*zhanju renkou*) because their household registration status still belongs to their hometowns outside of Guangdong. This is in spite of the fact that these immigrants have resided in the delta for one year or even longer and some of them intend to stay permanently.

The second type of population movement is short distance migration of local people within the delta region. Most of them are surplus rural labourers who have migrated into the towns or small cities nearby for factory jobs, business activities or construction work. These new townsmen may or may not obtain official urban registration status. Statistically, they are classified as "residents who take care of their food grain" (*zili kouliang renkou*) or "population who has not been registered as town residents" (*weiluo changzhu hukou*). They were included in the category of "temporary population" in the national census conducted in 1982 and 1990. Again, no data are available to show how many of them were in the delta region, but it was revealed in the 1988 population survey of Guangdong Province that relocated residents within the province accounted for a predominant 88 percent of total migrants (Guangdong, Office for Population Census, 1988: 546). A case study conducted by Xu and Li (1990: 56) also revealed that migration in the Zhujiang Delta region was predominantly of a short distance in nature.

A third type of population movement has to do with short visits by tourists, government officials, businessmen, petty traders and other people who come to the delta on a transient or mobile basis. These visitors have been generally known as "floating population" (*liudong renkou*). No systematic statistical record has been produced for "floating population." Surveys in individual cities such as Guangzhou

and Shenzhen have indicated that this group reached as many as 1.3 million people daily in Guangzhou (Li and Hu, 1991: 8) and 300,000 in Shenzhen in 1989 (Xu and Li, 1990: 55). The three types of immigrants identified above have different demographic features and have created different impacts on the places of their destination. Such differences have, however, never been fully recognized by scholars within or outside China. Consequently, many research reports on migration in China have frequently confused "floating population" with "temporary residents" or "lodging population" and sometimes with "residents who take care of their own food grains."

Having clarified the terms and types of immigrants in the delta region, it is now possible to assess the pattern of migration taking place in the delta. Data have shown that between the two national census years of 1982 and 1990, "temporary population" (*zhanju renkou*), that is a combination of the first and second types of migrants as identified above, have grown at a high rate of 42 percent or 350,126 persons per annum (Table 3-7). This growth rate was much higher than the provincial average of 29 percent per year. The total number of the "temporary population", which is essentially migrants to and within the delta region, rose from 184,000 in 1982 to 2.98 million in 1990 and the delta's share of the provincial total of temporary population jumped from 37 percent to 79 percent. In other words, almost 80 percent of the temporary population found in Guangdong Province in 1990 was contained in the Zhujiang Delta region. Clearly, the delta region has become the major destination for migrants in the province.

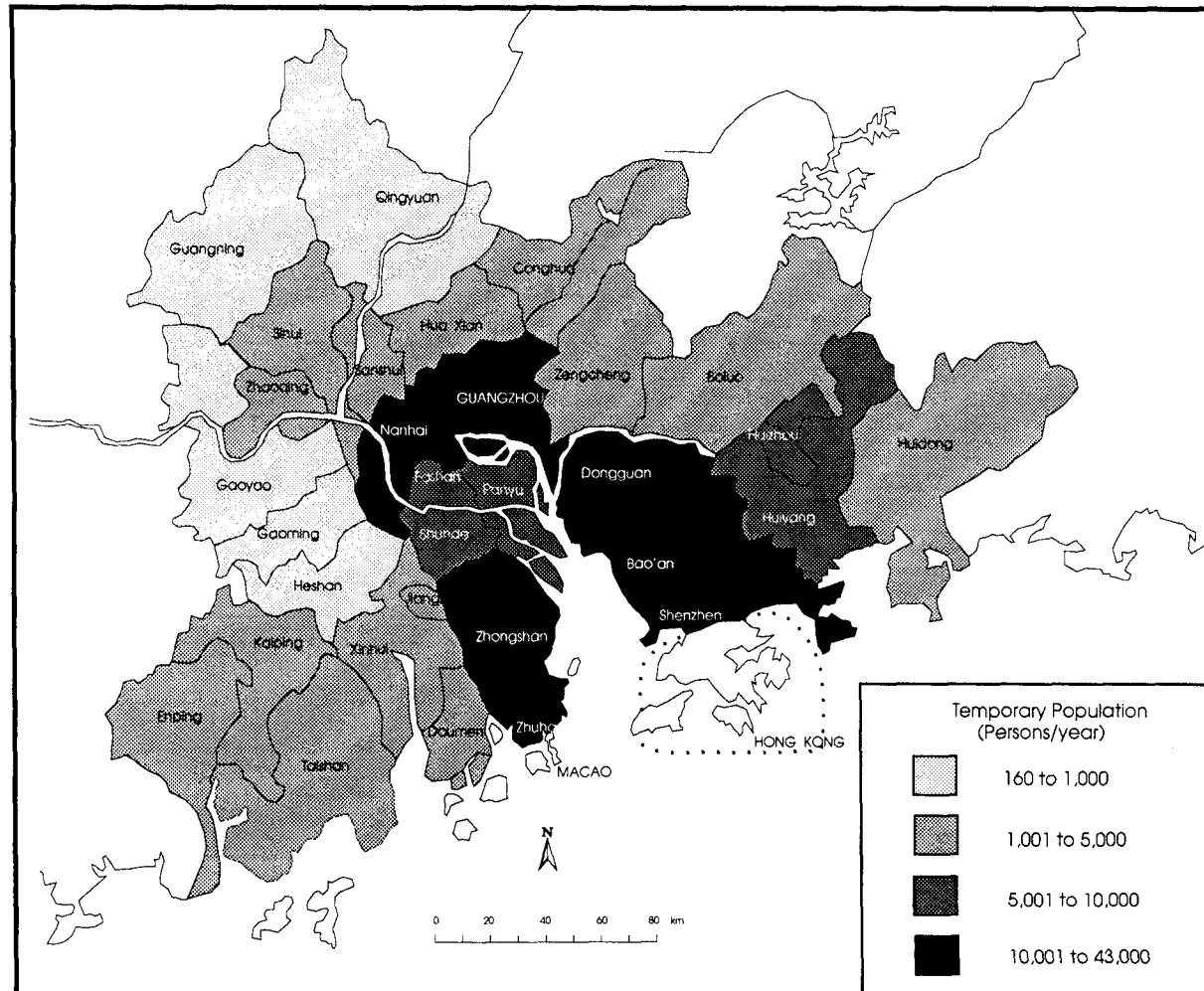
When analyzed at the intra-regional level, the growth and distribution of migration have shown a spatial pattern of concentration in the central delta region. Figure 3-8 depicts the spatial distribution of the annual growth of migration in the region between the years of 1982 and 1990. Not surprisingly, the most dramatic growth of migration occurred in the two Special Economic

Table 3-7. Temporary Population in Zhujiang Delta
And Guangdong Province, 1982-90

	1982	1990	Annual Growth (%)
Zhujiang Delta	183,778	2,984,788	41.69
Guangdong Province	493,413	3,791,002	29.03
Delta as % of Guangdong	37.25	78.73	

Source: Guangdong, Office for Population Census, 1991: 30-44.

Figure 3-8. Annual Growth of Temporary Population for Zhujiang Delta, 1982-90



Data Source: Guangdong, Office for Population Census, 1991: 40-44.

Zones of Shenzhen and Zhuhai, both of which recorded an extraordinary growth rate of over 75 percent per year. Their share of the regional total of temporary population rose significantly from a mere 2.4 percent to 21 percent during the eight years between 1982 and 1990 (Table 3-8).

What is intriguing is that the primate city of Guangzhou and other existing designated cities, such as Jiangmen, Zhaoqing and Huizhou, did not receive too many immigrants during this period. The growth rates of in-migration to these cities were actually all lower than the regional average and consequently their share of the total temporary population of the region has dropped significantly (Table 3-8). The only exception is Foshan where there was a moderate growth and a slight proportional increase in temporary population. This is partly because of its intense economic linkage with the counties of the central delta and partly because of the fact that it contains the small town of Shiwan inside its jurisdiction which is relatively accessible to immigrants.

The most remarkable increase in temporary population occurred in the newly developing counties located within the Guangzhou-Hong Kong-Macao triangle. As revealed in Table 3-8, these counties, especially Baoan and Dongguan, have experienced not only a much faster growth rate of in-migration than other parts of the region but also a dramatic increase in terms of their share of the regional total of temporary population. As a group, they had tripled their share of the regional total in eight years, accounting for a disproportionate 45 percent of all temporary population found in the delta in 1990.

While the SEZs and the newly developing counties were receiving an increasing and disproportionate number of migrants, the cities and counties in the delta's periphery have been left far behind. These peripheral cities and counties accounted for 72.97 percent of the delta's land area and 47.88 percent of its total population, but received only 31 percent of total immigrants in 1982. This

Table 3-8. Changing Distribution of Temporary Population
in Zhujiang Delta, 1982-90

	1982		1990		Annual Growth (%)
	Number	Percent of Total (%)	Number	Percent of Total (%)	
Guangzhou	70,541	<u>38.38</u>	451,761	<u>15.14</u>	<u>26.13</u>
SEZs	4,438	<u>2.41</u>	640,593	<u>21.46</u>	<u>86.18</u>
Shenzhen	2,925	<u>1.59</u>	506,185	<u>16.96</u>	<u>90.45</u>
Zhuhai	1,513	<u>0.82</u>	134,408	<u>4.50</u>	<u>75.22</u>
Existing Cities	23,312	<u>12.69</u>	217,996	<u>7.30</u>	<u>32.24</u>
Foshan	4,929	<u>2.68</u>	81,280	<u>2.72</u>	<u>41.96</u>
Jiangmen	3,325	<u>1.81</u>	22,827	<u>0.76</u>	<u>27.23</u>
Zhaoqing	8,724	<u>4.75</u>	43,837	<u>1.47</u>	<u>22.36</u>
Huizhou	6,334	<u>3.45</u>	70,052	<u>2.35</u>	<u>35.04</u>
Selected Counties & Cities	27,106	<u>14.75</u>	1,335,329	<u>44.74</u>	<u>62.77</u>
Zhongshan	6,368	<u>3.47</u>	108,884	<u>3.65</u>	<u>42.60</u>
Dongguan	5,228	<u>2.84</u>	453,005	<u>15.18</u>	<u>74.67</u>
Shunde	5,294	<u>2.88</u>	76,312	<u>2.56</u>	<u>39.59</u>
Nanhai	4,956	<u>2.70</u>	123,167	<u>4.12</u>	<u>49.42</u>
Panyu	2,904	<u>1.58</u>	44,795	<u>1.50</u>	<u>40.78</u>
Baoan	2,356	<u>1.28</u>	529,166	<u>17.73</u>	<u>96.76</u>
Other Counties	58,381	<u>31.77</u>	339,109	<u>11.36</u>	<u>24.59</u>
Total	183,778	100.00	2,984,788	100.00	41.69

Source: Guangdong, Office for Population Census, 1991: 40-44.

disproportionately low percentage dropped even further to 11 percent in 1990 (Table 3-8).

This spatial pattern of migration, characterized by a high concentration in the Guangzhou-Hong Kong-Macao triangle zone, a stagnated or declining primate city, and a relatively backward periphery lagging far behind, appears to resemble the spatial distribution of production activities which has been described in Section 3.5. While the proportional decline of migrants ending up in Guangzhou and other designated cities was primarily the outcome of government intervention which continues to restrict cityward migration, the tendency of migration to favour the central delta region over the periphery is very likely a result of the spontaneous process of economic growth and restructuring that has been taking place unevenly in the delta. According to an 1 percent population survey conducted by Guangdong Province in 1988, migration that occurred in Guangdong during the year of 1986-87 was mainly driven by an employment-seeking incentive. Those migrants who moved in for job-related reasons, such as job transfers, job assignments and entering business or doing factory work, accounted for about 70 percent of all sampled immigrants, more than any other category (Table 3-9). Given the fact that the Special Economic Zones and their surrounding counties can provide more job opportunities to the immigrants as a result of their rapid economic growth and restructuring, it is not surprising that they have been favoured by more immigrants than places on the periphery. The correspondent relationship between the spatial distribution of temporary population and that of production activities has also been revealed by a statistical analysis of Pearson correlation coefficients which shows a strong positive correlation between the percentage of temporary population in each city or county and the percentage of employee ($r=0.64$), per capita gross value of industrial and agricultural output ($r=0.73$), and per capita income ($r=0.87$). In other words, those counties or cities

Table 3-9. Reasons for Migration
in Guangdong Province, 1986-87

Reason	Number (thousands)	Percent (%)
Job transfer	43.2	18.4
Job Assignment	18.3	7.8
To enter business or do factory work	103.6	44.2
Education or job training	23.1	9.9
To live with friends or relatives	5.8	2.5
Retirement or job resignation	1.6	0.7
Dependents of migrants	10.0	4.3
Marriage	25.6	10.9
Others	3.1	1.3
Total	234.3	100.0

Note: Numbers refer to intr-and inter-provincial migration to towns in Guangdong, including those from villages as well as from cities and other towns but excluding temporary migrants who had lived in destination for less than six months.

Source: China, State Statistical Bureau, 1988: 774-775.

where there was a high proportion of temporary population tended to have high economic productivity and high per capita income. Thus, it seems certain that economic rationale and government intervention are the two most powerful forces that have shaped the uneven spatial distribution of population growth and migration in the delta region.

3.7. Growth and Distribution of Urban Population

How has the settlement system of the delta region responded to the changing government policies, the restructuring economy, and the subsequent increase in population mobility? Did the rapid economic growth of the delta region result in a process of population concentration in the cities as the conventional wisdom of urbanization might have expected? Before moving to proffer answers for these questions, it is necessary to clarify briefly the meanings of urban population and urbanization in the Chinese context.

The confusion over the definition of China's urban places and urban population has been discussed extensively (Chan and Xu, 1985; Kirkby, 1985; Ma and Cui, 1987; Lee, 1989). It has been recognized that the total population of Chinese municipalities and towns is not an appropriate indicator for China's urban population because it contains a large number of rural dwellers in the jurisdiction of the municipalities and towns and therefore tends to exaggerate China's urbanization (Chan and Xu, 1985: 590; Kirkby, 1985: 79; Ma and Cui, 1987: 385; Lee, 1989: 772). In the case of the delta region, the two newly designated *shi* or "cities" of Dongguan and Zhongshan provide a good illustration. Each of these "cities" had a total population in excess of 1 million but, in reality, over 75 percent of their population was agricultural and less than 5 percent of their land area was truly built-up urban settlements. In Dongguan *shi*, the urban centre of Guangcheng had a population of only 120,000 and its built-up area did not exceed

10 square kilometres in 1990. Zhongshan *shi* was in a similar situation. Thus, it would be highly inappropriate and misleading to take the total population of Dongguan and Zhongshan as their "urban population" and herald them as two suddenly-emerged, 1 million sized, "extra-large cities." The same problem has also existed in Chinese designated towns. Under the new administrative system of "town administering village" (*zhen guan cun*) implemented in the mid-1980s, most Chinese towns have incorporated or annexed extensive farming areas into their jurisdiction. As it occurred, the annexed rural areas automatically became *zhen* or "townships" and their population, mostly peasantry, was automatically counted as "town population" (*chengzhen renkou*) (Lee, 1989; Ma and Cui, 1987; Ma and Lin, 1993).

In solving the problem of defining China's urban population, many scholars have suggested that the nonagricultural population of Chinese cities and towns be used as an indicator for China's *de facto* urban population (Ma and Cui, 1987: 389; Kirkby, 1985: 80; Lee, 1989: 774). This indicator appears to be more realistic and reliable than a count of the total population of *shi* and *zhen*. It does not, however, include those immigrants who have worked and resided in the *shi* and *zhen* but have not yet been granted the nonagricultural registration status for entitlement to government subsidized food grain. Thus, counting only the nonagricultural population may sometimes underestimate the actual magnitude of China's urban population and urbanization. In some places such as Baoan and Dongguan, where there is a great number of temporary population living in towns, the underestimation of their urban population is likely to be substantial.

The temporary population has, however, frequently moved in and out of towns on a mobile basis. There are not yet any spatially systematic and historically comparable data to show how much of this temporary population has moved from the countryside to settle down permanently in towns and cities. It is,

therefore, extremely difficult to assess the impact of the temporary population on the process of urbanization and settlement reorganization in the delta region.

For the purpose of data consistency and comparability, both on spatial and temporal bases, this study will use the nonagricultural population as a chief indicator of "urbaness" to assess the tempo and spatial distribution of urbanization in the delta region. Whenever possible, the proportion of the temporary population which has moved from the rural areas to reside in the cities and towns for at least one year will be estimated and the pattern of change analyzed to complement the nonagricultural measure of "urbaness."

The growth of urbanization in the delta region in the 1980s was remarkable. Data have shown that the proportion of nonagricultural population for the entire region rose from 27.36 percent in 1980 to 36.71 percent in 1990 (Guangdong, Statistical Bureau, 1992b: 65). Such a calculation did not fully represent the actual magnitude of urbanization in the delta because it did not include the temporary population which has resided in the cities and towns of the delta for a prolonged period of time. According to the officially released census data, the number of the total temporary population in the delta region increased from 183,778 in 1982 to 2,984,788 in 1990 (Guangdong, Office for Population Census, 1991: 40-44), but how many of them have moved into cities and towns from the countryside in and out of Guangdong? There are no such data specifically for the Zhujiang Delta region. The only way of finding out the impact of the temporary population on the delta's urbanization is to use a rough estimate. This is made possible by a 1 percent sample population survey conducted by Guangdong Province in 1988 (Guangdong, Office for Population Census, 1988: 677,706). According to the survey, of the total sampled migrants who moved into Guangdong during the period of 1982-87, 71.69 percent were originally from the villages either in or out of Guangdong and 97.59 percent of them had moved into

the cities or towns in the province (Ma and Lin, 1993: 595). Assuming that these ratios of rural-urban migration are applicable to the delta region, an estimate can be made on the number of temporary population who originated from the rural areas and who have moved to urban settlements of either cities or towns in the delta region (Table 3-10). When the estimated urban temporary population is added to the nonagricultural population, the delta region shows an urbanization level of 44 percent which is significantly higher than both the national average of 26 percent or the provincial average of 36 percent in 1990. While this estimated urbanization level for the delta is not absolutely accurate, a 40 to 45 percent urbanization level for the delta region appears to be close to reality when one considers the fact that the region contains a million-size provincial capital, three prefecture level cities, two special economic zones, and numerous traditionally existing small towns.

The data listed in Table 3-10 have also indicated that the urban temporary population has been growing at a pace much faster than either the total or nonagricultural population, but it still accounted for a very small proportion of the total population. This is because the temporary population is highly concentrated in Shenzhen, Baoan and Dongguan. Therefore, the spatial impact they have on the whole region in terms of population concentration could be more significant than is reflected by their share of the total population.

From a regional perspective, it seems that the Zhujiang Delta region was not devoid of the theoretical expectation that rapid economic growth will inevitably bring about an accelerated increase in urbanization. The growth of urbanization in the delta region has been so profound that a leading Chinese geographer has proclaimed that "the notion that China has been going along a unique path of rapid industrialization without paralleled increase in urbanization has been completely abandoned both from theory and practice" (Xu, 1992: 16).

Table 3-10. Growth of Urban Population
in Zhujiang Delta, 1982-90

		1982	1990	Annual Growth (%)
Total Population		18,104,670	20,801,194	1.75
Nonagricultural	Number	5,102,143	7,635,099	5.17
	%	28.18	36.71	
Urban Temporary *	Number	128,576	1,496,833	35.91
	%	0.71	7.19	
Total Urban	Number	5,230,719	9,131,932	7.21
	%	28.89	43.90	

Note:

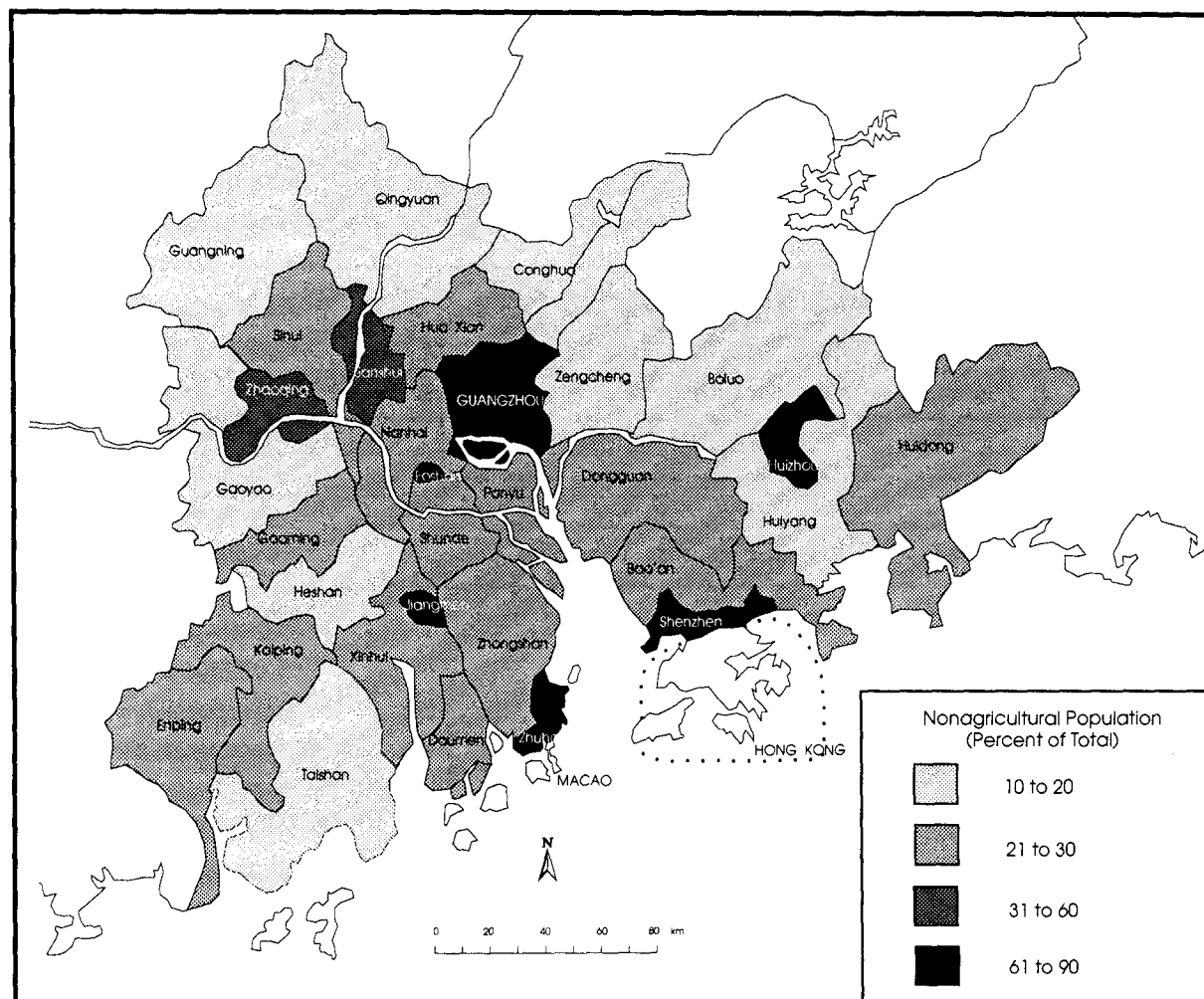
* Numbers for urban temporary population are calculated according to the ratio derived from Table 3-13.

Sources:

- 1) Guangdong, Statistical Bureau, 1991b: 14-407.
- 2) Guangdong, Office for Population Census, 1991: 40-44.

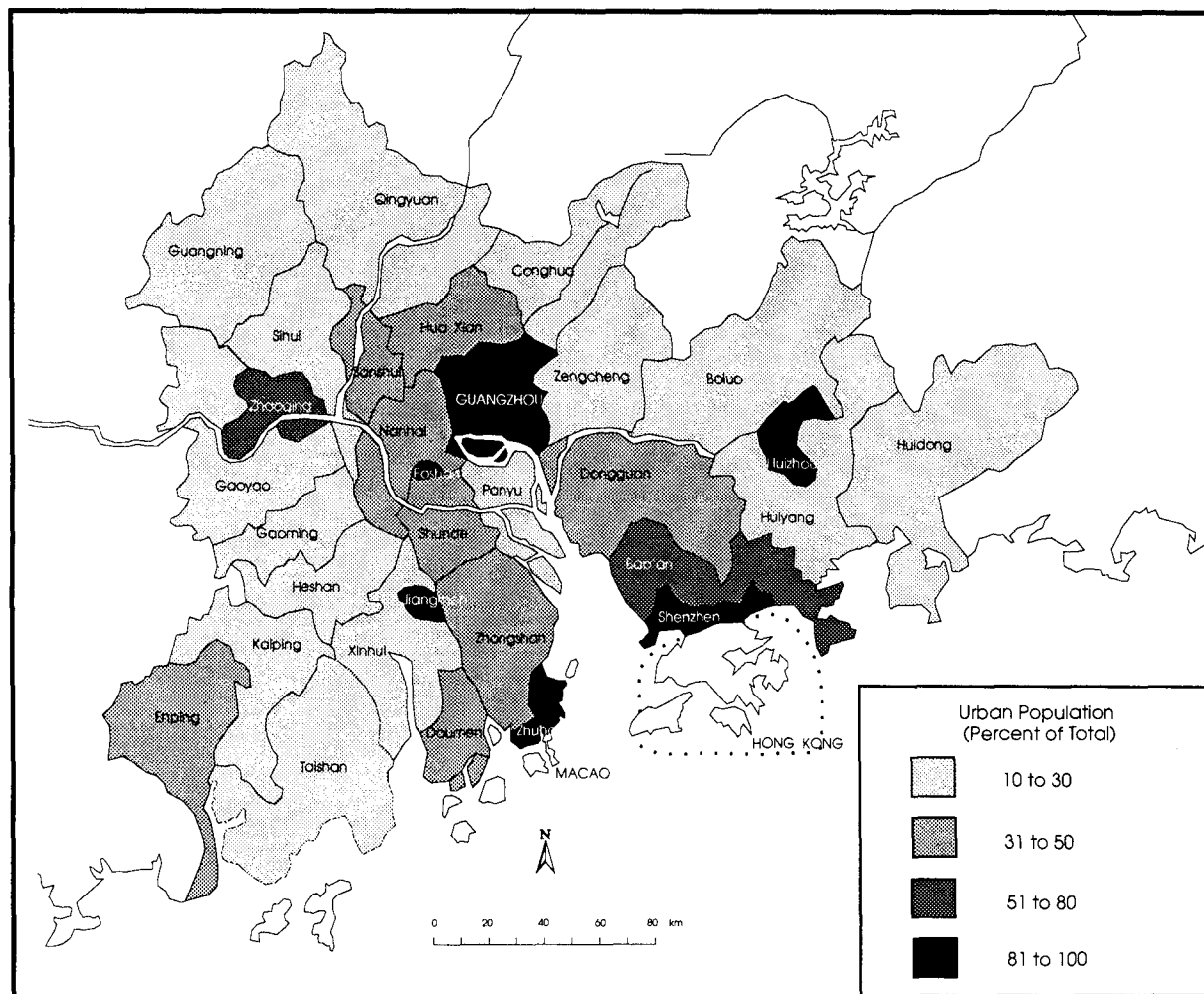
When the spatial distribution and the settlement composition of increased urban population are examined further in depth, however, some peculiar features emerge to challenge the conventional theoretical expectation. First of all, the spatial distribution of the percentage of urban population in the delta does not correspond very well with the pattern of distribution in production and migration as identified in the previous sections. Figure 3-9 maps the spatial distribution of the percentage of nonagricultural population in the region for the year of 1990. As can be seen, except for the two special economic zones and several traditionally established cities, most places in the delta showed a low nonagricultural proportion in their total population. This pattern is significantly different from the one on production and migration which showed a concentration in the triangle area formed by Guangzhou, Hong Kong and Macao. One may argue that the nonagricultural indicator is inadequate to reveal the spatial differentiation of urban population because there exists a considerable number of urban temporary residents who do not have an officially granted nonagricultural registration status. In recognition of this possible inadequacy, the urban temporary residents were deliberately added to the nonagricultural population and their combination, called urban population, was mapped in Figure 3-10. The resultant spatial pattern still displays little change as compared to the previous map. What has become intriguing is that those counties that have experienced the most dramatic economic growth in the central delta, such as Zhongshan, Shunde, Nanhai, Xinhui, and Panyu, remained predominantly agricultural/rural in their population composition. This pattern existed in spite of the fact that many of these places have achieved a considerably high level of productivity and per capita income and some of them have been recently designated as *shi* or "cities" by the Chinese authority.

Figure 3-9. Percent Nonagricultural Population for Zhujiang Delta, 1990



Data Source: Guangdong, Statistical Bureau, 1991b: 14-407.

Figure 3-10. Percent Urban Population for Zhujiang Delta, 1990



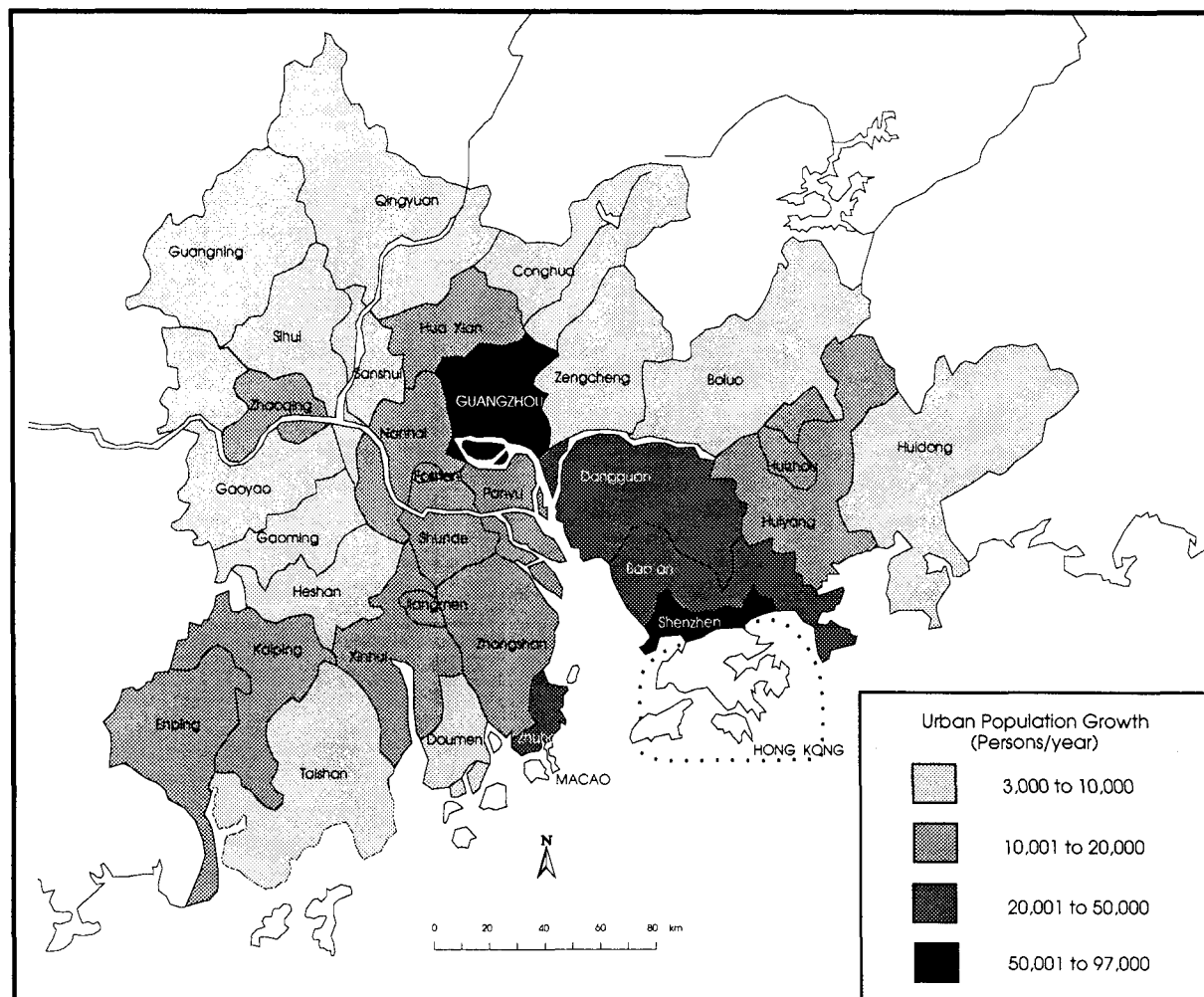
Data Source: Guangdong, Statistical Bureau, 1991b: 14-407; Guangdong, Office for Population Census, 1991: 40-44.

There are some important exceptions that merit special attention. When the growth rate of the aggregate nonagricultural and urban temporary population is mapped, a distinct pattern emerges which shows a significant concentration of urban growth in the Shenzhen-Guangzhou corridor (Figure 3-11). The growth of urban population in other counties in the central delta region remains relatively insignificant.

That the urbanization level and urban growth in the central delta region remain relatively low in spite of rapid economic growth in the area is to some extent not very surprising. Historically, this area has long been an agricultural production region specializing in such activities as silviculture, aquaculture, flower gardening, etc, which are mostly labour intensive. Geographically, the central delta is divided by numerous distributaries and studded with lofty hills. This geographical setting combined with a local man-made landscape of a mulberry-dike-pond system has made it difficult for the development of cities which usually requires a large continuous piece of land for the built-up area. During the years prior to the reform, cities and towns in the delta had never experienced any substantial growth because of the declared Communist commitment of eliminating the urban-rural disparity, the suspicion that cities were vulnerable to nuclear attacks, and the prevailing economic policies which constantly assaulted urban commercial functions. In fact, it has been reported that during the years of 1957-78, urban population in the delta recorded a growth rate even lower than the national average (Xu and Li, 1990: 53). With such a low start and its long agricultural tradition, it is not surprising to see that the central delta region has not yet reached a high level of urbanization.

The more fundamental force behind the scene of low urbanization level in the central delta comes most likely from the peculiar process of industrialization and economic restructuring in the area. As has been revealed in Section 3.5,

Figure 3-11. Annual Growth of Urban Population for Zhujiang Delta, 1982-90



Data Source: Guangdong, Statistical Bureau, 1991b: 14-407; Guangdong, Office for Population Census, 1991: 40-44.

economic restructuring in the delta region has been characterized by the rapid growth of small scale and labour intensive rural industry, which has been based in rural villages or small towns. The numerous village and township industries have since the 1980s provided a great number of employment opportunities for surplus rural labourers. This spontaneous rural industrialization, combined with the government's action which restricted migration to cities but encouraged rural-town migration, has led the rural exodus "to leave the soil but not the village" (litu bulixiang) and "to enter the factory but not the city" (jinchan bujincheng). In other words, the growth of rural industry has been able to prevent surplus rural labour from flowing into the cities. This explanation can be justified by a statistical analysis of Pearson correlation coefficient which shows that the percentage of urban population has a significant negative correlation with the percentage of rural industrial output value ($r = -0.5996$) and the percentage of rural labour in village and township enterprises ($r = -0.5766$).

The exceptionally high growth of the urban population in the Shenzhen-Guangzhou corridor was fueled by the inflow of investments from Hong Kong and overseas. Historically, this corridor except Guangzhou was underdeveloped for two reasons. First, its land resources were relatively poorer than those in the central delta region because most of the land was formed by recent fluvial and marine sedimentation which had a high salt content and was, therefore, unsuitable for intensive cultivation. Second, its frontier location near the capitalist enclave of Hong Kong had automatically excluded it from consideration of a budget allocation made by the central state and the provincial governments. The open door policy implemented since 1979 has completely turned the locational disadvantage of this corridor into a rare geographical asset which has brought with it enormous economic prosperity. Its close proximity to Hong Kong and its autonomy in offering tax concessions and other preferential treatment to foreign investors have

induced an unprecedented inflow of investments from Hong Kong and overseas. In 1990, the actual amount of realized foreign investment in the corridor of Shenzhen, Baoan and Dongguan reached 624 million US dollars, accounting for 41 percent of the total foreign investment in the whole delta region (Guangdong, Statistical Bureau, 1991b: 38;42;240). Numerous joint ventures and factories in the form of compensational trading have been set up not only in the Shenzhen Special Economic Zone but also in Baoan and Dongguan. The unprecedented development in this corridor has drawn a great number of labourers from all over the country. An estimated 1.488 million immigrants registered as temporary population were found in Shenzhen, Baoan and Dongguan, which accounted for 50 percent of the total temporary population of the entire delta region (Guangdong, Office for Population Census, 1991: 40-44). Most of these temporary residents have been working as contracted workers for joint ventures or other compensational trading enterprises in cities or towns. It is probably the inflow of this temporary population that has driven the exceptional increase in urban population in this corridor.

In view of the above-discussed spatial differentiation, one may surmise that there exist two different patterns of urban growth in the delta. On the one hand, there is an emerging corridor between Guangzhou and Hong Kong where urban population, particularly urban temporary residents, has been growing rapidly. On the other hand, there are areas in the delta outside the Guangzhou-Hong Kong corridor where the growth of urban population remains moderate in spite of the remarkable economic take off therein. The former is primarily a spatial outcome of the intrusion of the global market force coming through Hong Kong, whereas the latter is more likely driven by the internal force emanating from the local, spontaneous process of rural industrialization.

3.8. Reorganization of the Settlement System

How has the process of urbanization manifested itself in the reorganization of the region's settlement system? Is there a concentration of the population in the large cities? An analysis of the increase of the nonagricultural population according to different settlement types indicates that the cities in the delta region did not receive too many nonagricultural population. Instead, it is the numerous small towns widely scattered over the countryside that have absorbed a predominantly large proportion of the newly emerged nonagricultural people (Table 3-11). The smaller urban settlements have also become the most dynamic element in the region's settlement system, experiencing the fastest growth rate and gaining an increasing proportion of the total nonagricultural population. By contrast, the primate city of Guangzhou showed little expansion. In fact, its share of the regional total has dropped from 53 percent in 1980 to only 34 percent in 1990 (Table 3-12). This is no surprise as the economic production of the city has slowed down considerably during the past ten years. What is worthy of attention is the fact that the growth of those cities other than Guangzhou has not been substantial. Most of them were in the small city group, and the large city category remained empty after ten years of rapid economic growth and development (Table 3-12). The result of this analysis seems to suggest that cities, especially large cities, have no longer led the tempo of change in the delta's urbanization. It is the numerous small towns emerging from the grassroot level of the urban hierarchy that have played an increasingly important role in fostering the process of urbanization and settlement transformation.

As the settlement system in the delta region is shaped not only by the increase of the nonagricultural population but also by the inflow of migrants, it would be inadequate to assess the process of settlement transformation without examining the movement of the temporary population. Unfortunately, there are

Table 3-11. Changing Nonagricultural Population
for Zhujiang Delta, 1980-90

	1980	1990	Increase 1980-90	Share of Total Increase (%)
Primate City of Guangzhou	2,264,470	2,577,883	+ 313,413	9.77
Designated Cities	580,172	1,603,086	+ 1,022,914	31.89
Designated Towns	1,422,157	3,292,584	+ 1,871,427	58.34
Total	4,266,799	7,474,553	+ 3,207,754	100.00

Note:

Data for designated cities do not include those designated towns contained in their suburbs as they have been separately counted as designated towns.

Sources:

- 1) Guangdong, Statistical Bureau, 1992b: 83-206.
- 2) Guangdong, Statistical Bureau, 1986: 2-41.
- 3) Guangdong, Statistical Bureau, 1991a: 111-112.
- 4) Guangdong, Statistical Bureau, 1990: 108-130.

Table 3-12. Distribution of Nonagricultural Population among
Cities and Towns in Zhujiang Delta, 1980-90

Cities & Towns by Size	1980			1990			Annual Growth (%)
	No.	Number of People	% of Total	No.	Number of People	% of Total	
Extra-large (≥ 1 million)	1	2,264,470	53.07	1	2,577,883	34.49	1.30
Large (500,000-1 million)	0	0	0	0	0	0	
Medium (200,000-500,000)	0	0	0	2	604,780	8.09	
Small (100,000-200,000)	6	580,172	13.60	7	998,306	13.36	5.58
Towns ($\leq 100,000$)	235	1,422,157	33.33	435	3,293,584	44.06	8.76
Total	242	4,266,799	100.00	445	7,474,553	100.00	5.77

Note:

Data for cities do not include those towns contained in their suburbs as they have been separately counted in the category of towns. The three new designated cities in 1990 were Zhongshan, Dongguan, and Qingyuan.

Sources:

- 1) Guangdong, Statistical Bureau, 1992b: 83-206.
- 2) Guangdong, Statistical Bureau, 1986: 2-41.
- 3) Guangdong, Statistical Bureau, 1991a: 111-112.
- 4) Guangdong, Statistical Bureau, 1990: 108-130.

no systematic data showing the movement of the temporary population among different types of settlements. Nevertheless, some interesting data do exist at the provincial level. According to a 1 percent sample population survey conducted by Guangdong Province in 1988, during the five-year period of 1982-87, the cities, towns and villages in Guangdong received a total of 2.53 million migrants who either changed their residence officially or who had left their place of origin more than six months earlier and had lived in the place of survey for less than five years regardless of their registration status. Of this total, about 71 percent ended up in small towns, 26.6 percent moved to cities, and the remaining less than 3 percent chose other villages (Table 3-13). Without doubt, small towns among all types of settlements have accepted a predominantly large proportion of immigrants. Among these immigrants, about 57 percent were female. In terms of their origination, 72 percent were from rural villages, which exceeds by a large margin the combined total of migrants originating from cities and towns. Although these figures themselves do not prove that the migrants were more interested in small towns than cities owing to the fact that it is normally much more difficult to obtain permission to move to cities than towns, the fact remains that under the prevailing policies governing population movement, the towns have unquestionably attracted more rural migrants than the cities.

The findings of the above analysis are consistent with the result of a recent study conducted by Xu and Li who reveal that small towns in the Zhujiang Delta have attracted a larger number of rural surplus workers registering as "lodging population" who supply their own food grain (*zili kouliang hu*). The primary reasons given for their preference for the small towns are better job opportunities, easier availability of housing, and close social ties to the origin villages of the migrants (Xu and Li, 1990: 55-56).

Table 3-13. Population Migration to and Within
Guangdong Province, 1982-87

	Number (thousands)	Percent (%)
Total	2,535.6	100.00
Male	1,094.1	43.15
Female	1,441.4	56.85
Destinations		
Cities	698.5	27.55
Towns	1,776.0	70.04
Villages	61.1	2.41
Originations		
Cities	198.4	7.82
Towns	519.5	20.49
Villages	1,817.7	71.69

Source: China, State Statistical Bureau, 1988: 677, 706.

It is thus clear from the above analysis that although the Zhujiang Delta region has undoubtedly achieved rapid economic growth during the past decade, most places in the delta have remained predominantly agricultural or rural in their population composition. Even in the central delta region where economic growth has been the most phenomenal, there was no indication of population concentration in the cities. Instead, it is the small towns that have played the leading role in this process of urbanization and settlement transformation. There is little evidence to show that rapid industrialization will necessarily result in a parallel movement of population toward the cities as the conventional wisdom of urbanization has predicted. The deviation of the delta's experience of urban development from conventional expectations of urban transition is essentially due to the effects of both government control of cityward migration and the delta's self-sustained industrialization based primarily on the village and township in the countryside. The unusually high urban growth in the Guangzhou-Hong Kong corridor, on the other hand, appears to be attributable to the operation of the external force which has materialized in the form of capital investment from Hong Kong and overseas. The factors of government intervention, rural-based industrialization, and external influence have to be studied in depth in order to provide a complete account of the development process of the delta region.

3.9. Land Use Transformation

The rapid growth and restructuring of the delta's regional economy have also quickened the pace of land use transformation. The developments in manufacturing, transport infrastructure and the inflow of foreign investment have all created a great demand for land which can only be satisfied by reclaiming existing cultivated land. According to data released by Guangdong Province, between the years of 1980 and 1990, a total of 327,800 acres of cultivated land

were lost to nonagricultural uses in the delta region (Guangdong, Statistical Bureau, 1992b: 65). As a result, the total amount of existing cultivated land in the delta diminished from 2.58 million acres in 1980 to 2.25 million acres in 1990 and its per capita average dropped from 0.15 acre to 0.11 acres during this period. This decrease in cultivated land represented an annual rate of -1.35 percent which almost doubled the provincial average of -0.85 percent per annum. These figures come from an official source and do not include many unauthorized land use transfers which have never been reported for tax reasons. In some places, such as Panyu, Dongguan and Zhongshan, the actual amount of farm land loss has been much greater than was reflected in the officially released data. The problem of farmland disappearance was so severe that in 1985 the provincial government of Guangdong had to step in and issue a directive limiting the amount of cultivated land that could be transferred for nonagricultural purposes each year, but the government's statement simply could not stop the process by which cheap rice fields were being converted into more profitable land tracts for the building of real estate, shopping malls, factories, or toll highways. It seems that the local people were all aware that in order to attract foreign capital investment, having cheap, unskilled labour is not enough, but providing cheap land with good infrastructure is essential to attracting foreign investors. Many cities, towns, and villages quickly reclaimed nearby agricultural land to form export processing zones. Most of the developed land was paved and, therefore, irreversible to agricultural use if the anticipated foreign investment did not materialize.

Although the process of land use transformation seems to be driven by the incentive of seeking a higher profit and attracting more foreign investments, it is not known exactly how the lost cultivated land was redistributed according to industrial, transportation, commercial and urban uses. There are no such data either at local, regional or national levels to allow the construction of a balance

sheet for land use transfer. Nevertheless, by piecing together limited data from various sources, an analysis of general trends can still be made. Table 3-14 lists the changing urban and agricultural land uses for the delta region during the years of 1980-90. As expected, the substantial loss of cultivated land in the 1980s was accompanied by a simultaneous expansion of built-up areas in both cities and towns. Of the two types of urban settlement, the designated cities showed a relatively small amount of expansion in their built-up areas. It should be noted that the 1990 figure included the two newly-designated "cities" of Zhongshan and Qingyuan whose built-up areas were not included in the base figure for 1984. In other words, the expansion of the built-up area for these cities has been exaggerated because of administrative changes. Despite this, the increase of built-up areas for the cities remains relatively insignificant. On a comparable yearly basis, the designated cities only expanded at an annual rate of 4 percent which was much lower than either the expansion of built-up areas for designated towns or the reduction of the cultivated land. It appears that the expansion of the cities in the delta can provide little explanation for the drastic loss of the cultivated land. The annual expansion of the urban built-up area of the designated cities covered only about 10 percent of the loss of cultivated land. This suggests that cities in the Zhujiang Delta region under strict government control did not experience significant expansion in land. This finding is consistent with the finding of little expansion of population in the cities demonstrated in the previous section.

The most significant expansion of land occurred in the designated towns, which recorded the most rapid annual growth rate of 24 percent and covered about 50 percent of the lost amount of cultivated land when calculated on a comparable yearly basis. It should be noted that the dramatic expansion of the designated towns was largely due to the relaxation of government criteria for town

Table 3-14. Changing Land Uses in Zhujiang Delta, 1980-90
(in acres)

	1980	1984	1986	1990	Area of Change (Acres/yr)	Annual Changing Rate(%)
Cultivated Land ¹⁾	2,580,971			2,253,109	-32,786.2	-1.35
Built-up Area of Designated Cities ²⁾		75,065.7		96,301.4	+3,539.3	+4.24
Built-up Area of Designated Towns ³⁾	38,024.2		138,068.9		+16,674.1	+23.98

Sources:

- 1) Guangdong, Statistical Bureau, 1992b: 65.
- 2) China, State Statistical Bureau, 1985: 48 and
China, State Statistical Bureau, 1991b: 72.
- 3) Guangdong, Statistical Bureau, 1986: 502-541.

designation. Between the years of 1980 and 1986, a total of 214 new towns were officially approved as designated towns. They covered a total built-up area of 158.34 sq km or 39,098.346 acres. When these reclassified built-up areas were deducted from the calculation, the net expansion of the existing towns still amounted to 60,946.398 acres during the six years of 1980-86. On a yearly basis, the existing small towns had been expanding at 10,157.733 acres per annum which was over three times the average annual expansion of the designated cities. In a manner similar to population growth, small towns in the delta region have been the most dynamic urban element that has experienced the fastest expansion in land.

A more interesting aspect of the delta's land use transformation was the rapid expansion of nonagricultural land outside cities and towns. As shown in Table 3-14, the combined areal expansion of both cities and towns did not cover the total loss of cultivated land when calculated on a comparable annual basis. Urban sprawl from both cities and towns accounted for about 60 percent of farmland loss. A large portion of urban expansion was due to the official designation of 2 new cities and 214 new towns during this period. Strictly speaking, the built-up areas of these new classified cities and towns should not be taken into account because they had already existed and had had little to do with the loss of the cultivated land under study. When these existing reclassified cities and towns were deducted, the net gain of urban built-up area for both cities and towns accounted for only about 42 percent of the annual loss of cultivated land. The remaining 58 percent of farmland loss must be claimed by nonagricultural uses taking place in the countryside other than the expansion of cities and towns.

The portion of farmland loss in the countryside has been quite substantial, with an average annual decrease of 19,091 acres. In other words, the Zhujiang Delta region lost **77.32 square kilometres** of its cultivated land to

nonagricultural uses **in the countryside** every year. Such "nonagricultural land uses" could be for the construction of highways, the development of real estate, the establishment of industrial zones, or the opening up of a strip of shopping stores like the ones in Shunde or Panyu. They may differ from one another in their uses but they have all shared a common locational feature: they are all **within the countryside**. Consequently, it is not uncommon to find a few factories or a group of "villa-style apartment buildings" standing right in the middle of a rice field. Most of these factories and housing are within walking distance and are easily accessible to the local peasants who have "left the soil but not the village" or "entered the factories but not the city." The peculiar process of rapid rural industrialization without concentration of population in the cities has thus created a unique land use pattern characterized by a mixture of intensive industrial/agricultural or urban/rural activities.

The fact that a predominantly large proportion of farmland loss was taken for nonagricultural use in the countryside rather than encroached upon by built-up areas of the cities suggests that the driving force for the delta's land use transformation is the rapid industrialization of the countryside, not the expansion of the existing cities as many previous studies have indicated. This observation has been confirmed by a statistical analysis which shows that the annual decreasing rate of cultivated land in the delta region has significant correlations with the annual growth rate of per capita industrial and agricultural output value ($r=0.7183$).

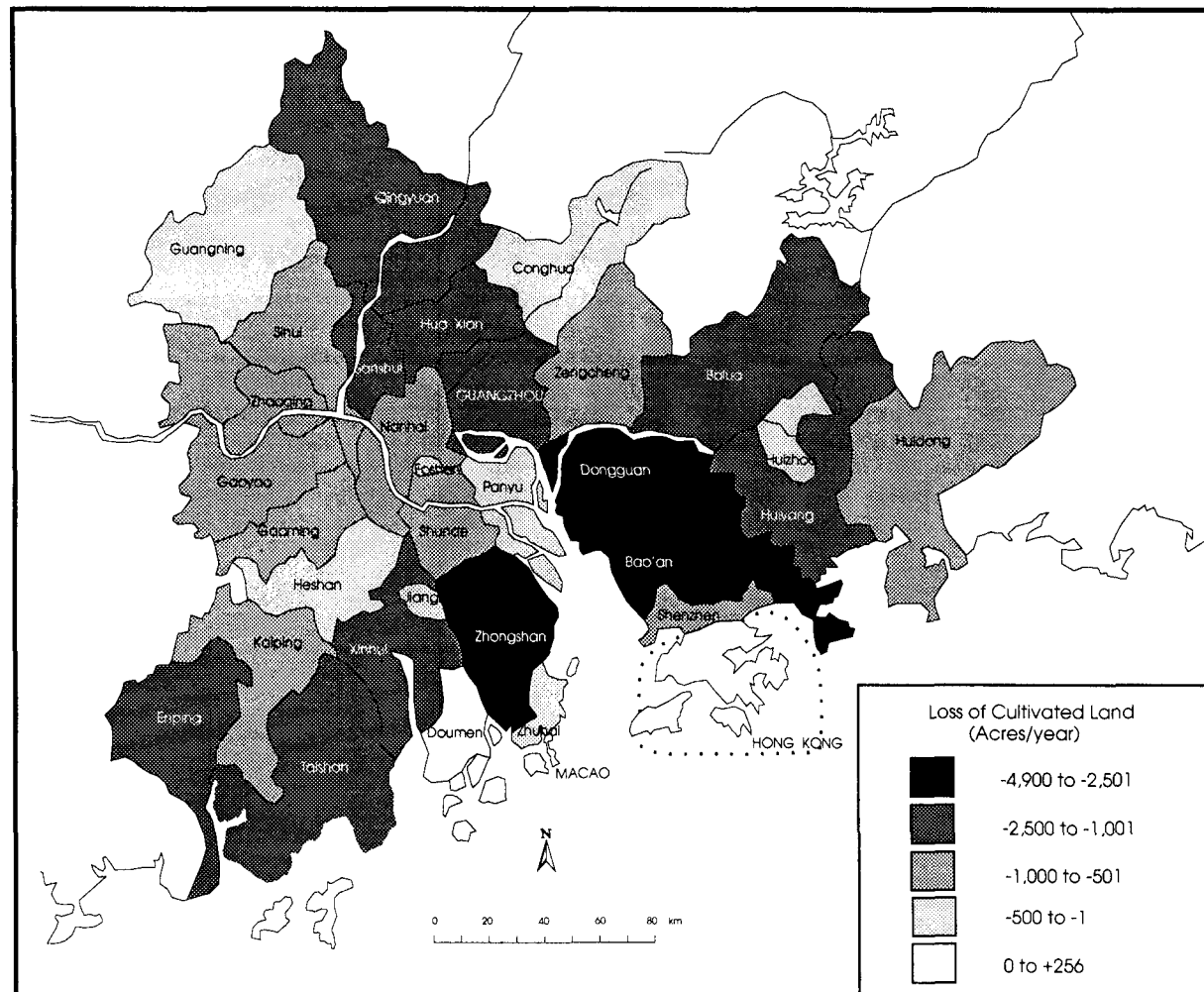
Interestingly, the decreasing rate of cultivated land has also shown a fairly significant correlation with the distance from Hong Kong ($r=0.5060$) but no significant relationship with the distance from Guangzhou. It also has high correlations with per capita transport investment ($r=0.8602$) and per capita export production output value ($r=0.9488$). These results seem to suggest that

transport development and the influence of external forces from Hong Kong are important factors responsible for the reduction of cultivated land. As discussed earlier, much farmland has been turned over for infrastructure development and for the setting up of export processing zones. This finding can also be illustrated with a map showing the spatial differentiation in terms of the annual decreasing rate of cultivated land (Figure 3-12). The most severe loss of cultivated land was found in Dongguan, Baoan and Zhongshan. These places were all characterized by their intense connections with Hong Kong and they have played a leading role in the delta's export production. The two Special Economic Zones of Shenzhen and Zhuhai did not show a drastic rate of farmland loss because the areas they occupied were smaller than other places and hence the acreage lost was relatively insignificant. Doumen *xian* is the only one that has gained more cultivated land due to land reclamation from the sea. In any event, the foregoing analysis has tended to suggest that rural industrialization, transport development, and the processing of goods for export are likely the three important factors underlying the process of land use transformation that has been taking place in the delta region. This finding is consistent with those derived from the above analyses of the growth and distribution of urban population.

3.10. The Emerging Spatial Pattern: A Quantitative Analysis

The foregoing analyses have identified a number of spatial patterns related to the distribution of production, population, migration, urbanization, and land use transformation. Although these patterns are not all identical because they represent different variables, they have displayed some similar features and presented findings that are not inconsistent. In order to better describe the spatial pattern of development in the delta region, statistical methods of principal component and cluster analyses were employed to extract the common elements of

Figure 3-12. Annual Loss of Cultivated Land for Zhujiang Delta, 1980-90



Data Source: Guangdong, Statistical Bureau, 1991b: 14-407.

distribution in various development variables and classify different localities according to their similarities in the extracted components.

All 31 cities (*shiqu*) and counties of the delta region were used as cases for the quantitative analysis. The selection of variables was limited by the availability of data. Nevertheless, eight variables were selected based on the following considerations. First, the variables selected must reflect the spatial distribution of production, population, and land use on a comparable basis. Secondly, in order to identify the resultant spatial differentiation of development, only those variables pertaining to the spatial outcome of development will be selected. Thirdly, the number of variables selected should not exceed the number of cases and it should allow a degree of freedom necessary for the statistical computation of the interrelationship among the variables.

The spatial differentiation of production was denoted by per capita gross value of industrial and agricultural output (PGVIAO). As export production is a distinctive element of production in the delta, per capita export output value (PEXPT) was also included as a variable for the analysis. The other economic variables, EMPY and PICM, were selected to denote the spatial differentiation in employment rate and per capita income. The spatial variation in population, urbanization and migration was represented by the variables of population density (DNTY), percent urban population (URBN), and percent temporary population (TEMP). The selection of variables on land use was hampered by the lack of data. The only available data pertaining to land use are the amount of cultivated land which is the main resource of the delta. Per Capita cultivated land (PCUL) was, therefore, chosen as a variable to reflect the spatial characteristics of land use. Thus, the eight selected variables represent the spatial differentiation in production, employment, income, population, urbanization, migration, and land use.

The procedure begins with a principal component analysis, a statistical technique designed to identify the "fundamental" dimensions of variations hidden beneath the complex surface of an area. Such a statistical technique enables many interrelated and complicated phenomena to be represented and described by a small number of principal components.

Two principal components were extracted as the main dimensions underlying the spatial pattern of development in the eight selected variables. They account for 80.6 percent of the total variance and are adequate to represent the spatial differentiation of the delta in production, population and land use. A close examination of the rotated factor matrix (Table 3-15) has suggested that the first extracted component is an indication of the development in the newly developed area of the delta, as it has high factor loadings on the variables of percent temporary population, per capita industrial and agricultural output value, but low loadings on the variables of population density and urbanization level. It stood in sharp contrast to the second component which has high factor loadings on the variables of population density and urbanization level but low on the variables of percent temporary population, per capita cultivated land, income, and export output value. Clearly, the first component represents the element of new development which has taken place mostly outside the cities whereas the second component describes the development features of the traditional cities where population density and percent urban population remain high but the percentage of temporary population is low because of the state's continued restriction on the cityward migration. Thus, the result of principal component analysis has highlighted the peculiar feature of development in the delta region where higher production, export, income and in-migration on a comparable ratio or per capita basis did not occur in the existing large cities but in the areas where the

Table 3-15. Rotated Factor Matrix from
Principal Components Analysis

Variable	Factor Loadings	
	Factor One	Factor Two
DNTY	0.06099	0.91267
URBN	0.46426	0.81925
PGVIAO	0.81567	0.49424
PICM	0.89607	0.12471
PEXPT	0.89045	0.25589
EMPY	0.67223	0.29989
TEMP	0.93166	0.06726
PCUL	-0.20431	-0.82587
% of Variance	61.90	18.70

Source: Computed from Guangdong, Statistical Bureau, 1991b: 14-407.

urbanization level remained relatively lower. This finding is consistent with those of the previous data analyses.

A cluster analysis was then performed to classify various geographical units according to their similarities in the loadings of the above identified principal components. This analysis will present a general pattern of spatial distribution in production, population, and land use in the delta region. The result of the cluster analysis is mapped in Figure 3-13.

Based on their development features in production, population, and land use, the cities and counties of the delta region were classified into three groups. Group One consists of the cities of Guangzhou, Foshan, and Jiangmen which are all traditional urban centres in the region. Group Two includes all places located within the triangle area formed by Guangzhou, Hong Kong and Macao. It is in this newly developing zone where rapid developments have been taking place since the 1980s. The cities of Huizhou and Zhaoqing were included in Group Two probably because they showed a development pattern more similar to the newly developing zone than to the traditional city type. Group Three covers all places in the periphery of the delta region. It is clear that the general pattern of spatial development of the delta region consists of three tiers: traditional urban centres, the newly developing zone, and the periphery area.

How did these three groups of classification differ from one another in terms of the level and pace of development? Tables 3-16A and 3-16B list some of the key production and population indicators for the three classified groups. It appears that the most significant economic growth occurred in Group Two, that is, the newly developing zone lying between or adjacent to major metropolitan centres. This group accounted for 35 percent of the delta's total land area and 40 percent of its total population in 1990, but it produced 55 percent of the total industrial and agricultural output of the delta region and 70 percent of its total

Figure 3-13. Result of Cluster Analysis for Zhujiang Delta

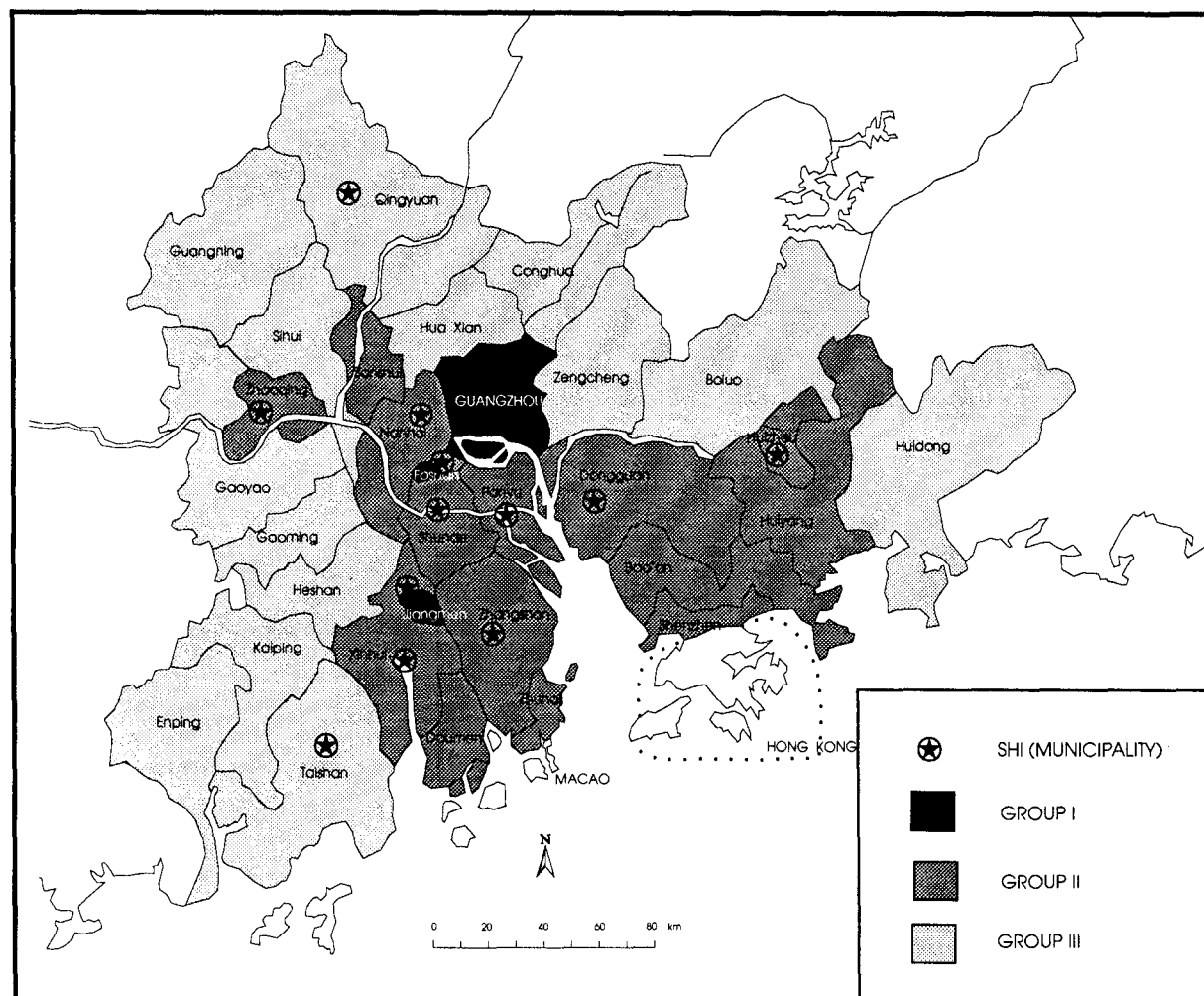


Table 3-16A. Key Economic and Demographic Indicators for the Three Zones
Grouped by Cluster Analysis for Zhujiang Delta

		Land (sq km)	Total Population		GVIAO ^{**}		Temporary Population	
			1980	1990	1980	1990	1982	1990
Group I ^{a)}	No. %	1,650 3.48	3,512,639 <u>19.97</u>	4,231,088 <u>20.34</u>	10,176.35 <u>51.95</u>	35,236.11 <u>30.96</u>	78,795 <u>42.87</u>	555,868 <u>18.62</u>
Group II ^{b)}	No. %	11,831 35.49	7,008,802 <u>39.83</u>	8,526,929 <u>40.99</u>	6,224.64 <u>31.78</u>	62,281.14 <u>54.72</u>	61,530 <u>33.49</u>	2,216,279 <u>74.26</u>
Group III ^{c)}	No. %	28,950 61.03	7,072,499 <u>40.20</u>	8,043,177 <u>38.67</u>	3,187.57 <u>16.27</u>	16,310.69 <u>14.32</u>	43,454 <u>23.64</u>	212,641 <u>7.12</u>
Total	No. %	47,431 100.00	17,593,940 100.00	20,801,194 100.00	19,588.56 100.00	113,827.94 100.00	183,779 100.00	2,984,788 100.00

Notes:

* Percentages refer to the share of total for the whole delta region.

** Gross Value of Industrial and Agricultural Output in million Yuan. Data are in 1980 constant price.

a) Group I includes traditional urban centers such as Guangzhou, Foshan, and Jiangmen.

b) Group II includes those counties and cities located primarily in the triangle area between Hong Kong, Guangzhou, and Macao.

c) Group III includes counties in the periphery zone of the delta region.

Sources:

1) Guangdong, Statistical Bureau, 1991b: 14-407.

2) Guangdong, Office for Population Census, 1991: 40-44.

Table 3-16B. Key Economic and Demographic Indicators for the Three Zones
Grouped by Cluster Analysis for Zhujiang Delta

		Urban Population		Foreign Investment (10,000 \$)		Export Output Value (10,000\$)	
		1982	1990	1980	1990	1980	1990
Group I ^{a)}	No. %*	2,788,911 <u>53.32</u>	3,799,432 <u>41.61</u>	3,449 <u>34.08</u>	32,671 <u>20.96</u>	35,028 <u>55.14</u>	180,076 <u>24.55</u>
Group II ^{b)}	No. %*	1,597,112 <u>30.53</u>	3,692,907 <u>40.44</u>	6,332 <u>62.56</u>	109,436 <u>70.23</u>	26,536 <u>41.78</u>	512,182 <u>69.83</u>
Group III ^{c)}	No. %*	844,695 <u>16.15</u>	1,639,592 <u>17.95</u>	340 <u>3.36</u>	13,729 <u>8.81</u>	1,957 <u>3.08</u>	41,231 <u>5.62</u>
Total	No. %*	5,230,719 100.00	9,131,932 100.00	10,121 100.00	155,836 100.00	63,521 100.00	733,489 100.00

Notes:

* Percentages refer to the share of total for the whole delta region.

a) Group I includes traditional urban centers such as Guangzhou, Foshan, and Jiangmen.

b) Group II includes those counties and cities located primarily in the triangle area between Hong Kong, Guangzhou, and Macao.

c) Group III includes counties in the periphery zone of the delta region.

Sources:

1) Guangdong, Statistical Bureau, 1991b: 14-407.

2) Guangdong, Office for Population Census, 1991: 40-44.

export revenue. It has also become the chief recipient of foreign investment and the most favoured destination for immigrants, receiving 70 percent of all the realized amount of foreign investment in the delta region and 74 percent of the delta's total temporary population found in 1990. More striking is its extraordinarily high growth rates of industrial and agricultural output production, income, immigration, and foreign investment which have all exceeded that of both the traditional city group and the periphery area on a comparable basis (see Tables 3-16A and 3-16B). The result of such accelerated growth was a dramatic increase in its regional share of industrial and agricultural output production, export revenue, foreign investment and temporary population during the ten years of 1980-90.

While the newly developing zone was experiencing the most dramatic economic growth, the traditional urban centres of Group One exhibited only a moderate growth in production and population. The growth rates in industrial and agricultural output, income, and foreign investment of these urban centres on a per capita basis were all significantly lower than the regional average. Moreover, their regional share in production value, export revenue, foreign investment, temporary population and urban population has dropped dramatically during the years of 1980-90. This pattern of urban growth has contradicted the neo-classic theoretical expectation of polarization under which production and population are said to concentrate in major urban centres at an early stage of economic growth.

Another important spatial aspect of development revealed by the quantitative analysis is the relative underdevelopment of the periphery area (Group Three). Despite the fact that the periphery area accounted for a predominant 61 percent of the delta's land area and 38 percent of its total population, it contributed only 14 percent of industrial and agricultural outputs, 5 percent of export revenue, 8 percent of foreign investment and 7 percent of the

total temporary population to the region. Its regional contributions in industrial and agricultural production and acceptance of temporary population, which were already disproportionately low, dropped even further during the 1980s.

Consequently, the disparity between the periphery area and the other two developed groups in terms of per capita income and per capita output production remained considerably large. There is little evidence to suggest that the trickle down effect has prevailed in the delta region and that its regional disparity has been reduced. Previous studies in favour of the trickle-down argument may have overlooked the persistent backwardness of the periphery area which is, in fact, a very important element of the spatial development of the delta region.

It has become clear that the general pattern of spatial development in the delta region is characterized by the declining primacy of the traditional large cities, the rapid surge of a newly developing zone lying between major metropolitan centres, and the relative underdevelopment of the periphery area. This peculiar scenario of development demonstrated by the above quantitative analysis appears to be consistent with the findings of the analyses of the previous sections based on the individual variable of the delta's spatial development.

3.11. Summary

Rapid economic growth has been taking place in the Zhujiang Delta region since economic reforms and the open door policy were initiated in 1979. In a manner similar to the development in other parts of the country, the economic take off of the delta region was primarily driven by village and township industries which have emerged from the grassroot level in the countryside. Such industries are mostly rural based, small scale, unsophisticated, and labour intensive, but they have created far-reaching impacts on economic restructuring, town development and land-use transformation in the region. The growth and

restructuring of the delta's economy were distinctive in that foreign investment and export production have played a significant part in the process. It is the dialectical interaction of these local and global forces that have brought profound changes to the delta's space economy.

The spatial configuration of the growth and restructuring of the delta's regional economy, as revealed by both quantitative and qualitative analyses, is characterized by an increasing concentration of production and population in the triangle area formed by Guangzhou, Hong Kong and Macao. The primate city of Guangzhou did not exhibit any accelerated growth either in production, population, or land area. It is the area lying between Guangzhou, Hong Kong and Macao that has rapidly increased its growth rate and regional share of production and population.

Economic development in the delta region has also resulted in a process of settlement reorganization. While the growth and restructuring of the regional economy has significantly fostered migration to and within the region, there was no concentration of population in the cities, especially large cities. It was the numerous small towns located mostly in the areas between or immediately adjacent to the large urban centres that have accepted a growing amount of surplus rural labour.

Similarly, the expansion of cities did not contribute much to the transformation of land use as previous studies have indicated. The magnitude of change in the countryside has been much greater than in the cities. Instead of forming new cities and towns at the cost of the existing agricultural land, the land use transformation of the delta was characterized by a redistribution of land within the countryside, resulting in a growing mixture of industrial/agricultural or urban/rural activities.

How can this peculiar scenario of development of the delta region be accounted for? Preliminary conceptual and quantitative analyses have suggested that rural industrialization, government intervention, and the intrusion of global market forces through Hong Kong are the three most powerful forces responsible for the economic and spatial transformation of the region. The exact cause-effect relationship, however, is far from clear. Are these the only three important forces that have shaped the economic and spatial development of the delta region? How and to what extent have these and other possible factors affected the transformation of the delta's space economy? What are the exact roles of these factors in the process of development? How do they act individually and interact with one another in creating this peculiar pattern of economic and spatial development? What are the implications of such interaction for our understanding of local-global dialectics in the process of regional development? To answer these questions will require an indepth look at individual case studies of development.

In what follows, empirical case studies will be conducted to investigate the actual operating mechanism of development in the delta region. As regional development is a complex outcome of social, economic, historical and geographical factors, it is not possible to investigate every facet of the process. A reasonable alternative will be to focus the investigation on those key factors that have played the most significant role in the delta's economic and spatial development. The identification of the "most important" factors is not, however, an easy task because it is a highly subjective matter reflecting different individual perspectives.

The following chapters will examine the development of three selected counties where the impact of rural industrialization, global forces, and transport infrastructure development are most noticeable. The three cases and the key factors with which they are associated were selected after extensive consultation with experienced local Chinese researchers and my own on-the-spot field

investigation. The selection will be justified at the beginning of each individual chapter.

It is acknowledged that the factors and places selected for case studies may not necessarily be a complete representation of the growth of the entire delta region where there has been great geographical variation in development conditions. By focusing on some of the most dynamic areas, where the impacts of local and global forces are remarkable, it is hoped that the selected case studies will generate significant insights into the actual operating mechanism of development in the general social, political, and economic context of the Zhujiang Delta region.

PART III: EXPLANATION FOR REGIONAL DEVELOPMENT IN THE ZHUJIANG DELTA

CHAPTER FOUR. "DRIVING FORWARD ON FIVE WHEELS": TRANSFORMATION OF THE PEASANT ECONOMY

4.1. Introduction

This chapter examines how a traditional peasant economy in the Zhujiang Delta region was transformed after economic reforms were initiated in 1978. Through a detailed case study of Nanhai, this chapter attempts to unfold the complex process of economic and spatial changes that occurred in the countryside and to seek an explanation for the distinct features of spatial transformation of the delta region identified in the previous chapter. Before moving to the main body of the chapter, the concept of "peasant economy" needs an explanation.

In the study of recent economic development in the Zhujiang Delta, much scholarly attention has been directed toward the growth and restructuring of the agricultural sector as a result of the 1978 economic reforms (Johnson, 1986a; Lo, 1989; Xu et al, 1988). Agricultural restructuring does not, however, represent the whole process of post-reform economic and spatial change. As will be shown in this chapter, rural industrialization has, since the reforms, become the most viable and dynamic force altering the economic landscape. A sensible account of the transformation of the delta's space economy must go beyond the sphere of agricultural restructuring to cover the rapid industrial growth that has been taking place.

As an alternative to "agricultural restructuring", "rural economy" has been used by some scholars as a concept to document economic changes occurring in the countryside (Lo, 1989; Wu and Ip, 1981a). Although rural economy as a concept

has a broader coverage than agricultural restructuring, it cannot escape criticism because its development was based upon an assumption that there is an unambiguous distinction between "urban" and "rural" economy. Such an assumption may not be tenable when applied to the Zhujiang Delta region where the rapid industrialization of the countryside has resulted in a growing mixture of urban and rural activities. Rural economy is, therefore, not a suitable concept for describing what has occurred in the countryside of the delta region.

In this chapter, I adopt the concept of "peasant economy" to denote the regional economic entity in the countryside of the Zhujiang Delta. This concept was originally used by Philip Huang to refer to the economy of the lower Yangtze delta where population density was high and where farming was carried out on a small-scale household basis (Huang, 1990). While the features of high-population density and small-holding agriculture could be applied to Zhujiang Delta, the concept of peasant economy in this research has three specific implications. Demographically, it refers to an economy wherein a great majority of the population is officially identified as agricultural. Economically, this peasant economy consists of a wide range of economic activities including not only farming but also nonagricultural activities such as manufacturing, trade, transport and construction. Geographically, a peasant economy in the Zhujiang Delta contains a great number of small towns and numerous small factories which are scattered throughout the countryside, leading to a blurring of industrial/agricultural or urban/rural land use. The transformation of the peasant economy in the Zhujiang Delta region since the reforms could be studied from many different angles. In this chapter, I will focus my investigation on two essential aspects: agricultural restructuring and rural industrialization.

For centuries, agricultural production has been fundamental to the Zhujiang Delta. By its very nature, the delta is a region developed by agriculture. Until

recently, modern manufacturing in this region had never been fully developed and its role in China's manufacturing was relatively insignificant when compared with other industrial regions, such as those in the provinces of Liaoning, Shanxi, Hubei and even Jiangsu. The delta has, however, certainly been important in national agricultural production. Its excellent natural endowments plus its locational advantage for marketing farm produces overseas have enabled the delta to become the major rice bowl of southern China and the nation's chief exporter of many agricultural products such as pond fish, vegetables, and fruit. During the past four decades of Communist rule, "agriculture the base" was highly lauded all over the nation, not least in the delta. When economic reforms were initiated in 1978, they started with agriculture. Today, after ten years of reform and restructuring, agriculture remains a vital sector in the delta's regional economy. Without a thorough investigation of changes in the agricultural sector, it would be impossible to understand the process of economic and spatial transformation.

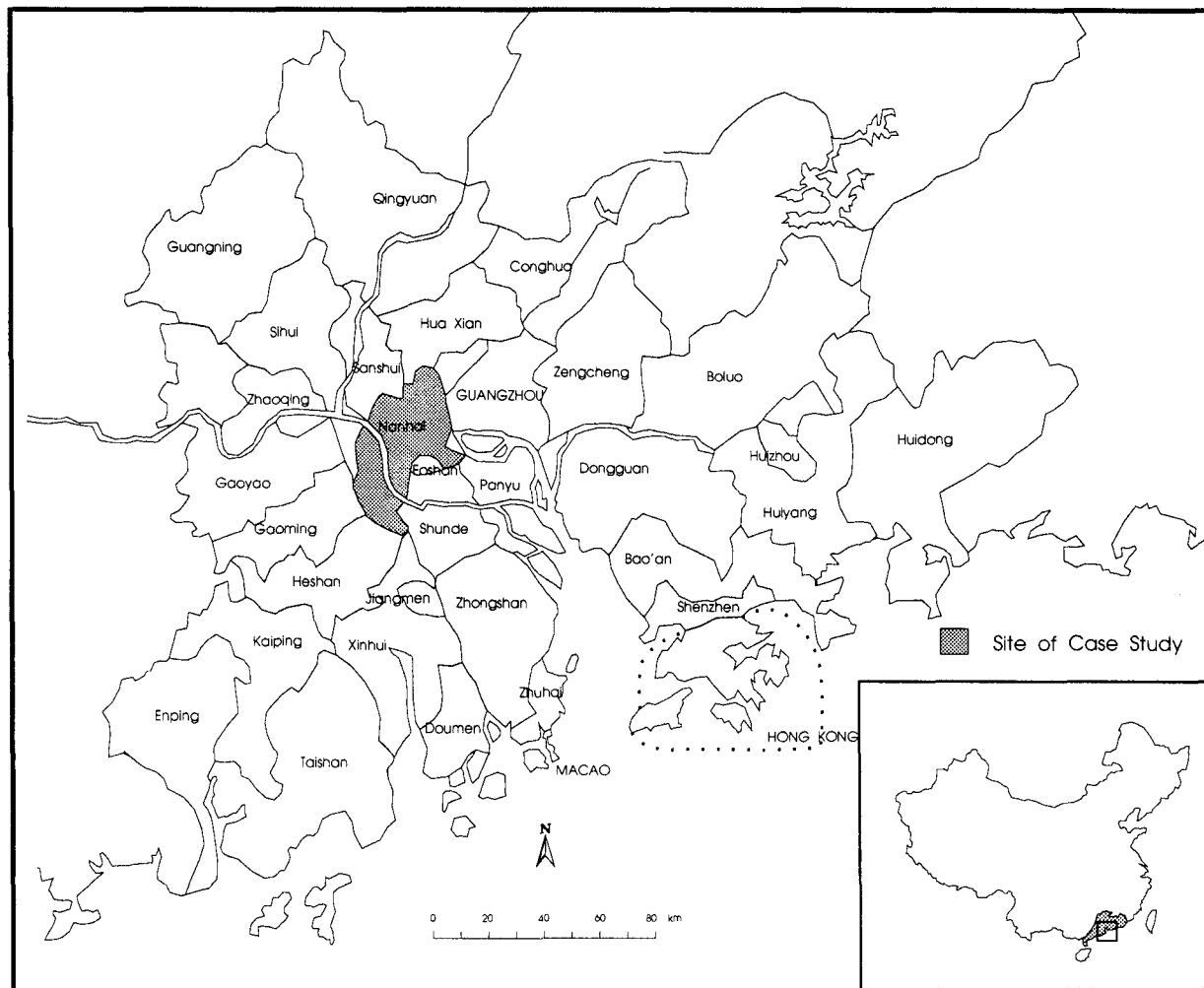
Dramatic industrial growth in the countryside, or rural industrialization, is another crucial element of post-reform development. As identified in the previous chapter, the most remarkable growth in terms of production and employment occurred in the sector frequently referred to as "rural industry" (*noncun gongye*) or "village and township industry" (*xiangzhen gongye*). The restructuring of the whole regional economy has owed a great deal to a rapid surge in rural industry, which underscores many distinct features in population redistribution, migration, and settlement reorganization. Rural industrialization has been one of the most dynamic elements of change and requires an in-depth investigation in order to comprehend the dramatic transformation of the regional economy.

Nanhai *xian*, in the middle of the delta provides a typical case for studying the transformation of a peasant economy after the implementation of economic reforms. With an area of 1,152 square kilometers and a population of 933,278 in

1990 (Nanhai, Statistical Bureau, 1991: 1-2), Nanhai is, in many respects, a good projection of the Zhujiang Delta region on a smaller scale. Geographically, Nanhai is composed of three main areas. Its southern half extends to the lower reach of the Pearl River and is dominated by a man-made agricultural system of fish ponds and mulberry dikes, a system popular in many areas of the delta for decades (Zhong, 1982: 191-202). The central and eastern part of Nanhai is primarily flat plain suitable for the growing of paddy rice, vegetables, and fruit. Located on the immediate outskirts of the cities of Guangzhou and Foshan (Figure 4-1), this area has served as a suburb for the two cities, producing many farm products for urban consumption. The northern part of Nanhai extends to the upper reach of the North River (*Beijiang*) where landscape is relatively mountainous and agricultural production is dominated by the production of groundnut, sugar cane, and livestock. From a geographical perspective, Nanhai is diversified enough to represent the situation of the peasant economy of the Zhujiang Delta.

Being one of the "four little tigers" (i.e. Zhongshan, Dongguan, Shunde, and Nanhai, see Zhao, 1991) which recently emerged in the Zhujiang Delta, Nanhai is renowned mostly for its successful agricultural development and rapid industrial growth in the countryside. Specifically, Nanhai is outstanding in three achievements: rapid diversification and specialization in agriculture, flourishing of rural industry at the local level, and successful mechanization of the production of rice. The most well-known dimension of development is Nanhai's approach to rural industrialization whereby maximum development is achieved simultaneously at five levels: county, township, district, village, and individual. The Nanhai Model, known as "driving forward on five wheels" (*wuge lunzi yiqi zhuan*), has now been recognized by many Chinese planners and scholars as one of China's three national models for rural development in the post-reform era, standing parallel to, but distinct from, the Sunan Model which emphasizes the collective

Figure 4-1. Location of Nanhai Shi



sector and the Wenzhou Model whose mainstay is the private sector (Zhao, 1991: 159). In the following sections the processes of agricultural restructuring and of rural industrialization in Nanhai during the 1980s are assessed based on my month-long field investigation.

4.2. A Case Study of Nanhai

A. Historical Background

When economic reforms were initiated at the end of 1978, Nanhai was a county overwhelmingly rural with three-fourths of its population earning a living from agriculture without the benefit of mechanization (Nanhai, Statistical Bureau, 1989: 1). The county was densely populated at 768 people per square kilometre which exceeded the provincial average by 468 persons and the national average by 658 (Zhao, 1991: 141). Farmland available in Nanhai was so limited that cultivated land per capita was a mere 0.7 mu, significantly less than either the provincial or national average (Nanhai, Statistical Bureau, 1989: 9). With limited farm land bearing a dense and growing population, underemployment was a longstanding problem. It has been estimated that on the eve of the reforms, about 40 percent of Nanhai's agricultural labour force was unable to find jobs (Zhao, 1988: 355). As rural-urban migration was restricted, the surplus rural labour had to remain on farms for subsistence. The output of agricultural production did expand, but because of the large and growing population, labour productivity was low and little improvement occurred. The value of net output produced by farmers was a mere 549 yuan per labourer and rural per capita income was only 186 yuan in 1978 (Zhao, 1988: 355). This situation, wherein agriculture had stagnated at a

subsistence level, appears to fit neatly into the concept of "involutionary growth" or "growth without development" introduced by Philip Huang, which refers to a process whereby agricultural production expands but the marginal returns diminish (Huang, 1990: 13).

At the time, the people of Nanhai were preoccupied with the task of seeking self-reliance in food supply. Grain production was taken as the "key link" of the economy and there was little room for other economic pursuits such as sideline farming, trading, transportation, and manufacturing. Such a single-sided production system which emphasized solely the rice crop produced little material for manufacturing. A peasant economy perpetuated at the subsistence level, generated no surplus for capital investment in the manufacturing sector. Moreover, Nanhai was financially under such rigid control by both the provincial government and the Foshan Municipality, to which it was subordinate, that it was unable to initiate industrial development at the local level. Consequently, modern manufacturing had been virtually nonexistent in Nanhai except for a few small rural workshops repairing or producing some items for agricultural production--fertilizer, cement, farm tools and machinery, and irrigation pumps.

Prior to the reforms, urban development in Nanhai had suffered severely from a constant attack on urban commercial functions, a lack of funds for town construction, and the government's restriction on rural-urban migration. The presence of Foshan City nearby had also taken away much urban function along with construction funds from Nanhai. As a result, Nanhai in the pre-reform period recorded an abnormally low level of urbanization, with less than a quarter of its population engaged in nonagricultural activities which took place mainly in rural market towns. Nanhai did not even have a county town for the years prior to the reforms. It was not until 1990 that a county capital was built in the market town of Guicheng. The town was quickly developed to acquire designated

city status which was granted directly by the State Council two years later in 1992 (Guangdong, Statistical Bureau, 1992b: 27). Thus, despite its central location in the delta and excellent natural endowments, Nanhai had been unable to ignite the engine of economic development until economic reforms were introduced in the late 1970s.

B. Economic Reforms

The reform programs initiated at the Third Plenary Session of the Eleventh Central Committee of the Chinese Communist Party in December 1978 brought fundamental changes into the economy of Nanhai. Although many factors were responsible for the development of Nanhai's economy, from an institutional perspective, four sets of policy changes have underlined the process of economic transformation.

First, the implementation of the Household Production Responsibility System (HPRS) provided great incentives for farmers to produce more for a higher profit. The Household Production Responsibility System, although existing in various forms and modified over time, was essentially a system of de-collectivization which decentralized production decision-making from collective units (commune, brigade, and production team) to peasant households. The most popular form of the HPRS is the one that "contracts output to the household" (*Baochan daohu*). Under such a system, a peasant household contracts a piece of land or a number of fish ponds with the production team for 15 years or longer. While the contracted land or fish ponds remain collectively owned, the household can decide on the crops they wish to grow or the types of fish they wish to raise provided that it agrees to fulfill the contracted output quotas for both the state and the collective unit. Anything produced above the quotas can be sold either to the state at a higher above-quota price or in the local free market at a negotiated

price, and the resultant profits can be retained by the household. In this way, the effort one wishes to put into farm production is directly linked to profits and those who are willing to work harder will be rewarded. This system signified a drastic departure from the Maoist approach of egalitarianism. It provided great incentives for farmers and reinvigorated the local economy.

Secondly, in an effort to raise farm income, the procurement prices for many farm products were raised sharply during the years of 1979-1986. Beginning with the summer harvest of 1979, grain quota procurement prices were raised by 20 percent with an additional 50 percent premium for above-quota sales. The purchase prices of cotton, oil-bearing crops, sugar cane, pigs, cattle, eggs and other farm and sideline products were also raised by an average 22 percent. At the same time, the cost of agricultural input was reduced by 10-15 percent during 1979-80 (Ash, 1988: 540; Walker, 1984; Riskin, 1987: 285). Such price adjustments were apparently in favour of peasants and have further motivated farmers to increase agricultural production for higher income.

Thirdly, the opening up of commodity markets facilitated the transfer of resources in and out of the agricultural sector and accelerated agricultural specialization. In the pre-reform years, Nanhai was, like other places in China, dominated by a marketing system under which the purchase and sale of farm products was a state monopoly (*tongguo tongxiao*). Agricultural production was carried out according to the orders of the state and all farm products were purchased by the state at quota prices. Under this system, farmers had little knowledge about the actual market demand. As grain production was universally taken as the "key link" of agriculture, farmers could not specialize in other activities which were more profitable or suitable to local conditions.

This state monopoly purchase and marketing system, which lasted for 30 years, was fundamentally reformed in 1985 to give free market forces a much

larger role to play. The number of agricultural products that used to be purchased by the state was reduced from 118 to only 5 (Zeng, 1988: 2-3), and manufactured products supplied and distributed by the state to peasants from 95 to 13. Prior to the reforms, the provision of daily necessities such as grain, cooking oil, meat, fish, sugar, cloth and soap was monopolized by the state through a rationing system under which consumers could not buy what they needed from the stores unless they had the purchasing tickets rationed by the state. This system which covered about 40 basic commodities was abandoned by 1986. Moreover, the state no longer regulated prices for the sale of agricultural products so that the proportion of farm products sold at state-regulated prices dropped from an overwhelming 91.3 percent in 1978 to only 23.9 percent in 1986, and the proportion sold at fluctuating market prices increased simultaneously from 8.7 percent to 76.1 percent. Similarly, the retailing of daily-use goods, formerly determined by state regulated prices, accounted for 97.2 percent of total sales in 1978. After pricing was aligned with the free market, the proportion of free market sales increased from a mere 2.8 percent in 1978 to a predominant 86.5 percent (Zeng, 1988: 2-3).

With all of these changes, the state was no longer responsible for the purchase, supply, and distribution of agricultural products and manufactured goods. Agricultural production was now regulated by market forces and farmers were able to respond to the demands of the market according to their own production capability. This has enabled farmers to specialize in crops which they perceive as profitable and for which they have a comparative advantage. It has also required farmers to be flexible in response to the changing demands of the market.

Finally, the reformed system of taxation and local finance has given Nanhai greater local autonomy and motivated it to mobilize capital resources from all possible sources for the development of the village and township enterprises.

Under the old financial system of "state monopolizing revenue and expense" (*tongshou tongzhi*), almost all revenue generated at a local level had to be passed to higher level governments which would in turn allocate funding for major development projects at local levels. This old system was abandoned and replaced in Guangdong by a new "Financial Responsibility System" (*caizhen baogong*) which set a fixed multi-year lump-sum revenue quota for all local levels to be passed to the higher level government. Any revenue generated above and beyond the quota could be retained for local expenses (Zeng, 1988: 2). This new system has given Nanhai greater incentives for revenue generation and freed it from the tight financial control of both Foshan Municipality and the provincial government of Guangdong. The implementation of this new fiscal policy has necessitated and enabled the development of manufacture and business in Nanhai because they normally generate higher revenue and more job opportunities than agriculture.

C. Agricultural Development

From an ideological perspective, the new policies outlined above are essentially an indication of the tacit *laissez faire* attitude of the reformed central government in dealing with local economic affairs. Implementation of these policies has allowed free market forces to shape Nanhai's economy. One direct and immediate outcome of the reforms has been rapid diversification and commercialization of agriculture.

Once farmers were allowed to make their own production decisions and maximize their profits, they quickly took the initiative in responding to the demands of the market. Since the demand of the agricultural market covers a wide range of products extending beyond that of grain and since the cultivation of

rice is generally less profitable than either the raising of fish or the planting of fruit trees, the first move that farmers made was to shift the focus of farming away from rice cultivation to the production of other more profitable market-oriented commercial crops. Many rice fields were transformed into fish ponds or turned into orchards. Between 1980 and 1990, the amount of acreage in rice was substantially reduced by 42,933 mu (7,071 acres). At the same time, the fish pond acreage increased by 10,205 mu (1,680 acres) and orchard area expanded by 20,263 mu (3,337 acres) (Nanhai, Statistical Bureau, 1991: 15). Other commercial farming activities such as poultry-breeding, pig-rearing, and the growing of vegetables and flowers for urban consumption have also expanded rapidly. By 1990, traditional grain production no longer dominated agriculture in Nanhai. Its share of the total value dropped from 53 percent in 1980 to only 34 percent in 1990 (Nanhai, Statistical Bureau, 1991: 9).

The restructuring of agricultural production in Nanhai has two remarkable features. First, it is shaped primarily by free market forces. This is evident from the allocation of farmland which is frequently changed according to the fluctuations of the market. When the market price for fish was first deregulated in 1981, for example, the area devoted to fish ponds increased substantially by 2,320 mu (382 acres) in that year (Nanhai, Statistical Bureau, 1989: 10). Similarly, when the demand for fruit shot up in the mid-1980s, orchards suddenly expanded by 23,370 mu (3,849 acres) in the two years of 1985-87 (Nanhai, Statistical Bureau, 1989: 10). Generally, once a particular crop is perceived as more profitable, farmers immediately decide to expand production of that crop until the economic returns diminish as the market becomes saturated. Thus, the cropping pattern and the type of agricultural activities being carried out, which used to be determined by the government, are now under the control of the market.

Secondly, the process of agricultural diversification and commercialization in Nanhai was greatly facilitated by its strong connections with large cities nearby and the possibility of exporting. Since the reforms, Nanhai has built a number of export production bases which specialize in the production of fruit, vegetables, pond fish and fowl. By 1987, ten such production bases had been built, covering an area of 340,000 mu (55,998 acres) thereby accounting for 40 percent of the total farmland. They had generated an export revenue of 18.98 million US dollars which was about 70 percent of Nanhai's total agricultural export (Nanhai, Work Team, 1988a: 8-9). Some of these export bases are on a fairly large scale. For instance, the poultry farm in Shishan *zhen* covered an area of 1,544 mu (254 acres) (Nanhai, Work Team, 1988: 11). The vegetable farm in Lishui Zhen was even bigger, covering an area of 5,000 mu (823 acres) and producing 20,000 tons of high quality vegetables annually (ibid, 1988: 14-15). These huge farms were equipped with modern agricultural machinery most of it imported. Taking full advantage of economies of scale, these farms have generated a net income higher than that of individual smaller farms. Such a new agricultural production system, called by the local people "management on a sizeable scale" (*shidu guimo jingying*), is becoming popular in the countryside of Nanhai and other places in the delta region. This pattern of agricultural development where large-scale modern farming is gradually taking shape stands in sharp contrast with the pattern of persistent small-holding agriculture in the lower Yangtze delta as described by Philip Huang (Huang, 1990: 18). It appears that the existence of large urban centers nearby has enabled agriculture to be diversified, commercialized, and modernized more rapidly in Nanhai than elsewhere.

While many rice fields are being turned over for the production of market-oriented commercial agriculture, farmers cannot completely wipe out rice production because they still have to meet the contracted minimum rice quota in

order to keep the land assigned to it under the household responsibility system. Farmers in Nanhai, however, have found ways to meet their grain quotas while engaging in other more profitable activities. For example, some farmers whom I interviewed in Dali *zhen* have negotiated with local officials and since 1984 have been allowed to make cash payments in lieu of the rice quota. Other farmers began to hire people from the poorer areas outside the delta region to cultivate their rice crops, thus meeting their quotas, while they themselves took higher-paying jobs off the farm.

Another solution that has become increasingly popular in Nanhai was to let those farmers who are not good at rice cultivation subcontract the land they were allocated to farmers who are rice-growing specialists (*zhong tian nen shou*). In some localities such as the Dong Village of Pingzhou *zhen* in Nanhai, all rice fields, with an area of 145 mu (24 acres), were contracted to the household of Farmer Zhu Jingcheng, a rice cultivation specialist. Zhu and his family then used their expertise to the greatest extent and made a higher profit from rice cultivation than they otherwise could have made. The grain produced by the Zhu's household was then sold to the local villagers for their own consumption and for meeting their grain quotas required by the government. By so doing, other farmers of the village were freed from the production of rice and were able to do whatever they felt was more profitable and suitable to their own expertise. In this way, agricultural production has become increasingly specialized.

The process of agricultural specialization has gone beyond the sphere of production and has begun to affect the marketing and circulation of farm products. Under the household responsibility system, farmers could sell their surplus products after the contracted quotas were met. During the harvest season, many farmers found it more efficient to either sell the farm products at once to a middleman who would resell them at retail prices, or simply hire someone with a

vehicle to transport their goods to market. New trade and transport specialists have, therefore, emerged to take advantage of these new opportunities. Some individuals bought a tractor or motorcycle and became specialized in transporting goods. When travelling around the countryside of Nanhai, one can easily find a group of motorcyclists or tractor drivers waiting at the entrance of a rural village or town for possible transport jobs.

Diversification and specialization of agricultural production have also manifested themselves in the diversification of occupation for the peasant family. In the pre-reform era, all adult workers of a family had to work for the production team in order to get sufficient "working points" (*gong fen*) based on which grain would be allocated to the family by the team. Besides being part of the enduring process of involution, farmers had no other option regardless of talent or inclination. Under the Household Production Responsibility System, two people in the family, often the elderly and the housewife, can easily handle all the farm work on the field the household is allocated. Other family members, the husband and his sons or daughters, are free to take more lucrative jobs elsewhere. Consequently, it is not uncommon to find the members of a peasant family having a variety of occupations including farming, manufacturing, transport, construction and trading.

Along with the diversification and specialization of agriculture, traditional cultivation of rice has begun to enter a new stage of mechanization. In the pre-reform era, the mechanization of agriculture had made little progress despite the rhetorical campaign of the central government. Ironically, it was after the de-collectivization of the agricultural production system that the cultivation of rice became spontaneously mechanized. This process of agricultural mechanization can be illustrated by the development of the rural district of Liangjiao where I did my field work in 1992.

Located in the midst of a flat plain between the cities of Foshan and Guangzhou, Liangjiao *qu* (district) is traditionally an area for paddy rice production. It consisted of two villages and had a total population of 2,456 in 1992. The implementation of the Household Production Responsibility System in the early 1980s divided Liangjiao's 1,300 mu of cultivated land into small tracts for individual peasant households. While the de-collectivization of farming did provide incentives for farmers to work harder for higher personal gains, it made it difficult for an efficient utilization of the irrigation system and other agricultural machinery. In 1991, the leaders of Liangjiao *qu* decided to do a little experiment. From the existing cultivated land of 1,336 mu, they took 300 mu, one-tenth of the total, to form a large farm for rice cultivation. The farm was looked after by 12 experienced farmers who were good at rice production. A well-regulated irrigation system was built. High quality grain seeds were sown. Modern farming machinery imported from West Germany was used. The experiment turned out to be a great success, with a grain yield exceeding 500 kilograms per mu. The experimental farm was then expanded into a huge one covering an area of 1,000 mu (164.7 acres). For better management, an Agricultural Development Company was formed in 1992. The company hired 20 farmers who worked eight hours a day six days a week for a salary of 500 yuan a month. A bank loan was made available to the company by the Bank of Agriculture for purchasing machinery, grain seed, fertilizer, and for other farm infrastructure investment. The company signed a contract with the district of Liangjiao which required it to meet a grain production quota of 850 kilograms per mu. Anything produced above the quota could be retained by the company.

As a result of mechanized and intensive farming, the grain yield far exceeded the contracted quota by over 100 kilograms per mu in the spring crop of 1992 which transferred into a net income of 146,080 yuan for the company in the

first half of the year. With double cropping being practised, the company was able to make a net income of 290,000 yuan (US\$ 60,669) a year.

To what extent and in what manner has the process of agricultural restructuring contributed to the process of spatial transformation? My field investigation in Nanhai suggests that agricultural restructuring as part of the process of change did not act alone in creating major spatial patterns. Instead, it is the interaction of agricultural restructuring with rural industrial development that has shaped the spatial pattern of change in population redistribution and land use transformation. More specifically, agricultural restructuring has interacted with industrial development in the village and township levels in the following ways.

First, diversification and commercialization of agriculture have significantly raised rural income and provided substantial capital to facilitate rural industrial development. The financial advantage of cash-crop farming over rice cultivation has been remarkable. According to a survey conducted by the Agricultural Commission of Nanhai in 1986, rice cultivation could generate a net income of only 195 yuan per mu which was much lower than the net income generated by fish raising (546 yuan/mu), and sugar cane planting (303 yuan/mu), not to mention the growing of vegetables, fruit or flowers which normally produce a net income as high as several thousand yuan for the same area (Nanhai, Agricultural Commission, 1987: 10). The shift of production focus from traditional cheap grain to more profitable cash crops has, therefore, enabled the value of agricultural production to rise substantially. Rural per capita income rose sharply from 350 yuan in 1980 to 1,701 yuan in 1990. The income generated by peasants of Nanhai in 1990 on a per capita basis was significantly higher than either the regional average of the delta (1,288 yuan/person) or the provincial average of Guangdong (1,043 yuan/person). It was even higher than that of other

economically advanced counties such as Shunde (1,500 yuan/person), Dongguan (1,359 yuan/person) and Zhongshan (1,531 yuan/person).

With a growing peasant income, personal savings shot up from a total of 52.12 million yuan in 1978 to 1.658 billion in 1987. Per capita saving deposits rose dramatically from a 136 yuan in 1980 to 4,359 yuan in 1990 which again was much higher than the regional average of the delta (2,713 yuan/person) and the provincial average of Guangdong (1,205 yuan/person). Such sizable bank savings in combination with overseas remittances estimated at US\$69.72 million during the ten years of 1978-87, have provided a great amount of capital for investment in the industrial sector. In 1986, for instance, a total of 900 million yuan was provided through bank loans for the development of industries in the villages and townships of Nanhai (Byrd and Lin, 1990: 78).

Secondly, the specialization and mechanization of agricultural production have released a great number of surplus rural labourers who have turned to rural industry for employment. The intrusion of free market forces has greatly motivated peasants to increase labour productivity so as to maximize personal gain. Data from Nanhai have shown that labour productivity has, indeed, significantly improved since the reforms, with agricultural value per labourer rising from 1,005 yuan to 4,650 yuan at the 1980 constant price during the years of 1980-90 (Nanhai, Statistical Bureau, 1989: 5; 1991: 10). In the rural district of Liangjiao where I did my field work, before mechanization the farming of the available 1,336 mu required the entire labour force of 1,316 people, but after mechanization, cultivation of rice on 1,000 mu required only 20 experienced farmers. When these farmers and other administrative staff as well as emigrants were deducted, a total of 1,184 peasants, over 90 percent of the total labour force, were no longer needed in the farm (Dalizhen, 1992c: 5). For Nanhai as a whole, it was reported that by 1987, as many as 237,600 peasants, representing 65 percent

of its total rural labour force, had been removed from agricultural production (Zhao, 1988: 355). These unemployed peasants, who were not allowed to move into the city, had to find non-farm employment in the townships or villages of the countryside. Thus, the mechanization and specialization of agriculture have generated a large number of surplus rural labourers as potential manpower for the development of rural industries.

Thirdly, commercialization and mechanization of agriculture have raised peasant demand for more manufactured goods including not only agricultural equipment, machinery, and other supplies for production purposes but also many consumer products, such as motor cycles, televisions, electric fans, washing machines, and refrigerators. The influence of Hong Kong through radio and television has further stimulated a desire for modern consumer goods among the peasants of Nanhai. State factories in large cities were encouraged to meet this new demand, but after three decades of production following the Soviet model which overemphasized heavy industry, it is difficult for the big old plants in large cities to convert their machinery and retrain workers for the production of new consumer goods. By comparison, numerous small-scale rural industries can respond with greater speed and flexibility in spite of their unsophisticated technology. Thus, the increasing demand of peasants for new consumer goods has directly fueled the rapid growth of consumer industries in the countryside.

Finally, diversification and specialization of agriculture have revitalized the commercial function of small towns which are sparsely distributed over the countryside. As the surplus of the market-oriented farm goods increased, rural fairs and markets have not only been re-opened but also held more frequently than ever before to meet the demand of local peasants for buying and selling. The total value of market sales for Nanhai jumped from 326.25 million yuan in 1980 to 16.45 billion yuan in 1990 (Guangdong, Statistical Bureau, 1991b: 173). Many

markets are constantly expanding and some have begun to specialize in the trading of certain farm goods or commodities. For example, the poultry market in Dali *zhen* was one of the first and largest specialized markets in Guangdong Province. Its sales' volume reached 4,000 fowl and 13,000 kilograms of vegetables per day (Zhao, 1991: 169). The revitalization of the commercial function of small towns as a result of agricultural commercialization has become a significant impetus promoting the development of these towns.

It may be argued from the foregoing analysis that the diversification, specialization and commercialization of agriculture, which occurred at the grass-roots level of the peasant economy, have significantly contributed to the process of rural industrialization, although the restructuring of agriculture *per se* did not directly result in major spatial development. The two processes of agricultural restructuring and of rural industrialization have been so closely intertwined that it would be highly inappropriate to isolate one from the other. In this regard, the experience of Nanhai is distinct from that of other parts of the nation where market farming was unable to boost rural industrial development because of limited access to overseas international markets (Huang, 1990). Nanhai, however, has shared with other parts of the country in that industrial development at the village and township level has been the most powerful force directly shaping the spatial pattern of population redistribution, land use and town growth in the post reform era.

D. Rural Industrialization

The rapid growth of rural industry at the village and township level since economic reform has been a national phenomenon, but rural industrialization in Nanhai is distinguished by its magnitude and approach. As described by the local people, Nanhai is renowned for its distinct approach of "driving forward on five

wheels" which encourages a simultaneous industrial growth at all levels including county, township, district, village, and private partnership. Before the pattern of rural industrialization in Nanhai is assessed, it is necessary to clarify the local administrative structure as it has significant implications for the growth and distribution of rural industries.

The administrative system in Nanhai consists of five basic components ranging in a descending order from county (*xian*), township (*zhen*), administrative district (*guanli qu*), village (*cun*), and village community (*cunmin weiyuanhui*). Needless to say, the county (*xian*) is the top of the hierarchy with the highest authority in managing local economic affairs including personnel appointment, tax collection, and budget allocation. Next to county are a number of townships (*zhen*) which have recently been created to replace rural communes that existed in China from 1957 to 1984. On average, a township in Nanhai has a population of 55,000 and an area of 68 square kilometres. A typical township has a town seat which is normally accorded a designated town status, although the overall population and land area of the township are predominantly agricultural in nature. Below townships are several administrative districts (*qu*) formed in 1984 to replace brigades. A typical district has a population of several thousand and usually consists of a couple villages which were formerly production teams. At the bottom of the hierarchy are village communities (*cunmin weiyuanhui*) which are purely for census and organizational purposes. These communities have lost their economic functions as a result of the implementation of the production responsibility system.

In all, Nanhai had 17 townships (*zhen*), 242 administrative districts (*qu*), and 1,406 village communities (*cunmin weiyuanhui*) in 1990. Under this administrative framework, rural industries or village and township industries (*xiangzhen gongye*) are actually the descendants of former commune and brigade

industries (*shidui gongye*). The term "rural industries", however, is used in this thesis because it includes not only those industries that are owned by villages and townships but also those owned by private partnerships or individual households which have become increasingly important in the delta region, especially in Nanhai.

Small scale rural industry, as a means of aid to agricultural production, had existed in Nanhai before economic reforms were introduced in 1978, but such industries had never played a major role in the local economy. Under the then prevailing policy which overemphasized grain production at the cost of other nonfarm activities, the county government of Nanhai had even limited the growth of rural industries by ruling that commune and brigade enterprises should not hire more than 10-15 percent of the local labour force.

It was not until the early 1980s that rural industries were allowed to flourish in Nanhai. Incidentally in 1980, the county government of Nanhai noted that in one commune where industrial enterprises were tolerated and allowed to develop freely, peasant income had become higher and increased more rapidly than elsewhere. County officials reacted with a positive attitude encouraging commune and brigade enterprises to develop across the county. Local people quickly seized the opportunity, and one year later 71 percent of Nanhai's production teams started their own industrial enterprises (Byrd and Lin, 1990: 152). These industrial enterprises remained collectively owned until 1983 when the production responsibility system was introduced to decollectivize production. Many production team enterprises were leased or sold to individuals for private management. In that one year, the aggregate value of the fixed assets of production teams dropped from 158 million yuan to 134 million yuan while the value of privately-owned fixed assets rose from 16 million to 104 million yuan (Byrd and Lin, 1990: 152).

The privatization of industrial enterprises linked investment and labour input directly with personal gain and, thus, greatly motivated peasants to run factories efficiently and successfully. As a result, rural industries expanded rapidly to become a major pillar of the local economy. In March 1984, the commune-brigade-team system was officially dismantled and the "commune and brigade industry" (*shidui gongye*) was renamed the "village and township industry" (*xiangzhen gongye*) (Byrd and Lin, 1990: 11).

The growth of rural industry since the reforms and especially since 1984 has been spectacular. Nominal gross income generated by rural industry increased by over 13 times during the decade of the 1980s from 342.4 million yuan in 1980 to 4.67 billion in 1990 (Nanhai, Statistical Bureau, 1991: 13). The share of rural industry in the total industrial production of the county rose from less than a quarter in 1978 to 66.56 percent in 1991 (Nanhai, Bureau of Village and Township Industries, 1992: 3). In 1978, peasants who were engaged in industrial and sideline production accounted for 25.4 percent of the total labour force. By 1991, a total of 246,153 jobs had been generated by the rural industrial sector alone accounting for 60.88 percent of the total labour force in Nanhai. The tax revenue generated by the collectively and privately owned enterprises, most of them industrial, accounted for 70 percent of the total tax revenue of the county in 1988, far exceeding that of the state sector which was only 27 percent (Nanhai, Statistical Bureau, 1989: 72). Obviously, rural industry has become the backbone of the local economy and has played a decisive role both in meeting the rising demand for consumer goods and in competing with state-owned industry.

Rural industries developed in Nanhai were predominantly labor intensive and market oriented. By far the largest group of factories were in textiles and apparel, in which Nanhai has traditional strength. Since silkworm cocoon used to be a major agricultural product of Nanhai, it is not surprising to find that silk

processing and, later, the textile industry became the chief industry. The first modern silk mill in China was built in Xiqiao *zhen* in Nanhai at the turn of this century (Zhao, 1991: 45). By 1992 there were more than a thousand textile factories in Nanhai, with fixed capital assets of one billion yuan and over 20,000 textile machines (Yang, 1992: 8). These factories used a variety of materials including polyester fibers, cotton, and silk, and covered all phases of the production process. Their production capacity exceeded 200 million metres of cloth a year.

The next largest group of factories focused on metal manufacturing particularly aluminum processing. With technical assistance from Germany, Italy, and Japan, 82 factories for aluminum processing have been built since 1986, including a modern factory, only one of this type in southern China, producing thin aluminum metal (Yang, 1992: 9).

The third largest area of concentration was in ceramic tiles for which Nanhai has plenty of material resources and an excellent tradition of production. The expansion of ceramic tile production coincided with the booming of real estate in Guangdong and other parts of China, thereby opening a large market for this production. By 1992, Nanhai had 59 tile factories, over one hundred ceramic production lines, with a total production capacity of 50 million square metres of tile per year and a nationwide sales force (Yang, 1992: 9).

In addition to the above three sectors, there were numerous small factories which produced all sorts of household consumer goods such as toys, shoes, watches, cans, wine, electric fans, and micro-waves. Most of the production was to satisfy the growing demand of domestic markets, but some products, particularly toys and shoes, were manufactured based on capital investment and technology from Hong Kong and were mainly for export.

There are several features associated with the development of rural industries in Nanhai. First, many factories in the villages and townships were

fairly small. Data obtained from local authorities indicated that there were 10,865 industrial enterprises at the village and township level in 1991. These industrial enterprises varied in size and type, but, on the average, a factory employed only 22 workers which is fairly small by Chinese standards (Nanhai, Bureau of Village and Township Enterprises, 1992: 5). This small size made it difficult to achieve economy of scale. It has, however, allowed for great sensitivity and adaptability to changing market demands. Geographically, these small-sized factories can be located almost anywhere as they do not require massive infrastructure investment. Thus, it is not uncommon to find small factories dotted across the countryside, sometimes in the middle of rice fields.

Secondly, while rural industries have flourished at all levels of the rural-urban hierarchy since the reforms, they have emerged primarily from the grass-root level of the countryside. When the production of rural industries is broken down according to the four major ownership forms classified by local authorities, industrial enterprise at the village level has stood out as the leading player in production and in employment generation (Table 4-1). Enterprises developed by townships, individuals, and private partnerships have done their share, but lag behind the contribution of village enterprises. When other enterprises, whether state-owned, foreign-owned or joint ventures, are included for comparison, the contribution of village industrial enterprises to total industrial production remains outstanding. They produced 40 percent of the total industrial output value in 1991, far more than either the 14 percent share of the state sector, the 38 percent of the township enterprises, or the 6 percent of the foreign firms or joint ventures (Nanhai, Statistical Bureau, 1992: 44). Such a pattern of production suggests that industrial development in Nanhai is primarily shaped by the enterprise of rural villages. It also suggests, from the production perspective at least, that the chief player of rural industrialization was neither the state sector, nor the privately

Table 4-1. Industrial Ownership Structure
for Nanhai, 1991 (%)

Ownership Type	Output Value	Income	Employment
Township	39.02	38.60	28.04
Village	44.73	44.95	46.67
Partnership	4.30	4.36	7.64
Individual	11.95	12.09	17.65
Total	100.00	100.00	100.00

Source: Nanhai, Bureau of Village and Township Enterprises, 1992: 1-52.

owned individual enterprises, but the collectively owned village industries. This pattern appears to challenge the normal perception of the state as chief agent of development in a socialist context. It also contradicts the idea that the decollectivization and privatization of agricultural production will lead the private sector to take over the peasant economy.

Thirdly, the development of rural industry in Nanhai is essentially spontaneous and self-sustained, driven primarily by local initiative. Capital investment in the rural industrial sector was largely mobilized from local resources through a number of channels. The local branches of the Agricultural Bank of China held the bulk of household saving deposits of the county. It has provided considerable number of bank loans to rural communities for the setting up of industries. It was estimated that during 1980-86, the Bank of China lent US\$7.8 million, mostly short term, to rural industrial enterprises in Nanhai (Byrd and Lin, 1990: 78). In 1986, rural industries in Nanhai obtained a total 900 million yuan of bank loans through various channels (Byrd and Lin, 1990: 78).

Remittance from friends and relatives in Hong Kong and overseas have also contributed to capital investment in the rural industrial sector. By contrast, the state was not actively or directly involved in the financing of rural industrial development in spite of its rhetoric encouragement. In fact, the state contributed only 16 percent to the total investment in fixed assets in 1991. The remaining 84 percent was realized by collective and private sectors through various local initiatives (Nanhai, Statistical Bureau, 1992: 76). With regard to raw materials, local people have reported that they no longer depend on state planning for needed raw materials and that mandatory state plans cover only one-eighth of their total industrial output (Byrd and Lin, 1990: 399). Even the technology and production methods were obtained by local people through their contacts with firms in Hong Kong and overseas. Thus, except for being a property owner who maintains the

power of tax collection and personnel appointment, the state has contributed little to the provision of capital, technology or raw materials for rural industrial development. It is local initiative, mainly at the village level, that has driven the process of rural industrialization.

E. Spatial Transformation

The rapid growth of rural industries in Nanhai has significantly facilitated the process of structural and spatial transformation. The most remarkable effect of industrial development in the countryside has been the creation of employment to absorb surplus rural labour released from agricultural production as a result of increased labour productivity. It was reported that during 1985-91 an average of 13,534 jobs were created each year by rural industries to accommodate surplus rural labourers (Nanhai, Bureau of Village and Township Enterprises, 1992: 3). Whereas in 1978, 40 percent of the agricultural labour force were unable to find jobs outside agriculture, by 1986 Nanhai had, for the first time in its history, found shortage so that outside workers had to be recruited to control rising labour costs resulting from this shortage (Byrd and Lin, 1990: 316-317). Consequently, Nanhai was changed from a county of out-migration because of underemployment in the pre-reform period into a destination favoured by immigrants. When the first national population census was conducted in 1982, Nanhai recorded a net population loss of 1,382 people. This pattern reversed in 1990 when immigrants out-numbered emigrants by 99,893 people (Nanhai, Population Census Bureau, 1992a: 22). The peasant economy of Nanhai was, thus, fundamentally transformed from one of underemployment, or what Philip Huang called "involutionary growth," into one of growing wealth, improved labor productivity, and abundant employment opportunities, or "transformative development"

(Huang, 1990: 13, 18). The driving force underlying this process was clearly rural industrialization.

More importantly, the development of rural industry in Nanhai enabled a growing number of peasants to "enter the factory without moving into the city" (*jinchān bújinchēng*) or "leave the soil but not the village" (*lìtú búlìxiāng*). According to population census data obtained from Nanhai, the occupational structure of the local population in 1982 used to be predominantly agricultural. A great majority (58.85 percent) of the population was engaged in agricultural production and the number of factory workers accounted for no more than 29 percent. Eight years later in 1990, the situation was fundamentally changed. The proportion of factory workers in the total population jumped from 29 percent to 41 percent whereas the agricultural share dropped from 58.85 percent to 38.94 percent (Nanhai, Population Census Bureau, 1992a: 52). Obviously, there was a substantial increase in the number of factory workers at the expense of agricultural labourers. In other words, a considerable number of farmers left the soil and entered the factory. It should be noted that most of the peasants who have entered factories continued to live in the countryside as is evident when the number and proportion of factory workers are compared with those of town residents. According to the 1990 population census, while there were 248,672 factory workers in Nanhai, 41 percent of its total population, there were only 172,557 town residents, 16.85 percent (Nanhai, Population Census Bureau, 1992a: 26, 52). Clearly, the number of factory workers had far exceeded the total number of town residents. The excessive number of workers must be those who worked in the factories outside of the towns. As town residents were not entirely engaged in manufacturing, the actual difference between the total number of factory workers and those workers who resided in the towns must be substantial. Thus, a considerable number of factory workers actually worked and lived in the

countryside. This finding is consistent with that of the previous analysis which revealed that township enterprises accounted for only a small portion of the industry in Nanhai and that the focus of industrial development was in the rural villages. This pattern suggests that the success of industrial development in the countryside was able to deter a massive flow of the rural exodus into the city. It has further suggested that rural industrialization is a crucial factor that explains why there is no significant population concentration in the large cities of Zhujiang Delta despite rapid industrial development.

The development of rural industry has also contributed to changes in land use. As manufacturing is perceived as a desirable activity that can generate more jobs and higher income than rice cultivation, a considerable amount of farmland has been transformed into paved industrial sites. It was reported that during the years of 1982 to 1990, a total of 3,597.15 acres of farmland were taken by nonagricultural development. Of this lost farmland, industrial expansion accounted for about 32 percent, transport development about 21 percent, residential land use 19 percent, and other construction purposes the remaining 26 percent (Chen L., 1992: 5). Industrial development stood out as the leading sector responsible for most, albeit not all, of the loss in agricultural land.

It is not possible to show exactly how much industrial land expansion was in the countryside and how much was in towns. It is known, however, that most factories were built in rural villages rather than in existing towns. Of the 11,109 industrial enterprises that have been built, 10,524 or 94.7 percent were found in or below the village level (Nanhai, Statistical Bureau, 1992: 44). Most of these factories were located either at the entrance of a village or along the highway that passes by the village as such locations allow for the easy transport of both raw materials and finished products. Some of them could be found on the edge of the village immediately next to rice fields. By building a factory locally within the

jurisdiction of the village, factory owners, i.e., peasants of the village, were able to save a considerable amount of land rent required for city or town sites. As well, such a location was easily accessible to the local villagers who have entered the factory but not the city.

As a result of rapid industrial growth at the village level, there is a growing mixture of land use by the industrial and agricultural sectors in the countryside. Rural industrialization has, thus, gradually created a new landscape wherein industrial and agricultural or urban and rural land uses stand side by side, leading to a blurring of the rural/urban distinction. From a regional perspective, the experience of Nanhai tends to suggest that rural industrialization is one of the most important factors underscoring the pattern of land use change identified in the previous chapter where the transformation of land use in the Zhujiang Delta region was found to be taking place more in the countryside than in the cities.

In addition to changes in population distribution and land use, rural industrialization in Nanhai has created some significant environmental consequences which have usually been neglected by Chinese scholars and planners who are already overwhelmed by environmental problems in large cities. As revealed in the analysis above, industrial production in Nanhai was mostly on a small scale with unsophisticated technology for simple manufacturing. Many of these factories did not have the necessary facilities and advanced techniques for the proper treatment or recycling of industrial waste simply because the factories were too small to afford such modern facilities. The location of these factories, which is virtually in the "grey area" of the countryside where environmental regulations were much looser than in the city, has further accentuated unregulated and untreated disposal of industrial waste. Moreover, as hazardous and polluting industries were no longer tolerated in large cities, Nanhai, which is a suburban county immediately next to the cities of Foshan and Guangzhou, has

increasingly become a major target for relocation by heavily polluting industries including sugar refining, cement production, textile printing and dying, electroplating and aluminum processing. Consequently, much of the Nanhai area has been treated as a dumping ground for various waste materials generated by industrial production.

An early survey conducted by the local environmental agency revealed that in 1988 industrial production in Nanhai released a total of 4,166.3 tons of sulfur dioxide, nitrous oxide, carbon dioxide, and particulates into the air (Nanhai, Environment Monitoring Station, 1989: 69). The emission of these hazardous materials skyrocketed to 60,737.56 tons in 1990 as a result of the rapid growth of rural industry (Nanhai, Environment Monitoring Station, 1991: 33). At the same time, the amount of waste water discharged from industrial production jumped from 52.7085 million tons to 135.637 million tons from 1988 to 1990 (Nanhai, Environment Monitoring Station, 1989: 70; 1991: 34). Most of the waste gas emission came from the combustion of poor quality coal which provided almost all the energy and electric power for rural industry. The waste water was generated primarily by those factories that were involved in sugar refining, paper pulp processing, textile dying, and electroplating. Such waste water was often released directly into streams which provided water for rice or vegetable fields and even into fish ponds without proper treatment or purification, thereby leading to serious contamination of farmland and crops. In *Lidong qu* (district) of *Dali zhen* (township), for instance, among the 90 mu of fish ponds, 70 mu were contaminated. On the average, one out of every five mu of cultivated land in Nanhai was found to have been contaminated (Guangdong, Foshan, and Nanhai, Joint Team, 1989: 16-17).

Similarly, increasing waste gas emission has caused severe air pollution and resulted in some damage to the local ecosystem. Among others, acid rain has been

reported to occur more frequently than ever before, with the frequency of occurrence rising significantly from 1.6 percent in 1986 to 17.49 percent in 1990 (Nanhai, Environment Monitoring Station, 1989: 6; 1991: 4). Some of these ecological changes caused by the devastating action of industrial development could be irreversible and disastrous.

While rural industrialization has brought with it considerable wealth for the peasants of Nanhai, it has, simultaneously, degraded the environmental quality of life for the local people and reduced the sustainability of the environment for further economic expansion. Given the fact that the local economy is currently at an upswing and that people of Nanhai are all preoccupied with seeking higher profits at any cost, it is unlikely that they will stop exploiting natural resources or make sacrifices to preserve a sustainable environment for the sake of the future generations. On the contrary, as industrial and agricultural production continue to expand, natural resources and the environment will have to suffer ever further to satisfy the ever-growing demand of the local people for wealth and consumer goods. Therefore, rural industrialization in Nanhai, which is essentially unplanned, small scale, and intimately related with the natural environment, has been and will continue to be one of the most powerful forces changing not only the space economy of the region but also the natural ecosystem for human habitat.

4.3. Summary

The Chinese peasant economy has been fundamentally transformed since economic reforms were initiated in 1978. While it is generally known that the reforms have brought much wealth and prosperity for Chinese peasants, the operating mechanism of this process and its subsequent spatial and environmental consequences remain little understood. This case study of Nanhai reveals that the

transformation of the peasant economy in the Zhujiang Delta was characterized by two simultaneous processes: agricultural restructuring (i.e. commercialization, specialization, and mechanization) and rural industrialization. These two processes are found to be so closely intertwined that it would be highly inappropriate to isolate one from the other.

Although the penetration of global market forces has led many profitable non-agricultural activities to assume an increasingly important position in the peasant economy, agriculture as a traditional economic sector was not completely conquered by the newly-emerging, modern, urban-based industries. Instead, the experience of Nanhai demonstrated that agriculture there was able to be restructured to meet the growing and diversified demands of the market. Consequently, agriculture has not only continued to exist but also become so prosperous that a considerable financial surplus was accumulated which, in turn, was used to boost rural industrial development, leading to the formation of what some local Chinese scholars called "a double dualist structure" wherein agriculture and industry, urban and rural sectors stand side by side (Zhao, 1991: 185).

Unlike the experience of countries in Southeast Asia where the persistence of agriculture as an economic sector for survival was due to the fact that industrial expansion was unable to keep pace with population growth, the persistence and recent development of agriculture in Nanhai are primarily shaped by such factors as a well-established farming tradition, excellent natural endowment, and, most importantly, easy access to the large urban markets in Hong Kong, Guangzhou, and Foshan which have kept market farming a profitable activity for the local people. In this regard, the experience of Nanhai has been significantly different from that of other parts of China, such as the lower Yangtze Delta, where market farming contributed little to the improvement of the peasant economy possibly because of limited access to overseas international markets (Huang, 1990).

While the commercialization of farming has contributed to higher household income and personal savings for peasants, rapid industrial development in the countryside is found to be the most powerful force directly responsible for much of the structural, spatial and environmental changes that have occurred in Nanhai. By creating a great number of factory jobs, rural industries have absorbed a substantial amount of surplus farm labour released by agricultural production. In this manner, rural industrialization has fundamentally transformed the peasant economy of Nanhai from one of prolonged involutory growth, or growth without development, into one of unprecedented genuine development. Rapid industrial development in the countryside has also enabled many local peasants to "enter the factory but not the city" thus preventing a massive rural exodus and corresponding urban influx. Spatially, the flourishing of numerous small-scale industries in the countryside has facilitated rapid encroachment of industrial development over valuable farmland, leading to a mixture of intensive land uses between agricultural and industrial production or rural and urban activities. The primitive nature of such industrial development and its "hidden" location in the countryside have favoured an unfriendly or devastating treatment of the natural environment which has caused serious damage to the local ecosystem.

The recent phenomenal growth of production in both market agriculture and rural industry is primarily a result of the state's relaxed control over the peasant economy of Zhujiang Delta, not a consequence of any active government intervention. Statistical data from Nanhai have clearly indicated that the state sector or publicly owned enterprise accounted for only 16 percent of total capital investment, 13 percent of industrial output value, 28 percent of employment, and 27 percent of the total tax revenue (Table 4-2). The private sector was not the chief economic player either as its contributions to local financing, industrial

Table 4-2. Sectoral Composition for the Local Economy of Nanhai, 1991
(%)

Items	State Sector	Colletive Sector	Private Sector	Total
Capital Investment ¹⁾	16.62	63.98	19.40	100.00
Employment ²⁾	28.39	62.74	8.87	100.00
Industrial Output Value ³⁾	14.22	71.42	14.36	100.00
Tax Revenue ⁴⁾	27.46	60.11	12.43	100.00

Sources:

1) Nanhai, Statistical Bureau, 1992: 76.

2) Nanhai, Statistical Bureau, 1992: 100.

3) Nanhai, Statistical Bureau, 1992: 6, 54. Raw data are in 1990 constant price.

The private sector includes joint ventures whereas the collective sector includes all collectively owned enterprises in towns and villages as well as those in partnership.

4) Nanhai, Statistical Bureau, 1989: 72. Data are for the year of 1988.

production, employment, and tax revenue were smaller than either those of the state sector or the collective units.

Ironically, it is after the de-collectivization or privatization of agricultural production that many co-operative organizations were formed spontaneously, based on mutual interests, to initiate development in the countryside. This is especially evident in Nanhai where many collectively-owned or partnership enterprises have been set up to pursue "crop cultivation on a sizeable scale" (*nongye shidu guimo jingying*), to run industrial and commercial enterprises, and to coordinate agricultural and industrial production by "using industrial income to subsidize rice cultivation" (*yigong bu'nong*). The important role of these collective organizations in the local economy can be seen from the statistical data listed in Table 4-2 which shows that the collective sector contributed to Nanhai 64 percent of total investment, 63 percent of employment, 71 percent of industrial output value, and 60 percent of total tax revenue (Table 4-2).

In view of this unique pattern, it may be argued that a new type of peasant economy, motivated primarily by local community (village) initiative and shaped by free market forces, is gradually taking shape in the Zhujiang Delta. Consequently, many features of structural and spatial transformation of the delta region identified in the previous chapter can be attributed more to the spontaneous development of this local-based, market-oriented peasant economy than to the intervention of the state or active participation of the central government.

CHAPTER FIVE. "ECONOMIC PROSPERITY COMES FROM THE CONSTRUCTION OF ROADS": DEVELOPMENT OF THE TRANSPORT INFRASTRUCTURE

5.1 Introduction

In the study of the growth dynamics of regional development in the Zhujiang Delta since the 1980s, much scholarly attention has been directed to the process of economic reform in the countryside and the consequences of the newly implemented open door policy (Xu and Li, 1990; Lo, 1989; Yeh, 1989; Johnson, 1992; Leung, 1993). In contrast, the role of transport development in the process of spatial transformation has been relatively overlooked probably because large scale construction of the transport infrastructure is a fairly recent phenomenon and detailed data were not yet available for systematic assessment. Transport development, however, is a critical factor underlying many of the spatial changes that have occurred in the delta region.

From a theoretical perspective, despite the scholarly debate about the nature of the relationship between transport investment and economic development, it is generally believed among geographers and planners that transport development is a key element of spatial change which, by reducing the "friction of distance" or "collapsing time and space", has direct effects on the process of spatial reorganization, in particular the concentration and specialization of economic activities and the suburbanization of human settlements (Janelle, 1969: 348-364; Abler, 1975: 35-56; Brunn and Leinbach, 1991:). More specifically, transport improvement was identified by Gottmann, McGee and many others as a necessary condition for metropolitan development which has been taking place not only in the United States but also in many Asian countries (Gottmann, 1961: 632; McGee, 1991: 16-17). It was also considered by others as

the key force that has shaped the growth and transformation of major development corridors in North America and the Pacific Rim (Whebell, 1969: 1-26; Rimmer, 1990; Yeung and Lo, 1992). Given the fact that the Zhujiang Delta region has exhibited many features of metropolitan development such as high population density, great mobility of people and goods, intensified rural-urban interaction and the emergence of corridors along major transportation arteries, it would be of theoretical importance to examine to what extent and in what manner transport development has facilitated the process of spatial transformation in this region.

The recent development of a transportation infrastructure in the delta region has also pointed to the importance of the transport sector as a key element of spatial change that deserves special investigation. Although there is no systematic data to show the magnitude of transport development and its spatial consequences in the delta region, data at the provincial level do suggest that the construction of transportation facilities has since the mid-1980s become the top priority of the province's development agenda (*Yangcheng wangbao*, 1992, March 3; May 27; June 4; *Renmin ribao*, 1992, June 8; *Jingji changkao*, 1993, March 7). Investment in transportation and telecommunication, for instance, jumped from 337 million yuan in 1978 to 4.69 billion yuan in 1991 and then skyrocketed to 8.8 billion yuan in 1992 (Guangdong, Statistical Bureau, 1985: 201; 1992a: 238-246; *Renmin ribao*, 1992, June 8). Such investment represents a 13-fold net increase during the years of 1978 to 1991, thereby outpacing the 9-fold increase of total investment in the province. Consequently, the share of the transportation and telecommunication sector in the province's total capital investment rose from 15.9 percent in 1978 to 21.8 percent and moved to the rank second among all 13 economic sectors (Guangdong, Statistical Bureau, 1992a: 246).

Most of the infrastructure investment was directed to the Zhujiang Delta region which is traditionally the core of the province. As a result, the existing highway system of the delta region was extended by 3470 kilometers in the 1980s, a total of 30 deep-dock harbours were constructed, six new airports were built, and modern telecommunication systems with direct access to major international networks were installed in most cities and counties (*Renmin ribao*, 1992, December 24). In addition, an American style freeway connecting Hong Kong, Shenzhen, Guangzhou and Macao, at an estimated investment of US\$1.2 billion, is now under construction (Chinese News Agency, 1992, February 29, No. 12632, p. 4). Such massive investment in transportation infrastructure is unprecedented in the history of the delta region, and has created a major effect on the spatial patterns of population movement, land use change, and human settlement distribution. In light of such fascinating developments, it would be inadequate to explain the features of spatial transformation, identified in Chapter Three, without an assessment of the role of transport development in this process. Transport development is an essential element of spatial change that should not be ignored if one is to understand the operating mechanism of regional development in Zhujiang Delta.

This chapter attempts to examine the role of transport development in the process of spatial transformation that has been taking place in the Zhujiang Delta since the 1980s. As systematic data on transport development are not available for the entire delta region, this assessment will be carried out based on a detailed case study of Panyu where development in its transportation infrastructure in recent years has been considered by many local Chinese researchers as the most noteworthy among the counties of the delta. The chapter will begin with a contextual analysis of existing economic and geographic conditions of Panyu. Attention will then be turned to the rapid development in the transportation

infrastructure of the county in recent years. This will be followed by an assessment of the impacts of such development on economic growth, migration, and land use transformation. The chapter will conclude with a summary of the major findings of this study.

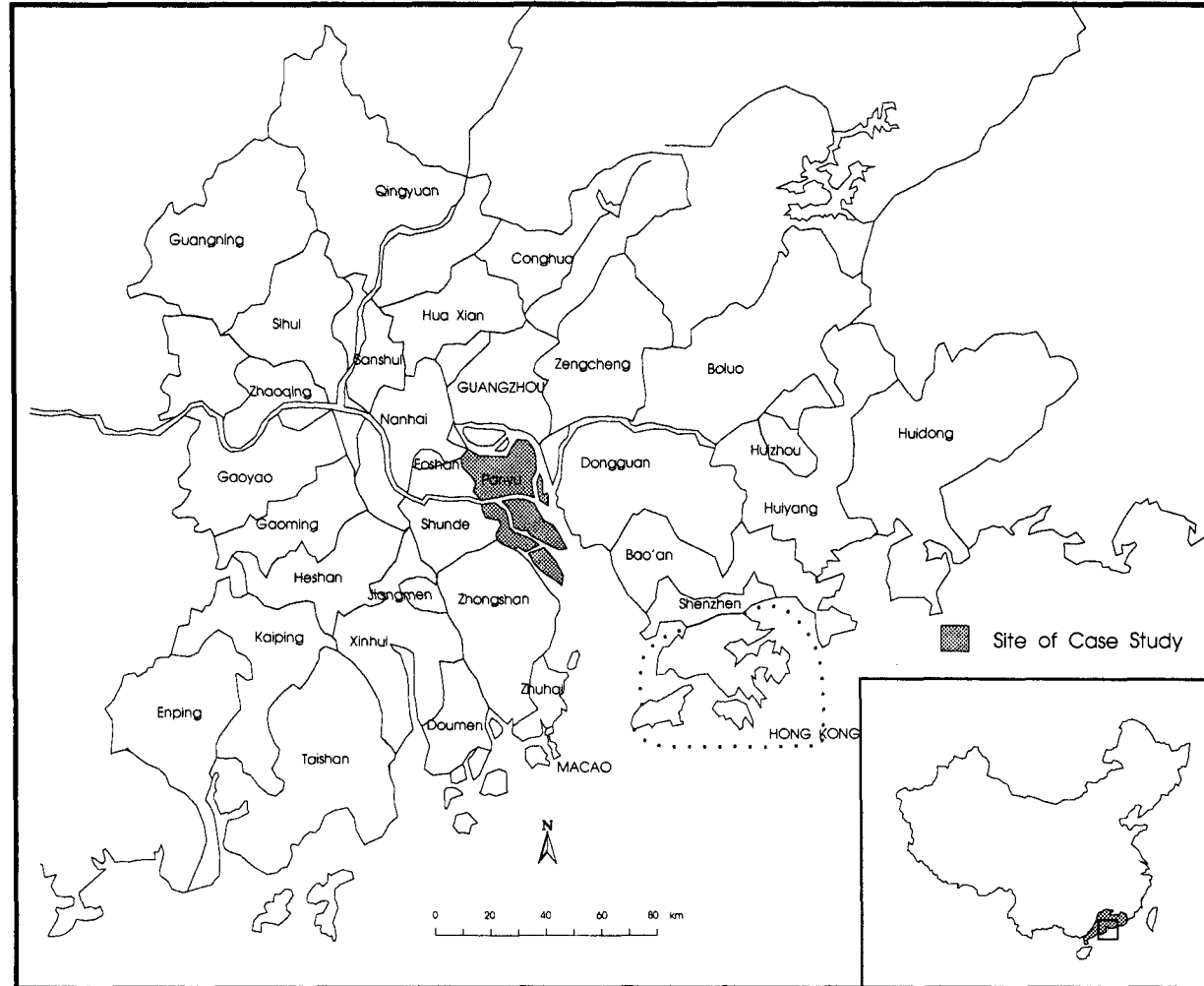
5.2. A Case Study of Panyu

A. Historical and Geographic Background

Among the cities and counties of the Zhujiang Delta, Panyu has been considered by many local Chinese scholars as the most typical case illustrating a major development dimension of the region wherein heavy investment in the transportation infrastructure is seen as indispensable and instrumental to the initiation of economic growth. The physical geographic setting of Panyu closely resembles the general situation of the whole delta region. Instead of being an extensive piece of flat plain, Panyu is divided by many rivers and streams (Figure 5-1). The existence of an overwhelming water body in Panyu has manifested itself in the areal composition of the county's territory. It was estimated that rivers and streams of various size occupied as much as 35 percent of the total area of Panyu in 1980, which was extraordinarily higher than the provincial average of 0.58 percent (Panyu, 1983: 8; Guangdong, Statistical Bureau, 1981: 3). Such a physical environment divided by many rivers and streams has significant implications for the economic development of the county.

For centuries, the existence of abundant ground water has been a favourable natural endowment for Panyu. It presented a good natural resource for irrigation and enabled year-round farming with double cropping. More importantly, the streams crisscrossing Panyu have provided a cheap and easy means of transportation for marketing local products. Such easy accessibility to

Figure 5-1. Location of Panyu Shi



water transportation was extremely beneficial to the growth of the local economy during ancient times when railways and highways were not available and waterways were the predominant means for the interregional movement of goods and people.

Historical records show that when the Han Chinese first migrated to the delta from North and Central China, they moved in through the Si (West) River and settled down in northern Panyu as early as the Chin Dynasty (214 B.C.), more than 2200 years ago (Panyu, Office of Place Record, 1989:1; *Panyubao*, 1992, June 19; Zheng et al, 1991: 44-48). This has made Panyu one of the earliest established counties in Guangdong Province. Although Panyu used to contain Guangzhou, which separated from Panyu and became an independent city in 1921, the new Panyu remains one of the earliest established regions in the delta. Along with Nanhai and Shunde, Panyu has long been a part of a distinct, economically-advanced area under the name of "*NanPanShun*" even after Guangzhou separated from it. While easy water transportation was not the sole factor that shaped the long course of Panyu's historical development, its contribution to the establishment and prosperity of Panyu in its early stage of development was, nonetheless, noticeable.

This natural endowment of water transportation, originally an economic advantage, became a serious obstacle hampering further development of the local economy since the 1970s when quick and convenient door to door highway transportation took prevalence in the delta region. Increasingly, the interregional movement of goods and people, especially the movement of goods between the delta and its export outlet of Hong Kong, has shifted away from the traditional waterway transportation to modern railways, highways, and seaports with container facilities for mass and rapid transportation. Panyu's reliance on waterways as the chief transportation means proved to be relatively uncompetitive

not only in attracting new investment from foreign and domestic sources but also in marketing local products. Moreover, Panyu's geography, with the land being cut-up by rivers and streams without efficient connection of bridges, made it difficult for the road network to meet modern infrastructure standards in terms of efficiency, fluidity and flexibility. Consequently, economic growth in Panyu was stagnant for years even after new, favourable economic policies were introduced in 1978. Whereas Panyu used to stand side by side with Nanhai and Shunde as the most economically advanced counties in the delta, it has lost its position since the late 1970s and has been replaced by other places such as Zhongshan and Dongguan which have excellent oversea connections (Wang et al, 1991). Because it was unable to keep moving ahead along with its former partners of Shunde and Nanhai, Panyu was given a bad name by the local people as "the land of standstill" (*wuodidi*).

The people of Panyu became increasingly puzzled by the inability of their county to maintain its leading economic status like their neighbours of Nanhai and Shunde which shared a similar starting point and social political context. It did not take long for local officials to discover that the poor transportation infrastructure was the key factor, albeit not the only one, that underscored the stagnant growth of the local economy. The government of Panyu, therefore, became determined in the mid-1980s to improve fundamentally the road transportation infrastructure of the county.

The commitment of the local government to transport development was also motivated by a clever recognition of the important potential inherent in Panyu's geographic location. Incidentally, Panyu is situated in the geometric center of the delta region. It borders the provincial capital of Guangzhou in the north, stretches along the Pearl River estuary in the east, and bridges the west and east wings of the delta. More importantly, local officials recognized the fact that once a good

road network was established, Panyu could very well become the regional hub of road transportation for the entire delta because Panyu is actually the shortest route for interregional traffic between the hinterlands of the delta and Hong Kong which is, virtually, the chief economic core of the region (Figure 5-1). The Guangzhou-Hong Kong-Macao super-highway, now under construction, will cut through and intersect in Panyu. Thus, despite the unsatisfactory economic performance of Panyu in the 1970s and early 1980s, local officials saw great potential owing to the central location of the county. To realize such potential, however, would require much investment in building a modern road network accessible to both inter-regional and intra-regional economic linkages.

B. Transport Infrastructure Development

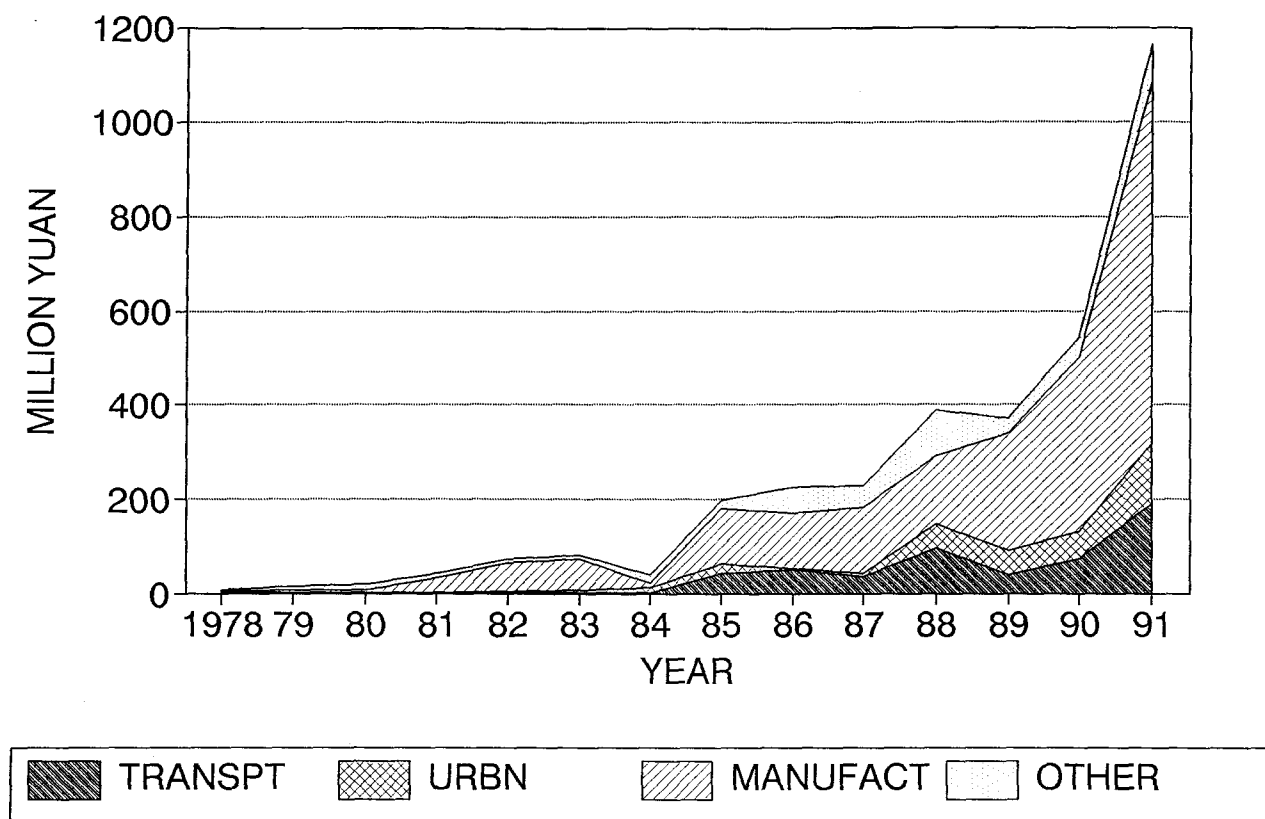
Once transport improvement was identified as the key to reinvigorating the local economy, all possible efforts were made, primarily by the local government, to achieve its development goal. The slogan of "economic prosperity comes from the construction of roads" (*lutong caitong*) began to appear in the headlines of newspapers, at major construction sites, and at the entrances of towns and villages. A team of professional planners, architects and civil engineers from the provincial institute of planning was invited and paid by the county government of Panyu to draw up a blueprint for its development, first in 1989 and once again in 1992. To minimize the bureaucratic procedure needed for decision making and policy implementation, a special official organization named "Directive Department for the Construction and Management of Roads and Bridges" was established and located in the centre of the county capital of Shiqiao *zhen* in 1985. These measures were taken almost entirely by the local government and were to help create an environment conducive to transport development. The most

effective action, however, that had direct impact on transport improvement was the mobilization and allocation of sizeable investment funds.

Data on transport investment are piecemeal and, in many cases, strictly confidential which makes it difficult to give a systematic assessment of such development. Nevertheless, information obtained from various channels does suggest that the transport sector has, in recent years, become the chief recipient of capital investment. An estimated 900 million yuan (US\$188 million) was invested in the transport sector during the years of 1980 to 1991 (*Panyubao*, 1992, June 19 and June 26). In 1992, when the field work for this thesis was conducted, I was informed by local officials that 280 million yuan (US\$ 58 million) was directed to improving transportation infrastructure in Panyu in that one year alone.

When the changing composition of local budget allocation is assessed, the transport sector clearly stands out as the most significant segment of change, rising from the bottom of the list to the second highest position, thus leading most economic sectors in receiving construction funds (Figure 5-2). The amount of capital allocated to the transport sector increased from a mere 40,000 yuan in 1978 to 191.84 million yuan in 1991. It recorded an average annual increase of 91.93 percent, much higher than the growth rate of total fixed-asset investment at 43.52 percent (Guangzhou, Statistical Bureau, 1989: 395; 1992: 173-174). Figure 5-2 shows the changing pattern of fixed asset investment from the public sector of Panyu. It is clear that the local budget allocation of Panyu before 1984 favoured the manufacturing sector, traditionally seen as the key to generating employment and income. By contrast, the transport sector was almost completely ignored in the allocation of construction capital. Since 1984, however, the transport sector has quickly emerged to occupy a prime position in local budget allocation. Although the manufacturing sector remains the number one priority on the list, the fact that the transport sector shot up from a neglected position to the second

Figure 5-2. Changing Composition of Fixed Asset Capital Investment in Panyu, 1978-91



Note:

TRANSPORT stands for the sector of transportation and telecommunication, URBAN for urban construction, and MANUFACTURE for manufacturing. OTHER refers to sectors including water supply and weather services, construction and survey, commerce and trade, education and health care, and other investments which are not classified in the statistics of the Chinese local expenditure.

Sources:

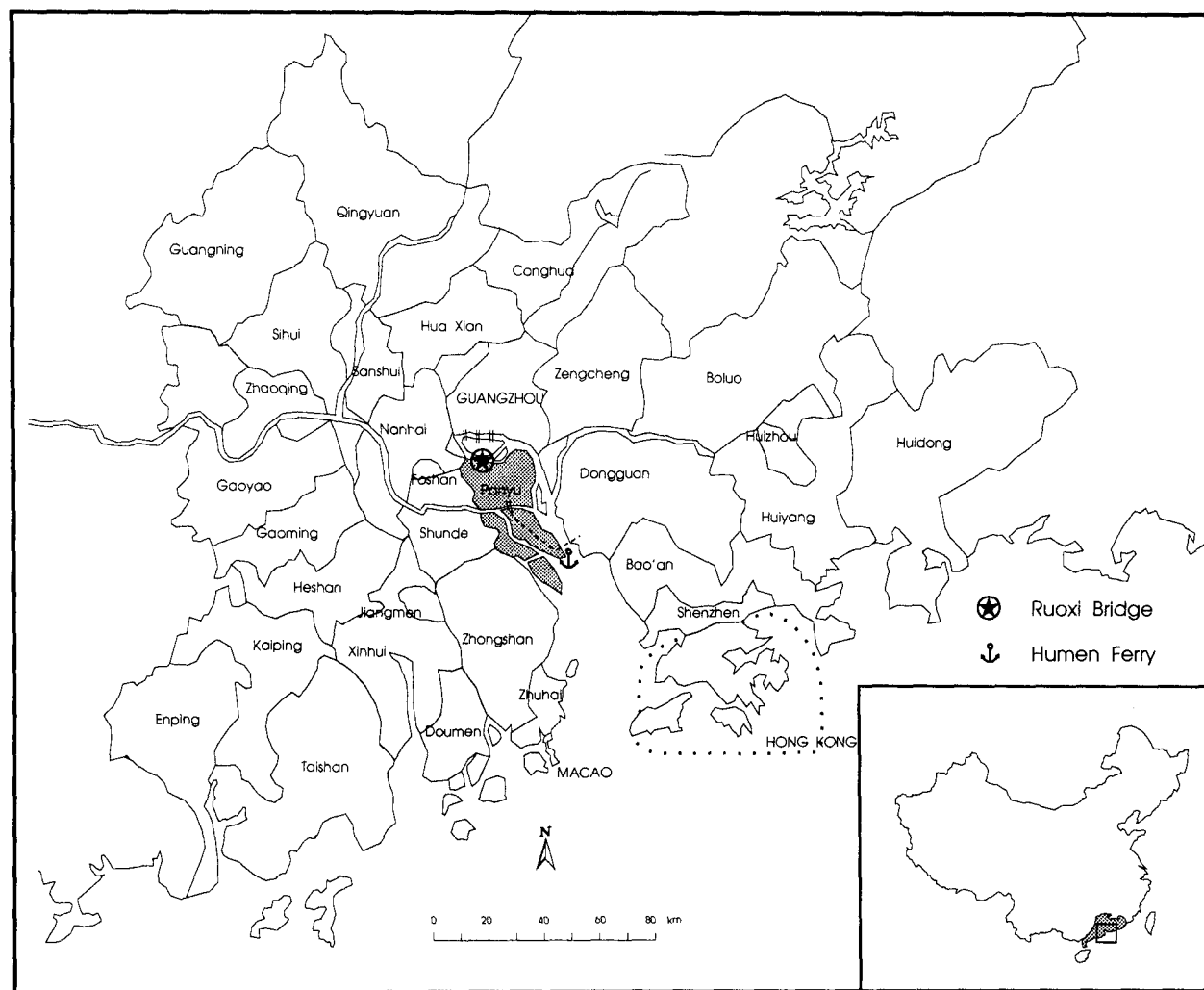
Guangzhou, Statistical Bureau, 1989: 395; 1990: 222-229; 1991: 166-168; 1992: 173-174.

highest priority in budget allocation testifies the commitment and determination of Panyu's officials to overcome the "friction of distance" over space. The emphasis of investment in the transport sector has also become a special feature of Panyu that distinguishes it from other places in the delta region. Data obtained from the provincial authority have shown that per capita transport investment was significantly higher in Panyu than in almost all other counties of the delta region except for the two special economic zones of Shenzhen and Zhuhai and the cities of Guangzhou and Jiangmen (Guangdong, Statistical Bureau, 1987: 205-210).

Much of the capital investment in transportation was directed to the construction of bridges and highways. It was reported that a total of 153 new bridges were built from 1980 to 1991 (*Panyubao*, 1992, June 19 and 26). Simultaneously, the existing highway system was reconstructed and substantially extended by a total length of 434 kilometres, much more than the extensions of the past three decades (226 kilometres) (*Panyubao*, 1992, June 19 and June 26). In addition, several new harbours were built including two equipped with container facilities.

Of all transport developments, two mega projects have played a crucial role in creating a transactional environment for Panyu. The first one involves the construction of a bridge named *Ruoxi* which connects Panyu with Guangzhou (Figure 5-3). For decades, Panyu was separated from the urban center of Guangzhou by the Ruoxi River which is a major branch of the Pearl River. The road transportation link between Panyu and Guangzhou, interrupted by the river, was connected by a ferry with limited moving facilities. Visitors to Panyu in the early 1980s frequently found cars, buses and trucks lining up at both ends of the ferry with frustrated drivers and passengers complaining about the inefficient transportation. Although Panyu was a suburb county immediately adjacent to Guangzhou, not more than 15 kilometres apart, it normally took more than two

Figure 5-3. Key Transport Projects in Panyu Shi, 1986-90



hours to travel from the bus terminal of Guangzhou to the county capital of Panyu. In recognition of the fact that the Ruoxi River is indeed a natural obstacle hindering the free movement of goods and people between Panyu and Guangzhou, local officials decided to build a bridge to connect the two sides of the river. The project started in 1985, the year when investment in the transport sector began to shoot up. A total of 91 million yuan, mostly in bank loans, was invested in the construction. The Ruoxi Bridge, 1,916 metres long with space for four lanes (15.5 metres wide), was completed three years later in August 1988. This bridge is designed as a toll bridge with user fees for the repayment of the bank loans for its construction. The building of the Ruoxi Bridge has significantly reduced the travel time between Panyu and Guangzhou from two hours to less than one hour, leading to what Janelle called "time-space collapse" between the two places. Such a process of time-space convergence has many economic and spatial consequences which will be discussed in the next section.

The second project of transport construction that has been and will be even more instrumental to the creation of a transactional environment not only for Panyu but also for the entire Zhujiang Delta region is the establishment of Humen Ferry and eventually Humen Bridge in the southern end of Panyu (Figure 5-3). As previously discussed, Panyu is potentially a transportation hub linking much of the hinterland in the west wing of the delta region directly with the Shenzhen Special Economic Zone and the export outlet of Hong Kong. Such great potential was fully recognized by local economic planners who have since the mid-1980s explored the possibility of bridging the two wings of the delta at Panyu. After consultation with civil engineers at the provincial level, it was decided that a ferry be established at the southeast corner of Panyu to connect the county with Humen *zhen* of Dongguan (Figure 5-3). The project was funded jointly by Panyu and three Hong Kong companies including millionaire Henry Fok, a countryman of

Panyu. It started on August 8, 1989 and was completed in May 1991 (*Panyubao*, 1992, June 26).

The establishment of Humen Ferry, complemented by several dozen newly-built bridges along major highways, has fundamentally improved the accessibility of Panyu for interregional transportation. Almost immediately after its opening, Humen Ferry began to draw much interregional traffic away from Guangzhou because the ferry provides a short cut to those who travel between the west wing of the delta and Hong Kong, reducing the distance between Hong Kong and such places as Jiangmen, Xinhui and Shunde by 178 kilometres (Panyu, Urban Planning Section, 1992). While the building of Ruoxi Bridge enabled the local people to overcome the "friction of distance" between the county and the urban centre of Guangzhou, the establishment of Humen Ferry has resulted in a spatial convergence between Hong Kong and its hinterland of the delta region.

Interestingly, the opening of Humen Ferry has created up a further demand for interregional transportation which is beyond the ability of the local government of Panyu to satisfy. It was reported that in 1992 an average number of 10,000 vehicles managed to get across the Humen Ferry every day, far exceeding the ferry's technically-designed capacity to carry 3000 vehicles per day. The demand for access through Panyu and, particularly, to the Humen Ferry has been so high that the provincial government of Guangdong has stepped in to explore the possibility of replacing the ferry with an extraordinarily long bridge to connect both sides of the mouth of the Pearl River. It was finally announced by the Governor of Guangdong on May 27, 1992 that a bridge, to be called Humen, will be built between Nansa *zhen* of Panyu and Humen *zhen* of Dongguan. A total of 1.6 billion yuan (US\$ 334.7 million) has been raised to fund this mega project which is expected to be completed in 1995. The bridge, designed to be 16 kilometres long, 60 metres high, 6 lanes wide, and connected with freeways, will

be the largest bridge ever built in the province, with a capacity 100,000 vehicles per day (*Panyubao*, 1992, May 29). Obviously the construction of Humen Bridge will further enhance the role played by Panyu as the hub of road transportation in the Zhujiang Delta region.

The development of this transportation infrastructure has necessarily involved a substantial amount of capital investment as many construction projects are essentially capital intensive whose short term economic return can not be anticipated. Therefore, it will be interesting to see how such a sizeable amount of capital was raised and who were responsible for it. Unfortunately, existing data do not allow a detailed examination of capital formation for each transportation project. Nevertheless, statistical data for the public expenditure of Panyu do provide significant insights on how the capital from various sources contributed to the recent infrastructure development in Panyu.

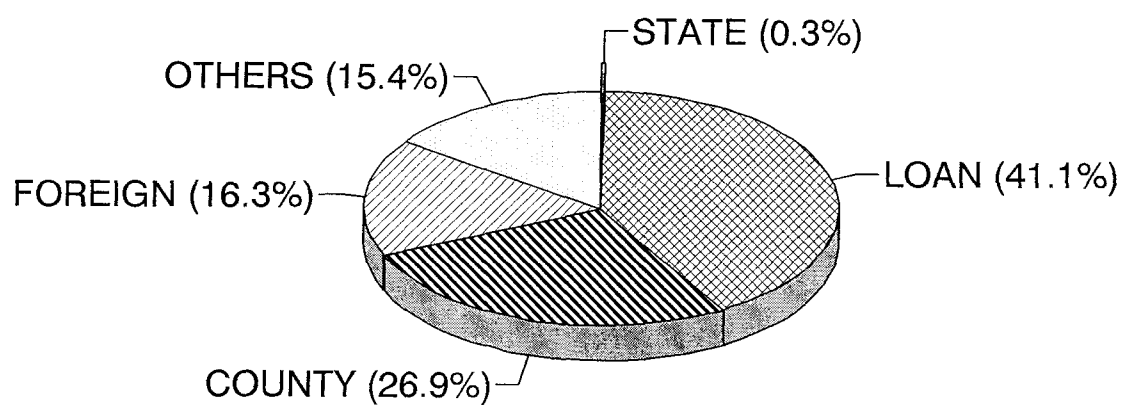
In Chinese statistics, investment in the transport sector is usually classified under "fixed asset investment" (*guding zichan touzi*) in the sense that such "fixed assets" can hardly be removed once constructed. In a manner similar to production, fixed asset investment in the Chinese context normally consists of three segments: public, collective, and private sectors. Although the collective and private sectors have become increasingly important in both production and investment since the reforms, current investment structure in Panyu remains dominated by the public sector (*quanmin suoyiaozhi*) because almost all transport facilities or "fixed assets" such as railways, highways, ports, bridges and ferries are constitutionally owned by the "whole people" (*quanmin*). Data have shown that of all fixed asset investment in Panyu in 1991, the public sector contributed 71.51 percent, more than the combined investment of the collective and private sectors (Guangzhou, Statistical Bureau, 1992: 162).

Does the dominance of the public sector in the investment of fixed assets mean that most capital was provided by the state or central government which is generally regarded as the economic representative of the public sector? A close examination of the sources of fixed asset capital reveals that even under investment by the public sector, the state actually contributed little to the formation of fixed asset capital in Panyu. As shown in Figure 5-4, the amount of capital made available through the state budget accounted for only a negligible portion of 0.3 percent of the total capital raised by the public sector. Most of the capital was mobilized through bank loans (41 percent) and the county budget (27 percent). Foreign capital also contributed a significant 16 percent of the total capital. This pattern of capital formation clearly suggests that the chief funding agent for fixed asset investment is not the state or central government. Instead, it is the local government that has played the leading role in mobilizing a substantial amount of capital through various channels. Consequently, the construction of the transportation infrastructure, which is the mainstay of fixed asset development, appears to owe more to local initiative than to the state in spite of the fact that most transportation facilities are constitutionally public or state owned. From a conceptual point of view, the experience of Panyu, where transportation infrastructure development is primarily a result of local initiative rather than state intervention, appears to contradict the conventional wisdom of socialist development which normally assumes the state as the chief player of urban and regional development. This finding is also consistent with those discussed in Chapter Four on the process of transformation of the peasant economy.

C. Economic and Spatial Consequences

The motives driving the economic planners of Panyu in investing so heavily in transportation infrastructure were obviously to ignite the engine of economic

Figure 5-4. Formation of Public-owned Fixed Asset Capital
Investment in Panyu, 1991 (%)



Note:

The five identified categories represent the following sources of funding:
STATE--budgetary allocation from central, provincial, and municipal (Guangzhou) governments. LOAN--loans obtained by the local governments from banks in China. FOREIGN--capital obtained from foreign countries, Hong Kong, Taiwan, and Macao. COUNTY--capital mobilized from local sources. OTHERS--other funding sources.

Sources:

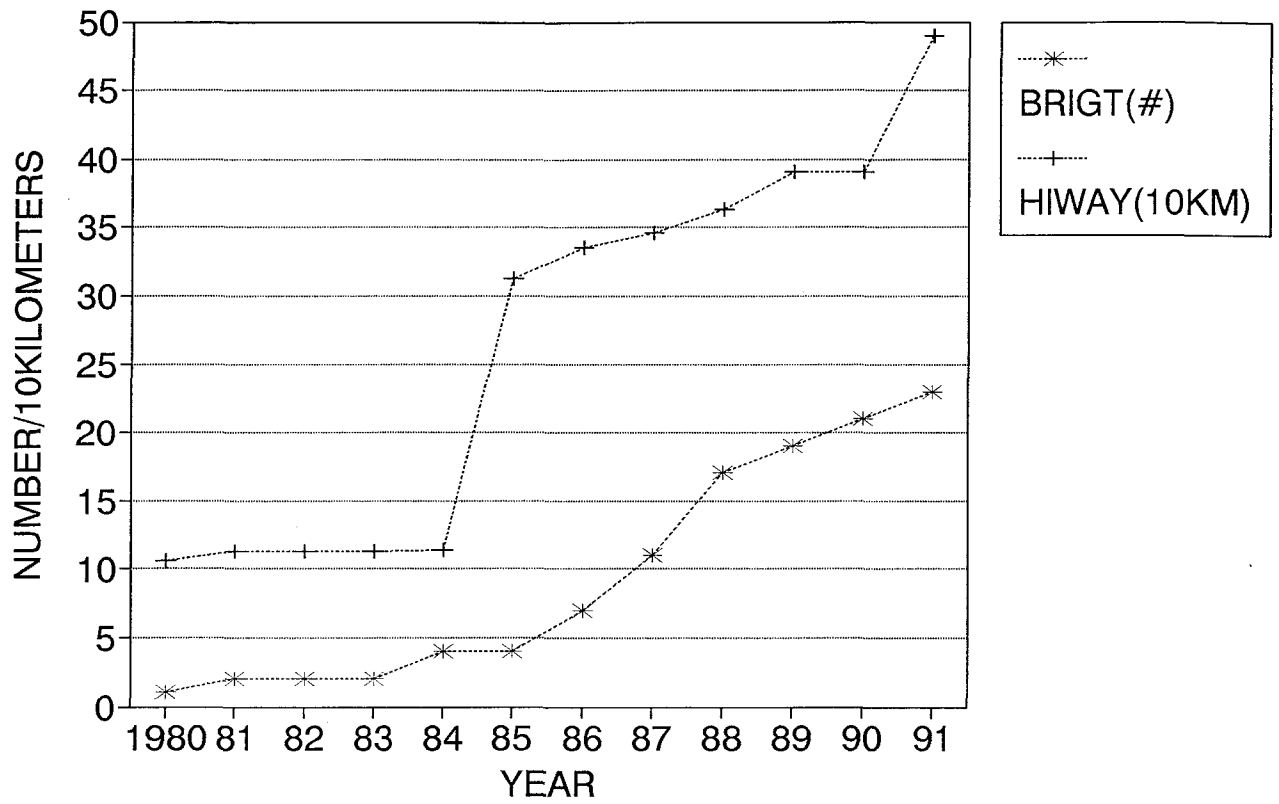
Guangzhou, Statistical Bureau, 1992: 199.

growth, to attract greater overseas investment, and to pull Panyu out of stagnation so that it could rejoin the ranks of the economically advanced counties. To what extent have these goals of development been fulfilled? How significant has the development of the transportation infrastructure been in facilitating the transformation of the space economy of Panyu? The following section assesses the economic and spatial consequences of transport development during the past ten years based on an analysis both of available data and of observations gained from field surveys.

As has been discussed in the previous section, heavy investment in the transportation infrastructure of Panyu did not occur until 1985 when capital investment in the transport sector recorded an unprecedented net increase of 37.6 million in one year and the rank of the transport sector in local budget allocation was raised from the sixth to the second position (Guangzhou, Statistical Bureau, 1989: 395). Most of the investment was directed to the construction of bridges and highways. It is, thus, not surprising to find that the mileage of highways in Panyu was substantially extended by 199 kilometres in 1985 alone, more than double the total length of all highways that had been constructed in Panyu's history (Figure 5-5). As for bridge construction, a dramatic increase in the number of bridges occurred in 1986, but the construction of new bridges actually took place one year earlier in 1985. Thus, the year of 1985 stood as a turning point for both investment in the transport sector and construction of transport facilities. It was after 1985 that transport development began to emerge as a notable force shaping Panyu's space economy (Figure 5-5).

With the time framework for transport development clarified, it is now possible to assess how and to what extent such a development has affected the transformation of Panyu's space economy. As the year of 1985 marked the beginning of heavy investment in the transportation infrastructure, one possible

Figure 5-5. Development of Highways and Bridges
in Panyu, 1980-91



Note:

BRIGT(#) stands for the number of bridges and HIWAY(10KM) for the total length of highways in ten kilometers.

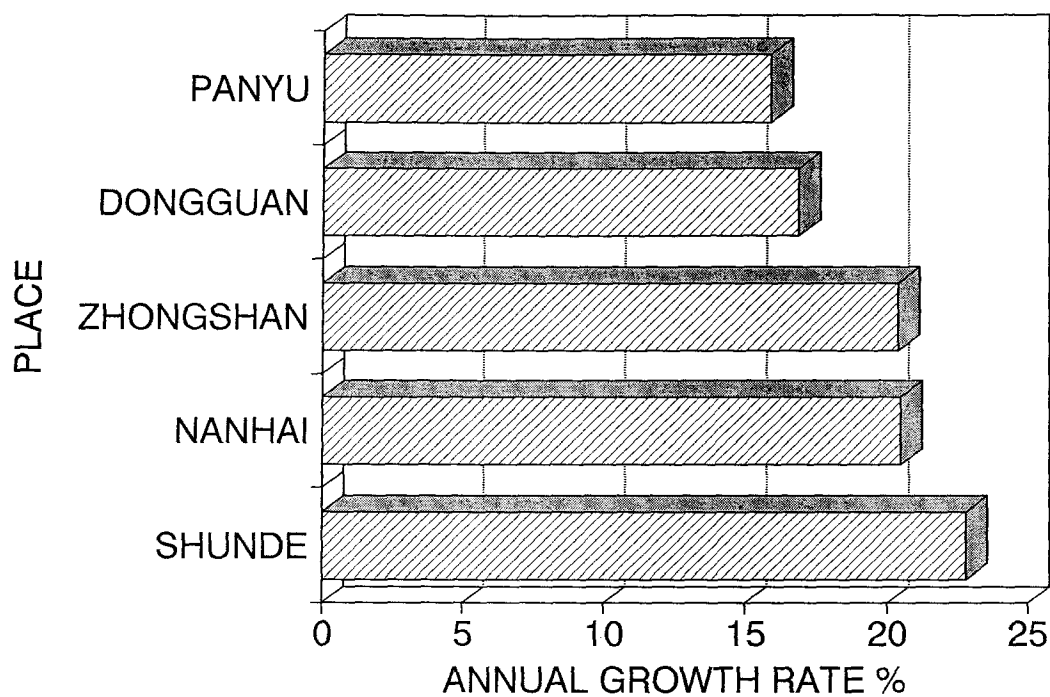
Sources:

Panyu, Statistical Bureau, 1989: 36; 1992: 71.

way of assessment is to compare economic growth in the periods before and after 1985 to see if transport development has really facilitated growth in the local economy. The most common index for economic growth in Chinese statistics is the production of Gross Value of Industrial and Agricultural Output (GVIAO). Data have shown that industrial and agricultural output production of Panyu grew at an annual rate of 15.94 percent during the years of 1980-85 before heavy investment in the transport sector was initiated (Guangdong, Statistical Bureau, 1992b: 99). This growth rate was significantly lower than that of Shunde, Nanhai, Zhongshan and Dongguan which were traditionally counterparts of Panyu (Figure 5-6). It was even slower than the regional average of the Zhujiang Delta which recorded 16.75 percent increase in GVIAO per annum in the same period (Guangdong, Statistical Bureau, 1992b: 65). Obviously, the economic performance of Panyu was less than ideal before 1985 when large scale transport development was initiated. It should be stressed that this pattern of stagnant economic growth existed in spite of the fact that economic reforms and the open door policy had been implemented for six years beginning in 1979.

When Panyu entered the second half of the 1980s, its production of industrial and agricultural output increased at the unprecedented rate of 32.38 percent per annum, more than double its growth rate in the previous period (Guangdong, Statistical Bureau, 1992b: 99). Whereas in the previous period in economic growth Panyu was left behind by many of its counterparts, it now jumped to the leading position not only in the delta region, which grew at an average rate of 29 percent annually, but also in some of the economically advanced counties such as Shunde, Nanhai, and Zhongshan (Figure 5-7). While this incredible growth of industrial and agricultural production might be attributed to social, economic, and geographic factors, the fact remains that fundamental improvement in the transportation infrastructure, which was a feature of the

Figure 5-6. Annual Growth of GVIAO* for Panyu
in Comparison with Other Economically Advanced Places, 1980-85 (%)



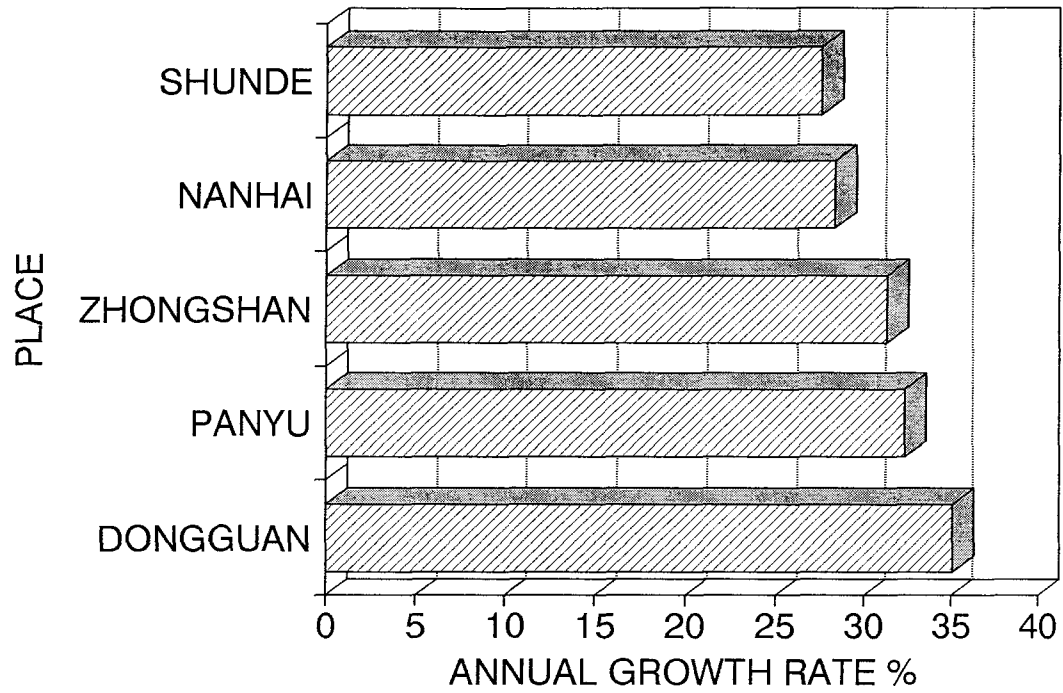
Note:

* GVIAO stands for Gross Value of Industrial and Agricultural Output. Raw data are in 1980 constant price.

Sources:

Guangdong, Statistical Bureau, 1992b: 99,135,139,171, and 175.

Figure 5-7. Annual Growth of GVIAO* for Panyu
in Comparison with Other Economically Advanced Places, 1985-91 (%)



Note:

* GVIAO stands for Gross Value of Industrial and Agricultural Output. Raw data are in 1980 constant price.

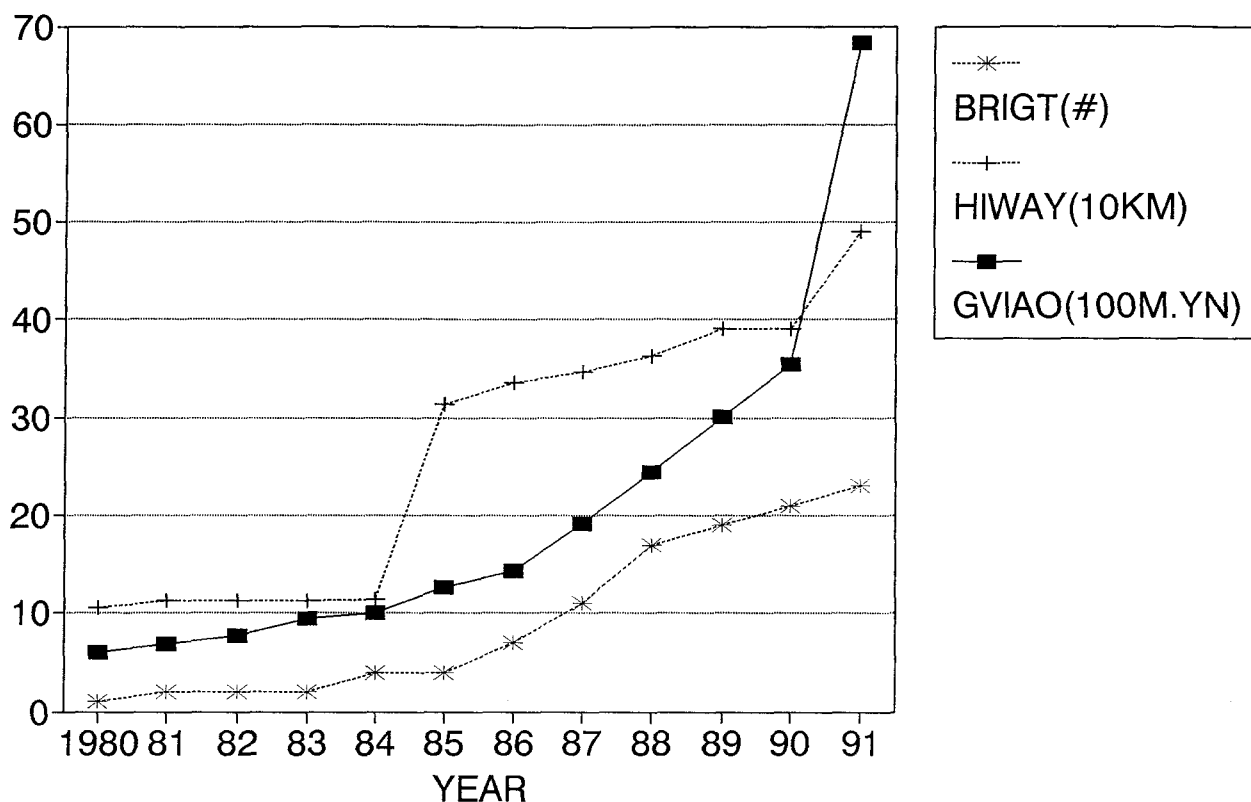
Sources:

Guangdong, Statistical Bureau, 1992b: 99,135,139,171, and 175.

development strategy adopted by the local economic planners since 1985, has significantly contributed to the transformation of Panyu from "a land of standstill" into a place of accelerated development. The positive relationship between transport development and economic growth is also revealed by a statistical analysis of Pearson Correlation Coefficients which shows significant correlations between the growth of GVIAO and the increase of transport investment ($r=0.94$), the number of bridges built ($r=0.89$), and the mileage of highways extended ($r=0.82$).

It appears that transport development in Panyu is a crucial driving force, albeit not the only one, that has facilitated the take off of the local economy. But in what manner has transport development interacted with economic growth? Does it occur prior to, after, or simply side by side with the expansion of the local economy? To better understand this development process, statistical data for the production of industrial and agricultural output (GVIAO), the amount of bridge construction (BRIGT), and the mileage of highway extension (ROLNT) were plotted in Figure 5-8 for analysis. The variable of GVIAO was selected because it is the most commonly used index for economic growth in China for which historically comparable data are available. The other two selected variables represent the construction of bridges and of highways which has been the focus of transport development in Panyu since the mid-1980s. The resultant picture of growth tends to suggest that while the expansion of Panyu's local economy in terms of industrial and agricultural production has been generally consistent with the improvement in transportation facilities particularly highways and bridges, the tempo of change in production did not fit neatly into either the increase in the number of bridges or the extension of highways. A closer examination of the process of growth reveals that a lag relationship exists between the construction of transport facilities and the expansion of industrial and agricultural production. As

Figure 5-8. Growth of GVIAO and Transport Development
in Panyu, 1980-91



Note:

BRIGT(#) stands for the number of bridges, HIWAY(10KM) for the total length of highways in ten kilometers, and GVIAO(100 M.YN) for Gross Value of Industrial and Agricultural Output in 100 million Yuan in 1980 constant price.

Sources:

Panyu, Statistical Bureau, 1989: 36; 1992: 71.

Guangdong, Statistical Bureau, 1991b: 30,32.

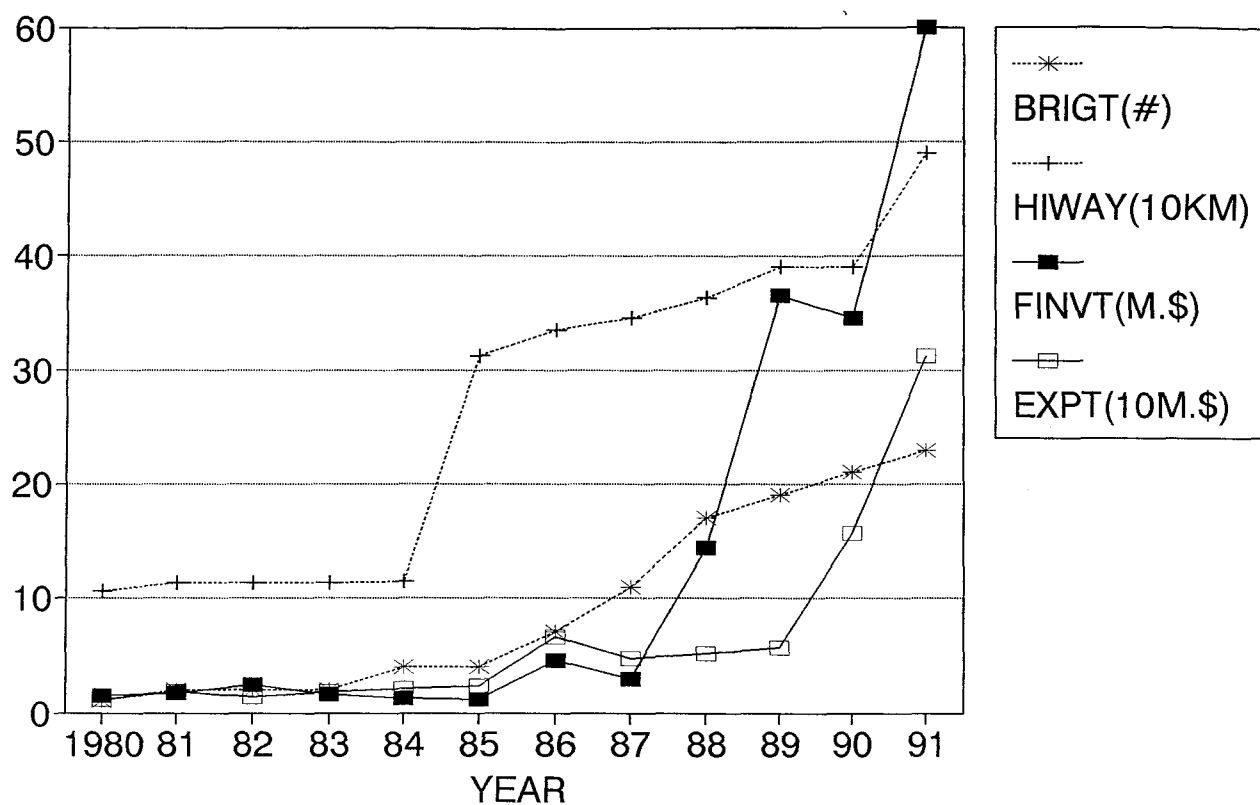
can be seen from Figure 5-8, clearly the turning point for highway extension was in 1985. A significant increase in the number of bridges, although not as dramatic as that of highway extension, occurred in 1986. It should be noted, however, that construction for most of the new bridges which were opened in 1986 actually took place at least one year earlier. This pattern of growth is consistent with that of the increase of investment in the transport sector which started right in 1985 (Figure 5-2).

While heavy investment in the transport sector and large scale construction of highways and bridges took place in 1985, industrial and agricultural production did not make a remarkable increase until 1987. In other words, the turning point for the growth of production occurred two years later.

A similar "lag" relationship is found existing between transport development and the growth of foreign investment as well as export production. As shown in Figure 5-9, both the growth of foreign investment and of export production in Panyu had been stagnant during the first half of the 1980s in spite of the fact that the open door policy was implemented as early as 1979. It was not until 1986 that both foreign investment and export production started to move upward. The first turning point for the growth of both foreign investment and export production was clearly marked in 1986 which was one year after the 1985 commencement of massive transport construction.

The "lag" relationship that existed between transport development and economic growth in Panyu has significant theoretical implications. Assessment of the economic impact of transport development has since the 1970s tended to emphasize its permissive role whereby the expansion of transportation facilities is seen as a subsequent response to economic needs rather than an independent force that will induce new economic activities (Gauthier, 1970: 613; Taaffe and Gauthier, 1973: 200; Hoyle and Hilling, 1984: 4; Leinbach and Chia, 1989: 3).

Figure 5-9. Growth of Foreign Investment and Export Production
as Related to Transport Development in Panyu, 1980-91



Note:

BRIGT(#) stands for the number of bridges, HIWAY(10KM) for the total length of highways in ten kilometers, FINVT(M.\$) for realized foreign investment in million US dollars, and EXPT(10M.\$) for export output value in ten million US dollars.

Sources:

Panyu, Statistical Bureau, 1989: 36; 1992: 71.
Guangdong, Statistical Bureau, 1991b: 32.

This permissive perspective of the role of transport development may be valid for economically advanced countries, but may not necessarily hold true for cases such as Panyu where economic growth is still in the infant stage. The experience of Panyu, where economic development has long been impeded by the lack of an efficient road transportation network, tends to suggest that the expansion of transport facilities may occur prior to rather than following the dramatic growth of the local economy. It is the improvement in the transportation infrastructure that has created a transactional environment conducive to the inflow of foreign investment, increase of export, and growth of manufacturing and agricultural production.

The dramatic growth of the local economy of Panyu since the mid-1980s as a result of improvement in transport facilities has also provided an explanation for the distinct feature of economic growth of the Zhujiang Delta where the increase in of economic production in the suburban counties has outpaced that of the central cities as described in Chapter Three. With its suburban location immediate to the central city of Guangzhou, Panyu is essentially an ideal place not only for industrial dispersion from Guangzhou but also for setting up manufacturing branches subordinate to major plants in the central city. This potential geographic advantage was not, however, fully explored before 1985 because of the inefficient transportation link between Panyu and Guangzhou. With the improvement in the road transportation infrastructure, particularly the construction of Ruoxi Bridge which substantially reduced the travelling time between Panyu and Guangzhou, it became feasible for Panyu to supply industrial materials that were needed in the central city. Such a development was reinforced by the fact that manufacturing expansion in Guangzhou has in recent years been constrained by the problems of urban congestion and environmental pollution (Lin, 1986).

A great number of factories have been set up in Panyu to produce manufactured parts for assembly in Guangzhou. This is especially evident in Dashi *zhen* located on the border between Guangzhou and Panyu. Dashi, formerly separated from Guangzhou by the Ruoxi River, has since the building of the Ruoxi Bridge in 1988 emerged as a satellite town of Guangzhou. Many branch factories were established with headquarters in Guangzhou for the production of a variety of manufactured materials including parts of refrigerators, computers, cameras, electric fans, and washing machines. As a result, the output value of industrial production has shot up from 70.67 million yuan in 1988 to 1.18 billion yuan in 1990, a net increase of 47.09 million yuan or 67 percent in two years (Panyu, 1992, interview). This pattern of growth suggests that improved efficiency in the transportation network of a suburban county such as Panyu is one of the crucial factors that has contributed to the growth of the Zhujiang Delta, a growth characterized primarily by an accelerated expansion of economic production in the suburban areas.

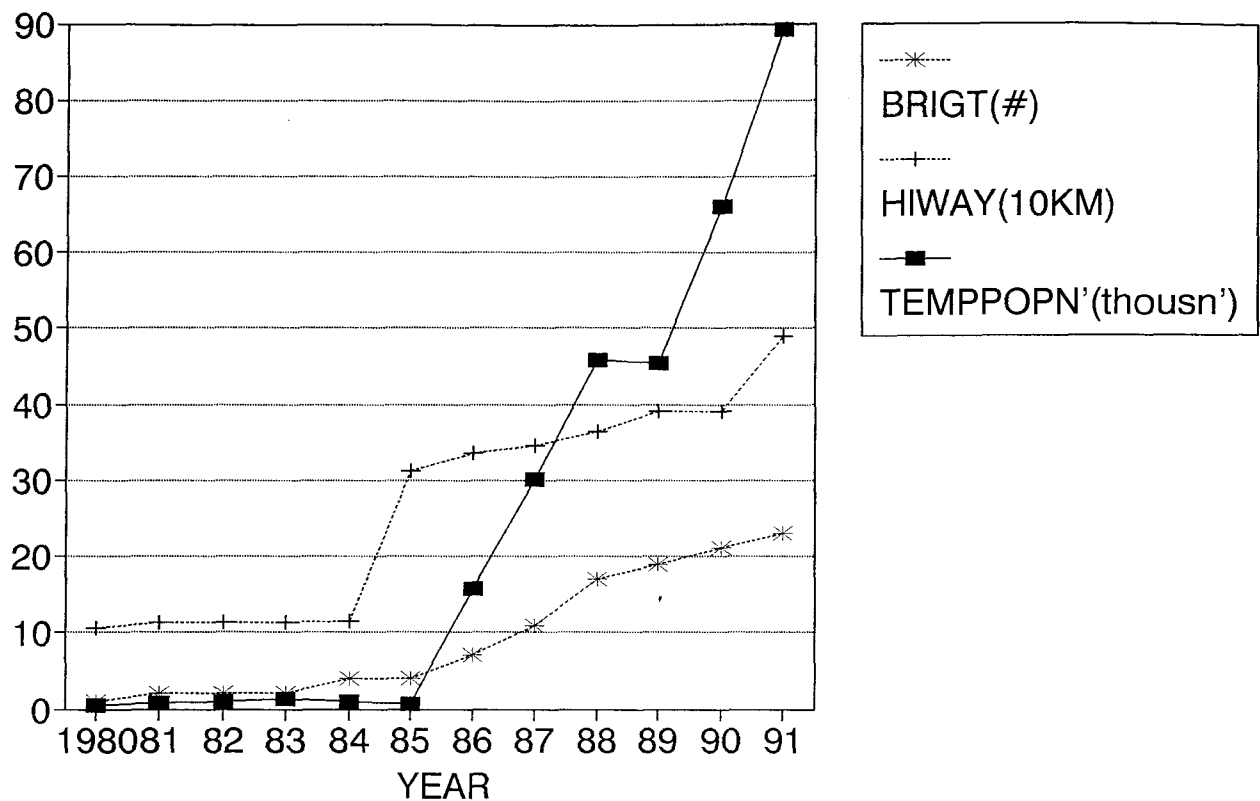
Improvement in the road transportation infrastructure has also significantly increased the accessibility of Panyu and attracted a growing number of immigrants. With its close proximity to and improved transport connections with Guangzhou, Panyu has since the mid-1980s become a favoured destination for migrants transferring from the large city of Guangzhou where new immigrants could not stay because of official restriction on city-ward migration. Many new immigrants were from the less developed interior provinces such as Sichuan, Hunan, and Anhui. Most of them came with the dream of making a fortune in Guangzhou, but once they arrived they realized that there was almost no possibility of their staying not only because of constant threats of deportation by city authorities but also because of the fact that accommodation was extremely difficult to find. Consequently, many of these immigrants, assisted by fellow

countrymen who had developed an incredibly well-organized underground network, were able to transfer through the railway station at Guangzhou to nearby suburban counties such as Panyu. A majority of these immigrants were young girls aged 16 to 25. They were further assisted and introduced to possible employers and were able to find jobs as factory workers, baby sitters, waitresses, secretaries, dealers, or even prostitutes. Statistically, these new immigrants are called "temporary population" because they do not have an officially approved permanent resident status.

Data obtained from the Public Security Bureau of Panyu show that the number of temporary population in Panyu had never exceeded 5,000 before 1986. Since then, it has dramatically grown first to 15,741 in 1986 and then to 89,167 in 1991, almost a twenty-fold increase in six years. While the incredible increase of migration to Panyu in 1986 can be attributed to a variety of factors including the relaxation of government control on rural-town migration which took effect in 1984, the improvement of road transport facilities is unquestionably a critical force that has significantly facilitated migration to and within Panyu. This is supported by an analysis of Pearson Correlation Coefficients which reveals a strong positive relationship between the growth of temporary population and the increase in the number of bridges ($r=0.97$) as well as the extension of highway mileage ($r=0.86$). The advance in transportation facilities has thus become another important factor that explains why a dramatic growth of population, particularly migration, has occurred primarily in the suburban counties such as Panyu rather than the central city of Guangzhou, a demographic feature of metropolitan development in the Zhujiang Delta that has been outlined in Chapter Three.

Interestingly, the growth of migration to and within Panyu has demonstrated a "lag" relationship with transport development. As shown in Figure 5-10, the temporary population of Panyu did not experience any significant

Figure 5-10. Growth of Temporary Population* and Transport Development in Panyu, 1980-91



Notes:

* Temporary population refer to those migrants who have registered with the local authority and resided in Panyu for ten months or longer.

BRIGT(#) stands for the number of bridges, HIWAY(10KM) for the total length of highways in ten kilometers, and TEMPPOP'N'(thousn') for the number of temporary population in thousands.

Sources:

Panyu, Statistical Bureau, 1989: 36; 1992: 71.

Panyu, Public Security Bureau, Archive Office, 1992, unpublished annual reports for internal use.

growth between the years of 1980 and 1985. Dramatic increase occurred first in 1986 which was one year after massive transport development and construction were initiated in 1985. This pattern of growth is consistent with that of foreign investment, export and economic production that has been outlined in the previous section. The creation of a more accessible and efficient road transportation network has not only quickened the pace of economic growth but also fostered the mobility of population in the area.

In addition to economic growth and migration, transport development has also facilitated the transformation of land use which has been taking place most noticeably along major transportation arteries. Although detailed data on land use change were not available to allow a systematic assessment, my field inspection of recent development in Panyu has, nevertheless, uncovered some significant patterns of land-use change that are associated directly or indirectly with the improvement in the local transportation network.

In a manner similar to the acceptance of industries relocated from Guangzhou, improved transportation linkages between Panyu and Guangzhou have encouraged an increase in suburban facilities in Panyu. Since the completion of Ruoxi Bridge in 1988, a great number of villa-style apartment buildings, shopping malls, restaurants, and recreation centers have emerged in Panyu primarily to meet the need of the people of Guangzhou who have suffered from urban congestion in the central city and who have been looking for more relaxed outlets for accommodation, eating out and recreation. Such suburban developments have taken a variety of spatial forms, but most of them are concentrated in the corridor between Guangzhou and Shiqiao *zhen*, which is the county capital of Panyu.

One distinct type of land use that has recently emerged as a result of transport development is a continuous strip of specialized stores selling the same

type of goods located along major highways. As one travels from Guangzhou toward the county capital of Panyu, one sees a row of hundreds of furniture stores extending from the southern end of the Ruoxi Bridge for miles along the highway. This area was a rice field until 1988 when the road system, including the Ruoxi Bridge, was built. Most of the furniture stores were developed to attract consumers from Guangzhou, just on the other side of the Ruoxi Bridge, prices are adjusted according to the working schedules of the people of Guangzhou. On weekends and holidays, when there is an influx of shoppers, prices are normal, but on working weekdays there is a 20 percent discount.

The idea of grouping all furniture stores along major arteries is clearly to take a full advantage of convenient transportation and to attract consumers by offering them maximum choice. In this regard, the emergence of a large group of specialized stores in ribbon form as a result of improved road transportation appears to resemble closely the development of shopping malls in the suburbs of many North American cities. Although the extent and pattern of suburban commercial land development in the Chinese context may not be exactly the same as those in North America, the fact remains that improved road transportation, which effectively altered the urban landscape of many North American metropolitan regions, has started to shape suburban development in the Zhujiang Delta region and has created significant patterns of commercial land use similar to those already emerged in North America.

Commercial land development in linear or ribbon form is not the only type of land use brought about by improved transportation. As newly built highways extend and intersect with existing roads, another distinct pattern of land use has begun to emerge which involves a cluster of stores, hotels, office buildings, and other business facilities developed around the intersection of major highways or trunk roads. While such development may facilitate business, it has juxtaposed

interregional through traffic and pedestrian traffic with resulting traffic chaos. The local solution to this problem has been to construct a fly-over or "pedestrian crossing bridge" (*renxing tianqiao*) at the intersection so that pedestrians can cross the roads safely while interregional traffic flows unhindered. Such nodal-form development, driven primarily by the extension and intersection of highways, has become a distinct feature of the landscape not only in Panyu but in other cities and towns of the Zhujiang Delta region as well.

The impact of transport development on land use change has also been felt in the countryside, even in some remote areas. In the southern frontier of Panyu where road transportation is a recent phenomenon, a great amount of farmland has been encroached upon not only by highway construction but also by the subsequent industrial and commercial development taking place on both sides of newly-built highways. The spatial outcome of this land use transformation has been the emergence of a number of discrete corridors wherein restaurants, hotels, gas stations, garages, and drug stores are built along extended highways and near the entrance of villages or towns. These discrete corridors, which are shaped by highway frontier extension, may later evolve into large scale land developments in ribbon or nodal form as described above.

Other land use developments that are directly or indirectly related to the improved transport network of Panyu have been the establishment of Nansa *zhen* near Humen Ferry as an Economic and Technological Development Zone, the expansion of the urban area of the county capital from a mere 10 square kilometres to 41 square kilometres in 1992 (*Panyubao*, 1992 January 3), and the construction of numerous villa-style apartment buildings and luxury hotels to attract wealthy people from Guangzhou and Hong Kong. These developments, fostered directly or indirectly by the improvement of the transport network, have contributed to a dramatic and significantly accelerated reduction of farmland in

Panyu since the mid-1980s. In 1989, for instance, a total of 14,303 mu or 2355.7 acres of cultivated land was lost to industrial, transport, commercial and residential uses (Panyu, Land Development Section, 1992). While transport development may not be the only force responsible for all the changes of land use that have occurred in Panyu, it is nonetheless a critical factor that has played a major role in facilitating the process of land use transformation. It also provides a good explanation for the development scenario of the Zhujiang Delta region as outlined in Chapter Three where the magnitude of land use transformation was found to be more remarkable in the suburban counties such as Panyu than in the central cities including Guangzhou, Foshan, and Jiangmen.

Ironically, the construction of bridges and highways in Panyu did not improve traffic mobility. Instead, it has exacerbated the problems of traffic congestion and accidents as more interregional through traffic has been channeled into Panyu. It has been reported by the Public Security Bureau of Panyu that the number of traffic accidents has increased rapidly in recent years. Between January 1 and August 31 of 1992, for instance, a total of 106 traffic deaths were reported. In August when I was doing field work in the county, 52 traffic accidents which claimed 22 lives were reported. As the road transportation network improved, the number of vehicles, especially motor-cycles, has skyrocketed. Data obtained from the local Public Security Bureau indicate that the number of registered motor-cycles owned by Panyu residents had increased from a mere 85 in 1978 to 25,056 in 1991. Consequently, visitors to Panyu have frequently felt overwhelmed by the numerous motor-cycles clogging traffic. Development of the transportation infrastructure of Panyu has, therefore, not only facilitated economic growth, migration, and land use changes but also created a great demand for further expansion of the existing road transport network.

5.3. Summary

In his seminal work on the emergence of Megalopolis in the United States, Jean Gottmann highlighted the importance of modern transportation and telecommunication as an essential condition to the mass movement of population and commodities in the urbanized region (Gottmann, 1961: 632). Thirty years later, similar efforts have been made by McGee and Ginsburg to draw our attention to the process of settlement transition in Asia where a low-tech "transportation revolution" has begun to shape extended metropolitan regions (McGee, 1991; Ginsburg, 1990). Although the spatial effect of transport development has long been a subject for scholarly contemplation, little empirical work has been done to show how transportation has actually interacted with the transformation of a regional economy.

This chapter assesses the role played by transport development in the process of spatial transformation, using Panyu as a case study. The results of data analysis and field survey have suggested that heavy investment in transport infrastructure has created a transactional environment conducive to economic growth, migration and land use transformation. The creation of a more efficient road transportation network integrated by bridges, highways, and ferries has significantly improved the accessibility of Panyu, strengthened its economic linkages with the central city of Guangzhou, and encouraged suburban industrial and commercial activities in this previously forgotten "land of standstill." To overcome the "friction of distance" existing between Panyu and Guangzhou has been a major focus of the development strategy adopted by the economic planners of Panyu and it has become a factor of vital importance in understanding why dramatic economic and spatial changes could have occurred in this suburban county of the Guangzhou metropolitan region.

For a place like Panyu, whose economic growth was severely blocked because of its inefficient transport network, the provision of a well established road infrastructure as a necessary, albeit not sufficient condition, has proved to have an effect of leading to rather than following the transformation of the local economy. Economic growth in Panyu in terms of production, export and foreign investment had never accelerated until after the mid-1980s when massive construction of bridges and highways took place. The extension of a road network has effectively altered the landscape of suburban development in Panyu and created distinct patterns of land use such as discrete corridors and commercial development in ribbon and nodal forms. The experience of Panyu, where economic growth is still in an early stage, has appeared to differ significantly from that in developed countries where development has already reached a mature stage and for which transport expansion is normally perceived as a passive response to increased economic demand.

The development of transportation infrastructure in Panyu was funded primarily by the local government. Contrary to the conventional wisdom of socialist development, the state did not play any active role in either planning or funding the improvement of local transport facilities. With the demise of a centrally planned economy, a new development mechanism seems to have taken shape in which initiatives are made primarily by local governments which are responsible for mobilizing necessary development resources, setting up modern transport infrastructure, and leading the local community towards economic prosperity.

CHAPTER SIX. "A WINDOW THAT OPENS TO THE SOUTH WIND": THE INFLUENCE OF HONG KONG

6.1. Introduction

In the current of the internationalization of investment and production, regional economies in China have increasingly found themselves being affected by global forces emanating from the restructuring capitalist world. The structural and spatial effects of global market forces are probably more noticeable in the Zhujiang Delta region than anywhere else in the nation. As a Chinese frontier with ready access to Hong Kong and overseas, the Zhujiang Delta has since 1979 been allowed to move "one step ahead" of the nation in attracting foreign capital, acquiring Western advanced technology, and developing a market-oriented economy. Its great openness to the outside world and its intensified social and economic linkages with Hong Kong have given it a special identity that distinguishes this region from other parts of the country. To understand the dynamics of growth and spatial changes in the delta, it is necessary to go beyond the previous analyses of local initiatives to examine how the intrusion of global market forces through Hong Kong has helped to shape the new space economy.

To single out the influence of Hong Kong as an important factor for analysis is also based on the consideration that this issue has been a growing concern among scholars and that many structural and spatial questions associated with it remain unresolved. The economic integration of Hong Kong and Guangdong Province, as a result of China's open door policy, has been addressed by a number of scholars. Thus far, the bulk of research has tended to place the emphasis on the increasing interaction between Hong Kong and Guangdong (Vogel, 1989; Johnson, 1992; Guldin, 1992), on the incentives for relocating manufacturing facilities from Hong Kong to the delta (Leung, 1993; Thoburn et al, 1990), and on the future prospect of development in this region after China resumes its sovereignty over

Hong Kong in 1997 (Johnson, 1986b). Little is known, however, about the impacts of Hong Kong initiatives on the transformation of the space economy of the Zhujiang Delta.

How and to what extent has the relocation of manufacturing from Hong Kong to the delta region contributed to the growth and restructuring of the delta's economy in terms of production and employment? What impact has Hong Kong investment had on the growth of immigration and the spatial redistribution of population? How has the transformation of land use been facilitated by the establishment of Hong Kong manufacturing firms in the region? These questions are essential to understanding the dramatic changes that have occurred in the Zhujiang Delta region but they have not yet been adequately investigated.

This chapter attempts to assess the economic and spatial consequences of interaction between Hong Kong and the Zhujiang Delta region since 1979 when China's open door policy was initiated. As existing data are not detailed and systematic enough to allow for an assessment of the development of the entire region, this chapter will focus on a case study of Dongguan *shi* which is considered by many Chinese scholars to be a classic example illustrating the structural and spatial effects of the establishment of subcontracting firms in the delta region. Acknowledging that the influence of Hong Kong on the delta is not limited to the economic sphere of investment and manufacturing, effort will also be made to include social and cultural aspects of Hong Kong influence in this assessment.

6.2 . A Case Study of Dongguan

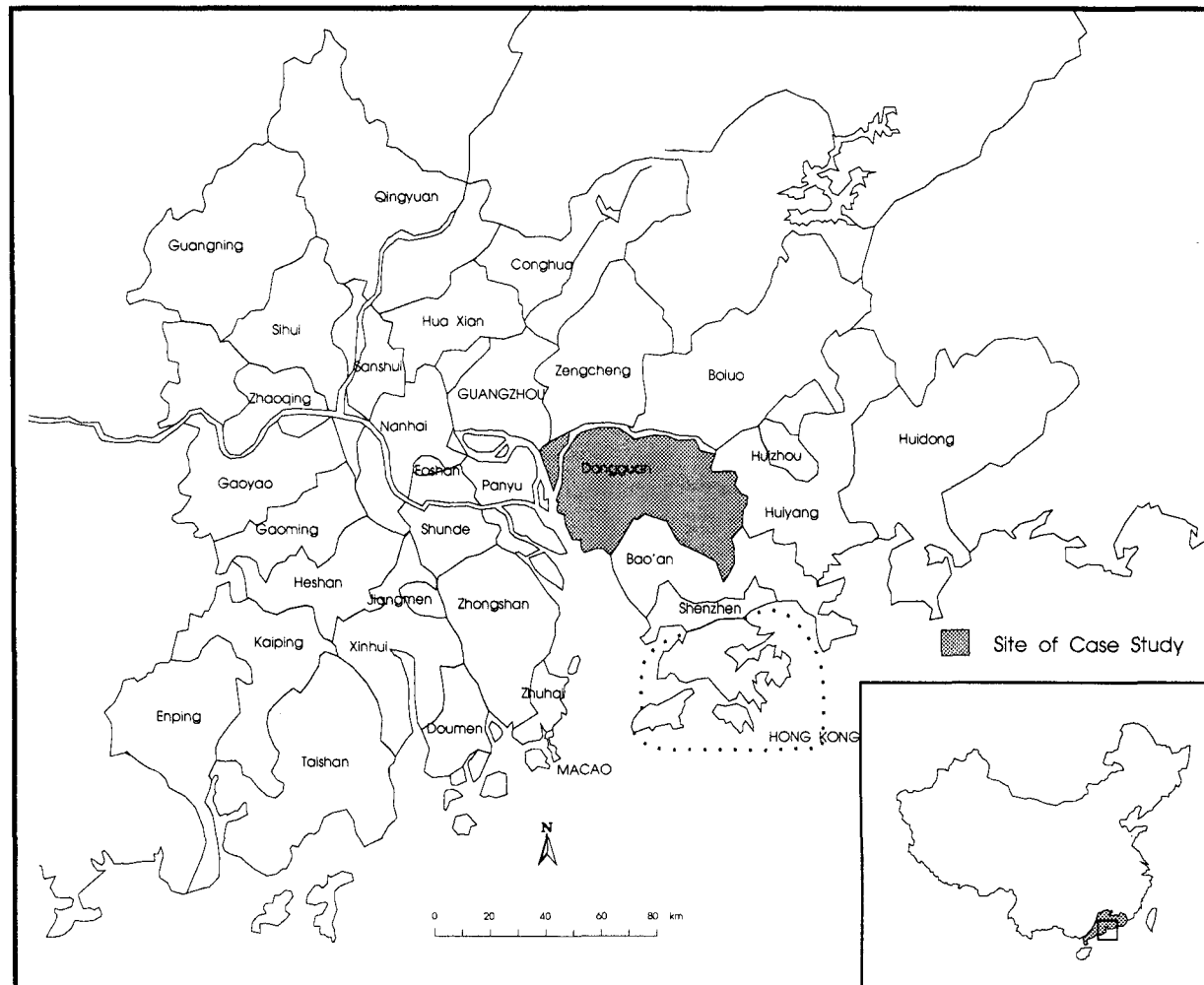
A. Geographic and Historical Context

Among the counties and cities in the Zhujiang Delta, Dongguan is probably the most typical case to show how a regional economy can be significantly

transformed by forces penetrating into it primarily from the capitalist enclave of Hong Kong. In terms of its relationship with Hong Kong, Dongguan is typical of the situation in the Zhujiang Delta and, to some extent, a small projection of Guangdong Province in a national context. As implied by its name, *Dongguan* (a town of bushes in the east) is located in the eastern wing of the Zhujiang Delta with a close proximity to Hong Kong (Figure 6-1). Although Dongguan is geographically next to Baoan and Shenzhen in terms of the distance to Hong Kong, it has historically fared better than Baoan and Shenzhen in developing personal kinship ties with Hong Kong primarily due to its higher population density and its well-established historical tradition. It was estimated that Dongguan residents had at least 650,000 relatives in Hong Kong and Macao, a number significantly higher than those of Baoan and Shenzhen (Guangdong Province, Land Development Bureau, 1986: 369-370). The middle position of Dongguan in the Guangzhou-Hong Kong corridor means that it can easily access both the export outlet of Hong Kong and the traditional urban centre of Guangzhou. Such a geographical location has also enabled Dongguan to develop an export processing industry by merging capital, technology, and industrial parts from Hong Kong in the south with interior cheap labour transferred mainly from Guangzhou in the northwest.

The favourable geographic features of Dongguan, however, brought no benefit to its development in the Maoist era when traditional connections between Hong Kong and the mainland were artificially cutoff. Under the then prevailing radical ideology of anti-capitalism, the frontier position of Dongguan to the capitalist enclave of Hong Kong was considered as making it vulnerable not only to the "contamination" of decaying capitalism but also to possible naval attacks from counter-revolutionary enemies overseas including those of Taiwan and the

Figure 6-1. Location of Dongguan Shi



US who had constantly threatened to roll back the Chinese revolution. The perceived vulnerability of Dongguan's location to capitalist attack explains the fact that for decades Dongguan had never become the focus of infrastructure development funded either by the central or provincial government.

There were few alternatives for the people of Dongguan to make a living except by working in the rice fields to "learn from Dazhai" in building a self-reliant agrarian economy. On the eve of economic reform, a total of 390,000 people or 72 percent of the total labour force were engaged in agricultural production (CCP Team, 1989: 27). Annual income on a per capita basis was a mere 193 yuan (CCP Team, 1989: 3). In some places, such as the southern border township of Chang'an, annual per capita income was recorded at the unbelievably low level of 83 yuan (CCP Team, 1989: 5). Tens of thousands of young people had to run the risk of a life penalty to escape to Hong Kong. It was reported that about 20 percent of the young people in Dongguan had managed to get across the border into Hong Kong in the pre-reform years primarily because there was no hope for them to have a reasonable future in their hometown (Vogel, 1989: 176).

The implementation of the open door policy since 1979 has led Dongguan to enter a new era of development. The opening up of Guangdong and Fujian provinces, the establishment of Special Economic Zones, and designation of the Zhujiang Delta as an open economic region have renewed and strengthened the economic ties between Hong Kong and the delta. Under this new circumstance, geographic proximity to and wide-ranging personal connections with Hong Kong, which used to be a detrimental factor that prevented Dongguan from seeking industrial growth, have now become valuable assets that can be utilized to attract overseas investment and to develop an export-oriented economy.

B. Development of Export Processing Industry

Once the people of Dongguan realized the fact that their advantageous connections with Hong Kong could be utilized to create jobs and raise income, they began to seek every possible opportunity to promote investment from Hong Kong and overseas. Special policies, including taxation concessions and preferential treatment regarding the import of necessary equipment and the handling of foreign currency, were announced to attract foreign investment. A special office was set up to serve Hong Kong investors with efficient personnel and simplified bureaucratic procedures. Economic cooperation between Dongguan and Hong Kong was arranged creatively and flexibly in a variety of forms including export processing (*lailiao jiagong*), compensation trade (*buchang maoyi*), joint ventures (*hezi jingying*), and co-operative ventures (*hezuo jingying*). It was reported that by the end of 1991, a total of 10,586 contracts had been signed between Dongguan and manufacturers from Hong Kong and overseas, of which 5,700 were already in operation (Guangdong, Statistical Bureau, 1992b: 20).

Economic cooperative ventures developed between Dongguan and Hong Kong since 1979 have varied in form and in size, but the most popular one has been the processing of imported materials (*lailiao jiagong*) or assembling of parts provided by Hong Kong manufacturers (*laijien chuanpei*). Known as "three supplies one compensation" (*sanlai yibu*), the arrangement requires the Hong Kong side to supply raw materials, components or parts, and models for what is to be processed while the Chinese side provides labour, land, buildings, electricity and other local utilities necessary for production. The Hong Kong participant of the contract does not hire or pay workers directly. Instead, a lump-sum payment is usually made available to the Dongguan participant for the goods contracted for. With the payment from Hong Kong, usually in US or Hong Kong dollars and in installments until the products are completed, the Dongguan participant of the

contract hires workers and pays them in Chinese dollars on a piece-work basis. Needless to say, local governments and cadres of Dongguan, who serve as middlemen in this process, are able to make sizeable profits either by paying low salaries or by exchanging US and Hong Kong dollars into Chinese *yuan* at a high rate on the "black market". Arrangements are also made on a compensational basis, in which the Dongguan side does the processing or assembling jobs for a specialized period of time, for example 5 years, and at the end of this period assumes ownership of the machinery or equipment provided by the Hong Kong firm as compensation.

Cooperation in the form of "three supplies one compensation" has become popular not only in Dongguan but also in other parts of the delta region because it has benefitted substantially both the Hong Kong and Chinese participants of the contract. With designing and marketing handled in Hong Kong and labour-intensive work done cheaply in Dongguan, small Hong Kong manufacturers are able to compete well in the international market. As for the Chinese side, export processing has created jobs and income for local cadres and the general population. By the end of 1987, some 2,500 processing firms on the basis of "three supplies one compensation" had been set up in Dongguan, creating up to 171,000 employment opportunities and receiving 107 million US dollars mostly from Hong Kong which accounted for about 40 percent of what was received by the whole Guangdong Province (CCP Team, 1989: 6). By the end of 1990, the number of export processing firms established in Dongguan had reached 4,680. These establishments produced a total export output of 150.06 million US dollars, which was ahead of all cities and counties in the province except the Shenzhen Special Economic Zone (Guangdong, Statistical Bureau, 1991c: 357). A survey conducted by the Federation of Hong Kong Manufacturers in July 1991 identified Dongguan as the second most-favoured location, next only to Shenzhen, for Hong Kong

investment (Hong Kong, 1992: 13). The considerable success of Dongguan in attracting foreign investment and developing export manufacturing enabled it to be promoted from a county to an officially designated city at the county level in 1985 and, further, to a higher level city directly subordinate to the provincial government in 1988. The success story of Dongguan has so impressed the central government that the Central Committee of the Chinese Communist Party sent a special team to Dongguan in 1988 to study its approach and to praise it as a national model for export processing.

i. Reasons for Developing An Export Processing Industry

Why has Dongguan, formerly a frontier agrarian county, become favoured by Hong Kong manufacturers? What are the forces that have helped Dongguan to attract investment and processing activities from Hong Kong and overseas? In answering these questions, local officials of Dongguan frequently quote the words of a well-known ancient Chinese scholar and strategist Zhuge Kongming that "timing, location, and public relations" (*tianshi, dili, renhe*) are three essential factors in seeking any success. Implied in this explanation is the importance of the implementation of the open door policy (timing), the geographic proximity of Dongguan to Hong Kong (location), and the creation of good personal relations with Hong Kong investors (public relations). While the case of Dongguan appears to fit fairly well into the general model of success provided by the ancient Chinese wiseman, three specific factors should be highlighted in order to understand the rapid expansion of export processing activities in Dongguan.

First, good personal connections existing between Dongguan and Hong Kong have provided easy and reliable links between investors and their manufacturing partners. With over 650,000 relatives (*gang'ao tongbao*) in Hong Kong and another 180,000 (*huaqiao*) in other foreign countries, mostly in North America,

the people of Dongguan have less difficulty than those of other parts of the nation in seeking investors or partners from Hong Kong and overseas. It was estimated by cadres in Dongguan that about half of the contracts they had signed was with their countrymen in Hong Kong (Vogel, 1989: 176). Interestingly, many personal contacts are with the former Dongguan residents who escaped from their hometown to Hong Kong during the pre-reform period. Ironically, local cadres who used to be responsible for preventing escapes and apprehending those who dared to try are now in charge of contacting and persuading their former escapees in Hong Kong to invest in their native county (Vogel, 1989: 176).

A second critical contributing factor, that has often been overlooked in the assessment of the growth of export processing, is the creation of a transportation infrastructure as a necessary means to attract foreign investment. In this regard, the local government of Dongguan has played a leading role in the development process. It was reported that in the 8 years of 1980-87 a total of 1.034 billion yuan (US\$216 million) was raised by the government of Dongguan through various channels for infrastructure development (CCP Team, 1989: 39). Such a huge amount of capital was obtained primarily from local resources such as bank loans (33 percent), collective enterprises (31 percent), stocks and bonds (14 percent), and foreign capital (11 percent). Budgetary allocation from the central and provincial governments accounted for only 11 percent of all construction expense (CCP Team, 1989: 35).

Heavy investment in the infrastructure has resulted in significant improvements. The existing road system has been substantially extended with the mileage of paved roads increasing from a mere 1 kilometre in 1978 to 860 kilometres in 1987. By the end of the 1980s, Dongguan had more miles of paved roads per square kilometre than any other county in the nation (CCP Team, 1989: 7). Dongguan was also one of the first Chinese counties to establish a

computerized telephone system which connects it directly with 17 countries and regions in the world. A total of 13,231 telephones have been installed to cover all townships and villages in Dongguan, of which 8,756 phones, or 20 percent of all installations in China, can dial direct to other countries (CCP Team, 1989: 7, 34, 37). The transport capacity of ports and harbours and the generation of electric power have also been increased substantially during the 1980s. The creation of such a good infrastructure has significantly reduced transactional costs for investors and, therefore, underpinned the rapid inflow of overseas investment.

Finally, the availability of cheap labour and land is another important factor that has helped to attract Hong Kong manufacturing to move into Dongguan. In the early 1980s, Dongguan was a county where labour and land could be obtained easily and cheaply. A worker employed by an export processing firm was usually paid a monthly wage of 150-200 yuan which was about one-fifth or even one-sixth of what a Hong Kong worker could make (CCP Team, 1989: 194). Although Chinese workers may not be as skillful as their Hong Kong counterparts in certain industrial production, the low wage rate remains attractive to Hong Kong manufacturers, especially to those who are engaged in highly labour-intensive industries such as toys and electronics. Over the years since 1979, the increase of employment opportunities has resulted in a tendency toward rising labour cost. This tendency, however, has been balanced by an inflow of new workers from less-developed interior provinces who will accept low wages. Consequently, low labour cost in Dongguan remains a significant factor that continues to attract manufacturing from Hong Kong and overseas (CCP Team, 1989: 194).

ii. Characteristics of Export Processing Industry

As the export processing industry continues to grow, it is becoming one of the most dynamic economic sectors in transforming the regional economy of Dongguan. By the end 1990, more than 70 percent of Dongguan's industrial labour force was engaged in export processing (*Yatai jingji shibao*, 1992, August 2). The continuous expansion of the export processing industry, the mainstay of Dongguan's industrial development, has led the local economy to enter a new stage of accelerated growth and restructuring. It has also effectively altered the economic landscape of Dongguan and created some distinct spatial patterns associated with industrial production, migration and land use. As the transformation of the space economy of Dongguan was to a great extent fueled by the relocation of manufacturing from Hong Kong, to understand the dynamics of these structural and spatial changes will require an analysis of the nature and spatial characteristics of the flourishing export processing activities.

For Hong Kong manufacturers, relocating their workshops from Hong Kong to Dongguan was primarily to tap the existing pool of low-priced inexperienced labor. It is, therefore, not surprising to find that the industries that have been developed in Dongguan are simple, unsophisticated, small-scale, and labour-intensive. In the main, export processing in Dongguan has centered around four sectors: textile, wearing apparel, toys and electronics. The type of production varies considerably from the processing of toys, assembling of simple radios, sewing of shirts or blouses, to the making of plastic bags, incense, firecrackers, candles, candy, chocolate and other food products. But the procedures of production are invariably simple and repetitive, needing a considerable amount of time and labour but little skill. The development of these simple labour-intensive industries has significant implications for changes in employment structure and

migration as it opens up opportunities for those surplus rural labourers who are eager to enter factories but have little experience or skill in manufacturing.

As processing activities are technologically unsophisticated, many factories that have been set up in Dongguan are relatively small in size. Most of them do not require heavy machinery. Some were converted from the dining halls of former communes or brigades. As production expands, buildings of two or three stories are constructed containing several large rooms which accommodate fifty to a hundred desks, one for each worker. Thus a typical factory may employ several dozen to a hundred workers which is considerably small by Chinese standards. A 1991 survey sampling 2,931 joint ventures and compensational trade enterprises in Dongguan revealed that the average number of workers in each factory was 147 for joint ventures and 105 for the processing of imported materials or compensation trade factories (Lu, 1992: 146). Some workshops in the countryside were so small that they had only a dozen workers on their payrolls (CCP Team, 1989: 47). The fact that the export processing industry in Dongguan is composed of numerous small workshops without a single major plant has been vividly described by the local people as "a spread of numerous stars in the sky without a large shining moon in the centre" (*mantian xingdou qushao yilun mingyue*).

Another feature of Dongguan's export processing industry, closely related to the previous ones, is that the concentration of factories is not in a few large urban centres but is widely scattered throughout the countryside. Since the scale of production is small and the processing procedure is simple, factories in Dongguan do not necessarily have to be located in the large urban centres where technical experts or other high ranking social services are easily accessible. Rather, existing personal kinship ties, the improved transport and electric power infrastructure, an abundant supply of cheap surplus rural labourers and land space, and a less-regulated environment in the countryside have all combined to attract investment

and manufacturing activities away from Hong Kong to the rural villages and townships of Dongguan. This distinct feature is evident from an official survey conducted at the end of 1987, which revealed that Dongguan's export processing factories were predominantly located in the villages and townships of the countryside. Among the 2,500 factories established for the processing of imported materials or compensation trade, 1,591 were found in rural villages and townships. They accounted for 63.64 percent of the total number of export processing firms, 72.52 percent of all processing fees received from Hong Kong and overseas, and 87.91 percent of the total construction area of all factories set up for the processing industry (CCP Team, 1989: 32). This spatial pattern in which export processing activities are widely distributed all over the countryside has significant implications for the process of land use transformation which will be discussed in the next section of this chapter.

iii. Consequences of Export Industrial Development

Having identified the distinct features concerning the nature, size, and spatial distribution of the export processing industry, it is now possible to analyze the structural and spatial consequences of this externally driven industrial development. The most significant outcome of the flourishing of labor-intensive export processing activities in Dongguan has been a disproportionate increase in employment and production in the manufacturing sector and the subsequent restructuring of the local economy. When Dongguan was first opened up to foreign investment in the late 1970s, its economy was predominantly agricultural, with two-thirds of its population working in the fields at a subsistence level. The rapid expansion of the export processing industry since 1978 has greatly increased the pace of manufacturing development. Between the years of 1978 and 1991, an estimated 380,000 jobs were created by the export processing industry and

absorbed both local rural labourers, who were released from agricultural production, and immigrants, who moved in from other less developed areas (*Yatai jingji shibao*, 1992, August 2). Consequently, the labour force in the secondary sector, primarily manufacturing in nature, has expanded at 10.45 percent per annum since 1978 with its share of the total labour force increasing from 16.85 percent in 1978 to 40.64 percent in 1990 (Dongguan, Statistical Bureau, 1991: 6). At the same time, those who were engaged in agricultural production and other primary activities were reduced in number and their share of the total labour force dropped substantially from 71.57 percent in 1978 to 36.15 percent in 1990 (Dongguan, Statistical Bureau, 1991: 6). The production of the local economy exhibited a pattern of restructuring similar to that of the labour force. The contribution of manufacturing to total output rose from 42.06 percent in 1978 to 66.20 percent in 1990 while the share of the agricultural sector declined from 39.40 percent to only 19 percent in the same period (Dongguan, Statistical Bureau, 1991: 20).

In addition to economic restructuring, the development of the export processing industry has contributed to an accelerated growth of the local economy and helped to raise personal income for the general population. During the years of 1980-90, the production of industrial and agricultural output, of which the export processing industry was a main part, recorded a growth rate of 23 percent per annum, which was significantly higher than the regional average of the Zhujiang Delta (Guangdong, Statistical Bureau, 1991c: 238-241). The export-processing fees received by Dongguan increased from 2.34 million US dollars in 1979 to 163 million US dollars in 1990, which represented an annual growth rate of 53.5 percent (CCP Team, 1989: 31; Guangdong, Statistical Bureau, 1991b: 357). Per capita income rose substantially from 193 yuan to 1,359 yuan for peasants and from 547 to 3,552 yuan for salaried workers in the 12 years between

1978 and 1990 (Guangdong shengshiqu guoming jingji tongji zheliao, 1991: 238-241). This extraordinary process of economic structural change and accelerated growth since the late 1970s has been unprecedented in Dongguan's history and was clearly fueled by the inflow of investment and manufacturing facilities from Hong Kong and overseas.

An interesting phenomenon that has been especially evident in Dongguan as a result of export industrial development is the increasing participation of women in manufacturing. Since export production in Dongguan is predominantly labour-intensive in nature, its rapid expansion has opened much room for the employment of women who are generally considered as nimbler than men in doing such jobs as the making of toys, sewing of apparel, or processing of electronic products. A growing number of women have, therefore, joined this army of factory workers and are playing a part in the process of industrialization. It was reported in 1989 that among the 166,000 workers employed by export processing firms, 130,000 were women, accounting for 78 percent of the total work force (CCP Team, 1989: 159). In many workshops, workers are almost entirely female with only a few men being responsible for repairing machinery, factory security, loading/unloading of finished products or imported materials, and managerial work. Most female workers are young with an average age of under 25. Some of them have begun to earn incomes equivalent to men's (CCP Team, 1989: 163).

Women's participation in manufacturing production has undoubtedly raised their economic and social status, but it has also placed them in a confined environment in which they are asked to work repetitively on the same single piece at a desk for long hours in order to get pay on a piece-work basis. For those who are already married, factory work and household affairs have combined to form an almost unbearable burden. For those who are young, entering the factory at an early age means that there will be little chance for them to receive necessary

education and, therefore, few alternatives for making career choices or finding advancement. The intrusion of global market forces from Hong Kong has thus led Chinese women who might have been housewives or college girls to take part in the process of new international division of labor.

Another distinct demographic feature that characterized the recent development of Dongguan is the rapid growth of immigration which is also a direct outcome of flourishing export processing activities. By the mid-1980s, rapid expansion of the labour-intensive processing industry in Dongguan had exhausted the local supply of labour and created a large demand for outside workers. With the relaxation of government control on migration, which took effect in 1984, labour began to flow in from other less-developed counties of Guangdong and interior provinces. Since the mid-1980s, immigration of outside labour has grown substantially at 43 percent per annum. By the end of 1990, the number of "outside labour" (*wailai laogong*) had reached 655,902 which almost equalled the local labour force (CCP Team, 1989: 6). Considering that outside labourers have an employment rate of 98.39 percent which is higher than that of local labourers (76.02 percent) (*Yatai jingji shibao*, 1992, August 2), it can be argued that almost half of Dongguan's economy has been actually run by hardworking outsiders. This is especially evident in the manufacturing sector where 63 percent of its total labour force was from outside. In some areas such as Chang'an *zhen* at the border with Shenzhen, the number of migrants reached 91,000 in 1992, which was almost four times the local population.

By far, the vast majority of migrants to Dongguan were engaged in manufacturing production particularly in export processing. Statistical data have shown that about 80 percent of the total outside labour force, or 518,971 out of 655,902, were found in the manufacturing sector (Dongguan, Statistical Bureau, 1991: 6). A survey conducted in 1988 revealed that 61.12 percent of all outside

labour in Dongguan was in export processing plants (CCP Team, 1989: 95). Of all factory jobs created by the export processing industry during the years of 1979-90, 85 percent was taken by migrants from outside (*Yatai jingji shibao*, 1992, August 2).

Many migrants to Dongguan are young girls aged between 18 and 25 who are frequently referred to by the local people as "working girls" (*da gong mei*) or "girls from outside" (*wai lai mei*). They usually live in a dormitory room shared by eight to twelve persons near the factory where they work and they pay rent or a "managerial fee" (*guanli fei*) to local cadres who are responsible for the construction and maintenance of both the factory and the dormitory buildings. The money they save is sent back via banks or postal offices to their relatives in poor interior areas. As a result, those townships that have a large number of outside workers tend to have a disproportionately large number of banks and post offices. In Chang'an *zhen* where I did my field work, for instance, the main street of the town, a couple hundred metres long, has 14 banks which are open from 8 a.m. to 9 p.m. to serve outsiders who want to deposit or mail their savings to their hometowns. Some of these outsiders work in Dongguan for several years until they earn enough money to go home. Others stay for a prolonged period of time. A few have married local residents or set up their own businesses in Dongguan.

The experience of working and living in an environment surrounded by strangers is not, however, always pleasant for the outsiders. They frequently find themselves faced with discrimination as the best jobs with higher pay always go first to locals and they get only the least desirable jobs. Speaking in a language completely different from the local dialect, they can barely communicate with the local residents and loneliness is something they have to get used to, not to mention being cheated when they go shopping. Some of the "working girls" from outside even have to bear what Westerners would call harassment or assaults from local

factory managers or Hong Kong bosses who simply want to take advantage of them or, in the words of the local people, "treat the girls like a piece of pliable beancurd" (*chi ruan doufu*). The issue of "working girls" from outside has become such a national concern that a number of movies and TV programs have been produced to show the unhappiness and bitterness of these newcomers. The most popular TV movie, which won the top national award in 1992, was named "The Working Girls" (*da gong mei*). The penetration of global market forces through Hong Kong into Dongguan has thus not only promoted the participation of local peasants and women in manufacturing production but also effectively drawn the young and cheap labour of China's interiors into the theatre of mass production and global capitalism.

The rapid growth of export production and its subsequent economic and demographic changes highlighted above have found their manifestations over the space. With a locational focus in the countryside, the development of the export processing industry has inevitably resulted in a process of land use transformation whereby much farmland has been turned over for the construction and expansion of factories. Data obtained from the Agricultural Department of Dongguan reveal that in the years of 1978-1988, a total of 18,585 mu or 3,061 acres of farmland was transformed into industrial land use, mostly for the building of export factories, workshops, and industrial districts (Huang, H.S. et al, 1991: 79). Consequently, per capita cultivated land dropped substantially from 1.06 mu in 1978 to 0.67 mu in 1990.

Many small workshops and factories developed in the early 1980s were scattered over the townships and villages of Dongguan. As production expanded, local officials began to realize that such a spatial arrangement made it difficult to provide electricity, water, and sewage disposal facilities. A new type of industrial land use has since gradually emerged, covering a sizable scale of land area and

located at the outskirts of towns or villages along trunk roads. By the end 1987, a total of 119 such industrial zones had emerged in Dongguan. In Chang'an *zhen*, I visited an industrial zone which covers an area of 198 mu or 32.6 acres.

Developed jointly by Chang'an *zhen* and several Hong Kong companies, this zone absorbed a total investment of 236.50 million Hong Kong dollars or 30.32 million US dollars and accommodated over a thousand employees working on the spinning, weaving, and dying of textile materials for Hong Kong manufacturers.

The newly-emerged industrial zones are usually built on a piece of farmland and are typically composed of a group of identical factory buildings of two or three stories. Each factory building belongs to a certain processing firm and the name of that firm in large red Hong Kong style Chinese characters can be seen at the top of the building. At the entrance of each factory stands a security guard who dresses in an uniform which resembles that of a Hong Kong policeman. All factory buildings in the zone are arranged in straight rows and facing the same direction. Infrastructure facilities for these factories are generally well established and are utilized more efficiently than those of individual factories that are built separately.

Most of these export processing factories, either built separately or in groups, are located in the vicinity of the headquarters of former communes and brigades. Their development and continuous expansion have greatly fostered the industrialization of land in the countryside and created a distinct type of land use characterized by a mixture of farmland, factories, and housing for peasants.

Such a process of industrialization did not, however, force those farmers who lost their land to move into the city. Instead, by creating factory jobs in the countryside, the growth of the processing industry has been able to allow peasants to "enter the factory but not the city" or "leave the soil but not the village." Between the years of 1978 and 1987, for instance, an estimated 154,000 people,

most of them surplus rural labourers, joined the industrial labour force of Dongguan. Among these new workers, only 34,000 or 22 percent went into factories in towns. The other 120,000 new workers or 78 percent entered factories and workshops in the countryside (CCP Team, 1989: 27). Clearly, most of those farmers who were released from traditional agricultural production have got factory jobs near their villages without moving into cities and towns. Export industrial development, with its locational focus in the countryside, has undoubtedly contributed to shaping this spatial pattern wherein the transformation of land and population in the countryside has been no less significant, if not greater, than that in the city. It also provides a good explanation for the distinct spatial features of development in the Zhujiang Delta region, which were outlined in Chapter Three.

C. Social Influences of Hong Kong

The influence of Hong Kong has gone beyond the economic sphere and provoked significant social changes within villages and townships of Dongguan. With its frontier location to and excellent connections with Hong Kong, Dongguan is one of the first among the cities and counties of the delta that has felt the strong "south wind" from Hong Kong which brings the air of capitalism into socialist territory. As a special identity of Dongguan, the development of an export processing industry since 1978 has ushered in new production systems, new management styles, and a new job attitude. In the processing plants subcontracted from Hong Kong manufacturers, there is no promise of job security, rewards are tied to the amount of work finished, time requirements are rigid, and pressure on workers to keep a quick working pace is high. For those who were used to the socialist production system under which job security or "iron bowl" is guaranteed and by which equity is achieved at the cost of efficiency, to work in

such a Hong Kong subcontract factory or joint venture means fundamental changes in job attitude, value judgement, and working behaviour. Doing a factory job is no longer considered as fulfilling the glorious socialist obligation of "serving the people" but as a way of earning a living for personal gain. As there is nothing that can be counted on, people have become more independent, efficient, and sensitive to changes in their living environment. In the meantime, loneliness, frustration, and depression over not being able to keep up with the working pace or to realize personal ambition have become increasingly noticeable in the local community.

Visitors from Hong Kong who went to Dongguan to do business or see relatives have often brought with them ideas, information, and different lifestyles. Since its opening up in 1979, Dongguan has been visited more frequently than ever before by relatives from Hong Kong. In 1990, for instance, 262,586 visitors entered Dongguan from Hong Kong either for business or family affairs (Guangdong, Statistical Bureau, 1991c: 271). These visitors always brought information and materials into Dongguan allowing their countrymen to share the Hong Kong consumerist vision of modernity. In the early 1980s, when modern consumer goods such as TVs, VCRs, and refrigerators were still rarely seen elsewhere in the nation, Dongguan had already started to receive a variety of gifts from Hong Kong kinfolk, including washing machines, TV sets, VCRs, hi-fi stereos, motorcycles, and fashionable clothes. Over the years, Dongguan has received so many consumer goods from Hong Kong that its population own more colour TVs, stereo tape decks, and washing machines than people in other cities and counties of Guangdong. A survey conducted by Guangdong officials in 1990 revealed that town residents in Dongguan owned 112 color TV sets, 102 stereo tape decks, and 94 washing machines per hundred households, which were all higher than the rates among surveyed households in other cities in Guangdong

including Guangzhou, Foshan, Shenzhen, and Zhuhai (Guangdong, Statistical Bureau, 1991a: 370-371). As well, the ownership rates of colour TVs, motorcycles, refrigerators, and stereo tape decks for the peasant households of Dongguan in 1990 were also significantly higher than the provincial averages (Guangdong, Statistical Bureau, 1991a: 386). Needless to say, these consumer goods have formed a material basis for the imitation of the Hong Kong lifestyle in Dongguan. Modern electronic receivers such as TVs, radios, and VCRs are also important conduits for the penetration of Hong Kong culture into the towns and villages of Dongguan.

The most effective means that has transplanted the Hong Kong model of living to the people of Dongguan is probably the modern mass communication network which links Hong Kong to almost all Dongguan households. The computerized telephone system, which was installed in Dongguan in 1984 and has rapidly expanded ever since, allows Dongguan's residents to dial direct to their relatives in Hong Kong and overseas for information about the outside world. Electronic conduits such as TV and radio have brought almost all programs broadcast from Hong Kong stations into nearly all households in Dongguan. For the first time since the founding of the People's Republic, Dongguan's residents are able to receive sounds and images about the life of their relatives on the other side of the border, a lifestyle which is in sharp contrast to what they have been used to for over thirty years.

In 1984 when I directed a land use planning project for the 26 towns in the Liaobu *qu* (district) of Dongguan, I found that households with TV sets were almost all watching the Hong Kong program of Foon Luk Gum Siu ("Enjoy Yourself Tonight") which is an imitation of the American "Tonight Show" starring Johnny Carson. Few of Dongguan's population any longer had an interest in

tuning into the Central Broadcasting Station of Beijing for Communist propaganda or government-controlled news.

When I revisited Dongguan in 1992, I was stunned by the fact that many peasants in rural villages were able to watch all sorts of American TV programs broadcast from the Pearl Station of Hong Kong, including CBS Evening News, 60 minutes, 20/20, Wall Street Journal, Dallas, Murphy Brown, America's Funniest People, as well as many American movies in bilingual (English/Cantonese) form. During my field investigation in Dongguan, Nanhai, and Panyu, in fact, I watched more CBS Evening News than I did in Vancouver, Canada.

The invasion of Western culture, ideas, and information from Hong Kong into Dongguan has begun to alter the existing landscape and change the lifestyle of the local people. Visitors to Dongguan who travel around the countryside can easily find a distinct landscape characterized by numerous large antennas, erected at the top of farmhouses to capture coveted TV signals from Hong Kong. Within a village or town, the central location is usually occupied by a "cultural centre" (*wenhua zhongxin*) which was originally set up by the former commune or brigade officials to popularize Marxism, Leninism and Mao Zedong Thoughts or to disseminate directive documents from Beijing. Ironically, these socialist "cultural centres" have surrendered to the invasion of Hong Kong influence and become the locus for popularizing recreational activities in the Hong Kong style. Instead of studying the quotations of Chairman Mao or reading the editorial comment of the People's Daily, people have come to the cultural centre to play video games, to dance "disco", to sing Hong Kong pop songs with Karaoke, and to see video movies smuggled in from Hong Kong. Movies of action and horror and even adult movies are no longer uncommon in Dongguan, and most of them are produced in Hong Kong.

From TV, radio, and other media, the local people of Dongguan have become increasingly familiar with product brand names and have begun to consume foreign goods such as Colgate toothpaste, Marlboro cigarettes, Nike sneakers, and foreign-made cosmetics. Foreign-made drinks such as Pepsi Cola, Coca Cola, 7-Up, and Maxi coffee, which had never been heard of before 1979, have become the most familiar items for daily consumption by the local population.

Another interesting projection of the influence of Hong Kong can be found in changes in the local language characterized by the frequent use of many words from a Hong Kong translation of English. Thus, "bye-bye" has replaced the traditional Chinese saying of "*manzou*" (please walk slowly). Instead of calling policemen as "*min jing*" (the people's guard), local people began to adopt the Hong Kong Cantonese English loan-words of "*ah Sir*" (Sir) or "*chai lo*" (servant fellow) to refer to the police. Other Hong Kong translations of English such as "*desi*" (taxi), "*shido*" (store), and "*salong*" (saloon) have also become popular. On entering a restaurant in Chang'an *zhen* of Dongguan, I was puzzled by many dish names in the Chinese menu which I could not decipher, as they were neither in English nor in Mandarin. They were all in a Hong Kong sound translation of English such as "*sari*" (salad), "*buding*" (pudding), "*pisabing*" (pizza) and "*bingqiling*" (ice cream). What has been taking place in Dongguan since its opening up in 1978 is the demise of socialist tradition, the weakening of the impact of Beijing both politically and culturally, and a simultaneous take over of the Hong Kong model of production, consumption, recreation, and communication. Given sufficient time, a unique culture which blends the local tradition with Hong Kong innovations in dress, speech, music, and lifestyle may well emerge in Dongguan and in other parts of the delta region as well (Guldin, 1992).

6.3. Summary

For three decades since the birth of the People's Republic, socialist China had adopted an inward-looking approach to national and regional development primarily due to the existence of a hostile international environment. With its frontier location and perceived vulnerability to overseas attacks, the Zhujiang Delta region had not been able either to receive adequate support from the state for industrial development or to perform its traditional role as a center of export production and international trade. The implementation of the open door policy since 1979 has renewed and strengthened the delta's economic and social linkages with Hong Kong and overseas, which have resulted in fundamental changes not only in the economic sphere but in spatial and cultural aspects as well. If there is anything that distinguishes the recent development of the Zhujiang Delta from that in other parts of the nation, its intensive interaction with Hong Kong which has acted as a filter for global market forces is probably the most distinct characteristic and should be carefully studied in order to understand economic and spatial changes occurring in this region.

This chapter assesses the role played by external forces in the process of economic restructuring and spatial transformation of the Zhujiang Delta, using Dongguan as a case study. My detailed investigation of the experience of Dongguan has revealed that the relocation of labor-intensive industrial production from Hong Kong to Dongguan has created considerable employment opportunities in manufacturing for the local population, most of whom were farmers, and, therefore, significantly facilitated the transformation of the local economy from one that was predominantly agricultural into one that relies more on manufacturing and service sectors.

The single most important finding of this study is that the processing industry relocated from Hong Kong is not concentrated in a few urban centres as

the prevalent theory of multinational corporations would suggest. From the perspective of agglomeration economy, the existence of an improved transportation infrastructure, high population density, and an export processing industry which is mostly small-scale and labor intensive has made the suburban countryside a place no less attractive than a congested large city to multinationals from Hong Kong and overseas. In Dongguan, a vast majority of the small-scale, labour-intensive, and technologically unsophisticated processing plants subcontracting for Hong Kong companies has been found widely spread over the rural villages and townships of the countryside. Such an externally driven and rural-based industrial growth has resulted in a process of spatial transformation whereby a great number of surplus rural laborers entered factories in the countryside without moving into the city and wherein much agricultural land was converted into factory sites or industrial zones. The rapid expansion of the export processing industry has also contributed to an accelerated growth of production, a substantial increase in personal income, a growing participation of women in manufacturing, and a massive inflow of migrants from China's interior, all of which are no less significant than what has occurred in such large cities as Guangzhou, Foshan, and Jiangmen. The penetration of economic forces from Hong Kong as a result both of China's open door policy and of global industrial restructuring is one of the contributing factors that explains why, as identified in Chapter Three, the magnitude of growth and spatial changes has been remarkably greater in the suburban counties of the Zhujiang Delta region than in the large cities.

The opening up of the Zhujiang Delta, which was originally intended to attract foreign investment and acquire advanced technological knowhow, has also exposed the traditional culture of the local community to the filtering in of Hong Kong-style consumption, recreation, and communication. The influence of Hong Kong and the subsequent social and cultural changes that have been discussed in

this chapter are not confined to Dongguan alone. They can also be found in other cities and counties of the delta where extensive kinship, linguistic, and other cultural ties with Hong Kong have long existed. Social and cultural connections existing between the delta region and Hong Kong, which have by themselves underscored the distinct features of industrial development and spatial transformation in Dongguan and in other parts of the region, will continue to reinforce each other with economic linkages and combine to shape the emerging Hong Kong-Guangzhou megalopolis.

PART IV: SUMMARY AND CONCLUSIONS

CHAPTER SEVEN. SUMMARY AND CONCLUSIONS

"China.....remains a rich laboratory for testing many ideas about urban development. With the rapid policy shifts of the last four decades and extreme measures to enforce these shifts, China provides an unparalleled natural experiment in the multiple consequences of policy choices."

----William L. Parish, 1990, "What model now?"
In China's urban reform: what model now?
eds. R. Y. W. Kwok, et al, Armonk, N.Y.: M.E.Sharpe, p. 5.

7.1. Introduction

Against the background of a rapidly collapsing socialist empire in eastern Europe and the former Soviet Union, the Chinese socialist regime under the pragmatic leadership of Deng Xiaoping has since the late 1970s consciously endeavoured to develop a "socialist market economy with Chinese characteristics." If the decade of the 1980s could be recorded as a critical turning point in the history of global development, because it marked the dissolution of the long lasting socialist bloc and the end of the cold war, it should be considered as a landmark in contemporary Chinese history because it featured the abandonment of Maoist interpretation of socialism, the liberation of the socialist economy after thirty years of rigid state control, and an unprecedented outcry for political freedom, democracy, and human rights. Indeed, changes and developments in China since the 1980s have been so profound and dramatic that they deserve a systematic assessment and scholarly scrutiny. Such changes and developments also constitute a rare and valuable case to show how an isolated socialist economy is gradually transformed rather than completely destroyed after the intrusion of global market forces.

7.2. Summary of Major Findings

This study of regional development in post-reform China focuses on economic and spatial changes taking place in the Zhujiang Delta region during the years of 1980 to 1990. My analyses of regional data and indepth case studies have revealed that the delta region has since 1979 undergone a process of dramatic structural and spatial transformation. Its proximity to Hong Kong, abundant agricultural resources, and power of flexible economic decision-making granted by the post-reform central government have all combined to enable it to move "one step ahead" of the nation to attract foreign capital investment, achieve an incredibly rapid growth of industrial and agricultural output production, and significantly raise productivity, employment, and income for its population. After decades of isolated, stagnant, and "involutionary growth" or "growth without development", the Zhujiang Delta has, for the first time since the People's Republic, displayed remarkable signs of what Philip Huang called "transformative development" (Huang, 1990: 13, 18).

The take-off of the delta regional economy has owed little to the expansion of state-run, large-scale, capital-intensive modern manufacturing. It is numerous rural-based, small-scale, labour-intensive industries financed by both local and foreign capital that have provided the primary source of energy to fuel the process of industrialization and regional development. The structural consequence of this rural-based industrialization has been a disproportionate growth of the manufacturing sector and a simultaneous decline of agriculture in their share of the total production. The agricultural sector was not, however, completely wiped out after industrialization. Instead, it has been able to be commercialized and diversified to meet new challenges and become a profitable economic sector. The persistence of agricultural production in the Zhujiang Delta is primarily due to the unique local conditions including excellent natural endowments, a well-established

farming tradition, and easy access to major urban markets overseas. A restructured dual economy featuring both rural industry and commercialized agriculture is gradually taking shape in the post-reform Zhujiang Delta region.

The spatial configuration of economic development of the delta has been a region-based rather than city-based urbanization. This region-based urbanization has displayed distinct features in two simultaneous interrelated processes: population redistribution and land use transformation. In terms of population redistribution, rapid growth and restructuring of the delta's regional economy did not result in a growing concentration of population in large cities as the conventional wisdom of urban transition might have predicted. The primate city of Guangzhou did not exhibit any accelerated growth either in production or population. It is the triangle bordered by Guangzhou, Hong Kong, and Macao that has attracted a growing population. Within the regional hierarchy of urban settlements, it is the numerous small towns that have absorbed a great majority of the surplus rural labour released from agricultural production.

Similarly, the process of land-use transformation was found to be attributable more to the industrialization of the countryside than to the expansion of large cities. A substantial amount of farmland has been lost to industrial, transport, residential, and commercial developments in the countryside. A direct spatial outcome of this region-based rather than city-based urbanization has been mixed industrial/agricultural land use in the countryside and a blurring of the distinction between urban and rural activity.

My detailed case studies on the operating mechanism of regional development in the Zhujiang Delta did not find sufficient evidence to verify my conceptual hypothesis concerning the role of active state intervention in the development process. Available data tend to suggest that rapid development of the delta region in the 1980s was not an outcome of any active state involvement

in local economic affairs. Rather, it was a result of relaxed state control over the delta's regional economy. Economically, the central state is no longer a monopolizer of production, circulation, and distribution (*shengchan, liutong, fenpei*). Financially, the central state contributed to only a very small proportion of capital in local infrastructure development. The bulk of capital was actually mobilized by county and township governments through bank loans and overseas channels. Geographically, the people of the Zhujiang Delta may have more flexibility than those elsewhere in the country in deciding what and how things should be done because of the fact that "the mountains are high and the emperor is far away." Culturally, the delta region has since its opening up become more subordinate to Hong Kong than to Beijing. If the central state has contributed anything, it is the tacit laissez-faire approach to regional issues that has allowed the Zhujiang Delta to experience a virtually self-motivated, self-sustained, and market-oriented genuine development.

While the role of the central state has been significantly weakened as a result of economic reforms, local initiative has begun to take over and steer the vehicle of regional development. The role played by local initiative as hypothesized in my initial conceptual framework has been clearly supported by my empirical case studies. In particular, county and township governments as well as the collective and private sectors are found to be the chief agents responsible for two remarkable processes taking place in the delta region: transformation of the peasant economy and development of the transport infrastructure. It is the local governments at the county, township and village levels that have mobilized the necessary capital, manpower, and land resources to develop rural industries, market farming, and fundamentally restructure the peasant economy. These changes have enabled the region to break the deadlock of involutory growth and enter a new stage of "transformative development." Ironically, it was after

agricultural decollectivization that the collective sector became a viable pillar of the peasant economy. County and township governments are also found to be the key players in the creation of a transactional environment conducive to regional development. By building numerous bridges, roads, and highways, local economic planners have managed to overcome the friction of distance, annihilate space, and rearrange economic activities over space in a way deemed as necessary and instrumental to the pursuit of their development ambitions.

My last hypothesis concerning the role played by global market forces in the process of regional development has been validated by both the analysis of regional data and a detailed case study of Dongguan. The influence of global market forces emanating primarily through Hong Kong is perhaps the most distinctive feature of regional development in the Zhujiang Delta. Such influence has manifested itself in the two spheres of economic transformation and social change. Economically, the establishment of joint ventures, compensatory trading firms, and other forms of economic cooperation has significantly facilitated the transformation of local labour, induced immigration, and quickened the pace of farmland loss. Socially, the filtering of information, ideas, and modern technology from Hong Kong into the delta has Westernized the lifestyle of the local people particularly in their behaviour with regard to consumption, recreation, and communication.

7.3. Implications for Development Theories and Planning Practice

Early in this thesis, I presented a brief review of the development literature and suggested that various theories on the operating mechanisms of regional development are either exogenic or endogenic in origin. The development experience of the Zhujiang Delta region in the past decade tends to suggest that neither exogenism nor endogenism can provide a satisfactory explanation for the dynamism of regional development. Instead, it is the dialectical interaction

between local and global forces that has created the complex scenario of changes in the space economy of the delta. Figure 7-1 sketches a conceptual model which outlines the operating mechanism of regional development in the Zhujiang Delta. The model has three interconnected spheres. The first sphere concerns the interaction between local and global forces. It starts with the relaxed control of the state over the regional economy, which has allowed both local initiative and global market forces to take over in shaping the pattern of regional development. Local initiative is the main driving force responsible for transforming the peasant economy and setting up an economic infrastructure. On the other hand, global market forces have been filtered into the delta region through the global city of Hong Kong. It should be stressed that the three processes of peasant economy transformation, infrastructure development, and Hong Kong influence have acted together in the restructuring of the space economy of the delta region. The transformation of the peasant economy, which was characterized by rural industrialization and agricultural marketization, would not have been possible without a developed transport infrastructure and the urban market of Hong Kong which provided a great demand for the delta's manufactured products and farm commodities. Similarly, transport infrastructure development has owed a great deal to Hong Kong, which provided a considerable amount of capital, technology, and management knowhow to the delta. Reciprocally, the development of the transport infrastructure and the market-oriented industrialized peasant economy has reinforced the influence of Hong Kong on the delta region. Thus, the three essential processes of local-global dialectics are interdependent.

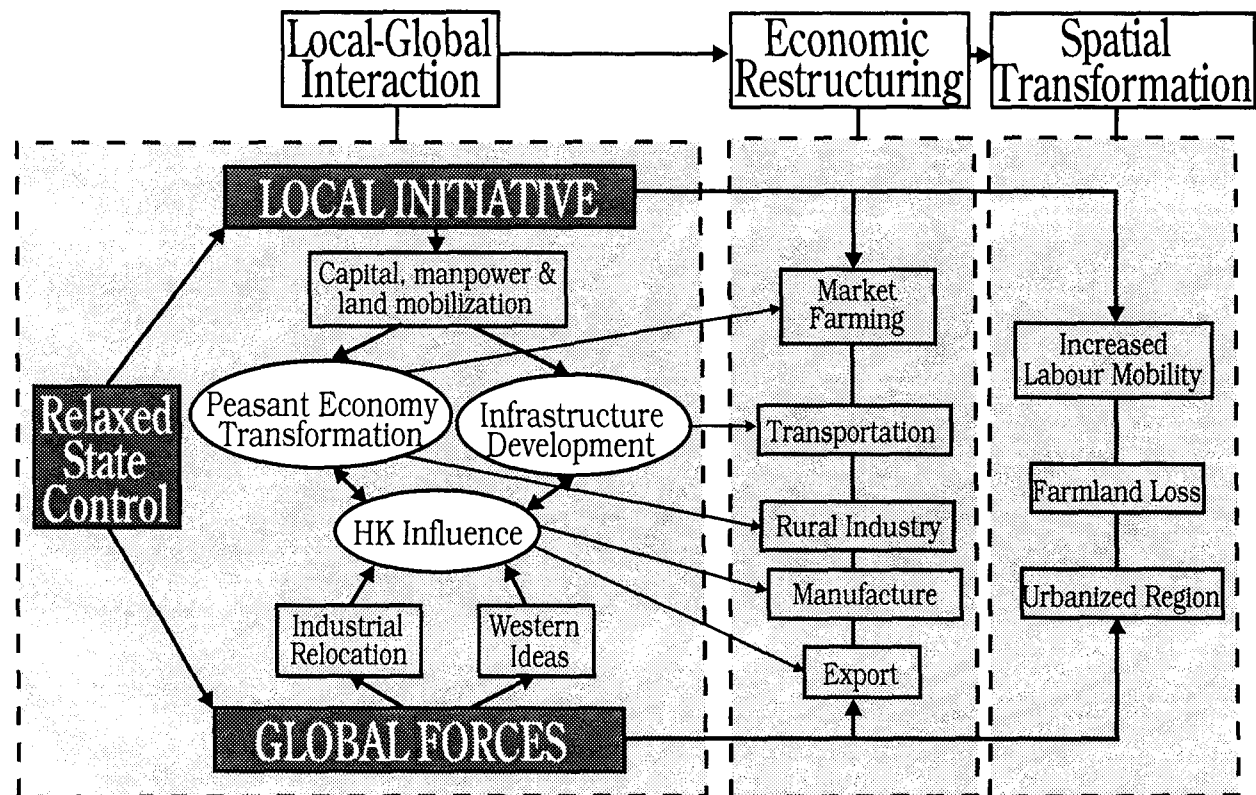


Figure 7-1. A Model for Regional Development in The Post-reform Zhujiang Delta, China, 1980-90

The consequences of the dialectical interaction of local and global forces have been the rapid growth and restructuring of the regional economy and the spatial redistribution of population and land use, which are identified as the second and third spheres of the model. Economically, the transformation of the peasant economy has significantly promoted both rural industrial production and market farming at the cost of traditional paddy rice cultivation. The development of the transportation infrastructure has, needless to say, raised the importance of the transport sector in employment and revenue generation. At the same time, foreign investment mostly from Hong Kong has contributed to the rapid growth of manufacturing and export production. The spatial consequences of the interaction of local and global forces have been a faster population movement to and within the region, the transformation of land from farming to nonfarm uses, and the creation of a urbanized zone stretching along the Hong Kong-Guangzhou-Macao corridor (Figure 7-1).

From a theoretical perspective, the model of local-global dialectics derived from the experience of the post-reform Zhujiang Delta suggests a dialectical view of the operating mechanism of regional development to combat existing theories of exogenism and endogenism. In this model, local initiative or the internal force of change is perceived as the key to and pre-condition for development, whereas global forces external to a region are seen as secondary conditions which can facilitate or slow down the process of change in the region. External forces become operative only after their interaction with internal condition. Such a dialectical relationship between local and global forces is like the one demonstrated in the process of turning an egg into a chicken cited by Mao Zedong in his classic writing on the Marxist view of dialectics (Mao, 1937: 157). An egg would not be able to change into a chicken unless a favourable external condition (i.e. suitable temperature) is provided, but a stone could never be changed into a chicken no

matter how suitable the temperature is. Any theory which either overemphasizes one dimension of the local-global dialectics at the expense of the other or mechanically combines the two would fail to provide a satisfactory explanation for the actual operating mechanism of regional development in post-reform socialist China.

This study of recent development in the Zhujiang Delta region has also raised fundamental questions concerning the role of the socialist state in Chinese regional development. As discussed in Chapter Two, the existing literature on Chinese regional development has been basically centered around the two opposing assertions of "anti-urbanism" and pragmatism. Common to both types of explanation is the assumption that the central state is a chief agent of change which, through central planning, manipulated China's space economy, although the motives of the socialist state are interpreted as pro-egalitarianism by some and urban-biased by others (Kirkby, 1985; Cannon, 1990; Chan, 1992). The development experience of the Zhujiang Delta has clearly suggested that the prevailing assumption of a strong socialist state may no longer be valid for what has been taking place in post-reform China although it might hold true for urban and regional growth in the Maoist era. Due to the 1979 economic reforms which decentralized the power of economic decision-making from the central government to local communities and individuals, the role of the central state in regional economic development has been significantly weakened. In view of the changing role of the central state, it is necessary to reassess and update many theoretical generalizations on socialist development. We need to know, for instance, if weakened state intervention is a feature unique to the Zhujiang Delta or common to other Chinese regions where a market economy is quickly developing. We also need to know the spatial and social consequences of economic decentralization at a national scale. Studies of these issues will contribute to a better understanding of

the dynamism of national and regional development in the context of reformed socialism.

From the perspective of regional planning and management, the tacit laissez faire policy adopted by the post-reform socialist state has not always been a blessing for the healthy development of the national and regional economy. While relaxed state control has undoubtedly stimulated local incentives and enthusiasm, it has also resulted in many problems which local authorities are unable to handle. Many small rural industries, for example, have in recent years found themselves sailing in the ocean without any idea of where they are heading. These small industries are able to respond sensibly to the changing demand of the market, but they are unable to detect and monitor the changes in the larger economic environment of which they are a part. As a result, once a certain commodity is perceived as in great demand, numerous enterprises act like "a swarm of bees (*yiwofeng*)" to produce that commodity. The market is then quickly saturated and many producers soon suffer from excessive production, sluggish sales and, eventually, bankruptcy.

Relaxed state intervention has also allowed peasants to transform most of their fertile cultivated land for more profitable industrial, commercial, and real estate developments. Profits generated from non-agricultural activities are then used to purchase food grain from other provinces or overseas to satisfy local demand. This smart arrangement seems to be working well for the time being, but in the long run local people of the Zhujiang Delta will have to pay a price for uncontrolled and irreversible farmland loss. Real-estate development which has taken a tremendous amount of farmland is already overheated in many cities and counties of the delta, and once it cools down will not be able to generate enough profit to sustain agricultural imports as local people have expected.

Loosened state intervention has also opened the door for such problems as environmental pollution, chaotic land use, social insecurity, burglary, smuggling, prostitution, counterfeiting of money, and the illegal simulation of brand-name products including drugs and medicines which has had devastating effects on the lives of local people. Without the necessary macro-level control including legislative, economic, and financial regulations, it will not be possible for the Zhujiang Delta to achieve economically viable, socially stable, and environmentally sustainable long-term regional development.

The findings of my detailed study of transport development in the delta region, particularly in Panyu, also have significant theoretical implications. It is generally known that the role of transportation in regional economic development has been a subject of unsettled debate among the three schools of interpretation which respectively perceive transport as having positive, negative, and permissive effects on the growth of a regional economy. The experience of the Zhujiang Delta region has shown that the establishment of a transport infrastructure in the right economic environment can have a remarkable effect, leading to rather than following the growth of the delta's regional economy. The economic effect of transport development was especially evident in Panyu where economic growth had long been blocked by the lack of a modern transport infrastructure. The frontier extension of road transportation has created definitive effects on the process of spatial transformation including accelerated suburbanization of production, population, and human settlements. The experience of the Zhujiang Delta region, where economic growth is still at an early stage has been fundamentally distinct from that of regions in Western Europe and North America where development has already reached an advanced stage of maturity and for which transport improvement is usually seen as a response to further economic expansion. This finding suggests that an appropriate, or perhaps the only, way of

understanding the complexity of interaction between transport development and regional economic transformation is to place the issue in a historically and geographically specific context for assessment and that it would be oversimplified to assume a definite cause-effect relationship applicable to all cases.

Finally, my analysis of the flow of foreign capital and manufacturing facilities, mostly from Hong Kong, into Zhujiang Delta has revealed that the dynamism of transnational capital has been actually more complicated than what has been suggested by the conventional wisdom of globalization. As highlighted in Chapter Two, the prevailing view of the globalization of capital investment and manufacturing production is essentially economistic and large-city-oriented. Transnational movement of capital is usually understood as being driven by such economic incentives as reducing labour costs, increasing net profits, and seeking greater comparative advantages from different localities. Spatially, transnational capital is described as having a locational preference for large cities where a good infrastructure is readily available and where economic externalities prevail. As a result, transnational capital is believed to have a direct spatial effect on the accelerated expansion of large cities in the target region. This economistic, large-city-based theory of globalization is not, however, adequate to give a satisfactory explanation for what has been taking place in the Zhujiang Delta since the 1980s.

In the delta region, the growth and spatial distribution of capital investment and manufacturing production relocated from Hong Kong were not completely shaped by economic forces. Many manufacturing establishments subcontracted with Hong Kong firms were found to be developed primarily on the basis of personal connection or kinship ties which enabled investors to secure a reliable return for their investment (Leung, 1993). Since the existence of kinship ties was not limited to the large city and since most relocated manufacturing operations were simple, small, labour intensive and geographically ubiquitous in nature,

transnational capital and manufacturing production subcontracted with Hong Kong did not display a tendency to high concentration in the large city as the conventional wisdom of globalization has suggested. They have instead favoured the suburban corridor between Hong Kong and Guangzhou and become a significant contributing factor in explaining why the large cities of the Zhujiang Delta did not experience excessive expansion in the past decade while many suburban counties were growing rapidly. This finding suggests that the transnational movement of capital and manufacturing is not a purely economic phenomenon and that non-economic factors such as historical, cultural, and social relations should not be overlooked in understanding the mechanism and spatial patterns of the globalization of production.

7.4 Prospect

The economic and spatial changes that have been taking place in the Zhujiang Delta since the 1980s are truly staggering and fascinating. For this "land of capitalist miracles" where rice paddy is being transformed into metropolis, where thousands of factories are blooming, where roads are being extended so rapidly that no map is accurate without constant redrawing, where hotels and restaurants are being opened every day, and where telephone directories and company listings are dated as soon as they are printed, no one can be sure what its future will hold.

In the past decade, the Zhujiang Delta was fortunate to be selected as one of the first regions in the nation granted with special permission to build an open market economy. With the recent opening up of other coastal regions in the country such as Pudong in Shanghai, the Zhujiang Delta region will gradually lose its leading position in attracting foreign investment and in developing its market economy. Its access to national and international markets will also be constrained

because of increasing competition from other Chinese coastal regions and other southeast Asian countries that are developing rapidly. The first decade of reform and development has pulled the Zhujiang Delta out of the deadlock of isolated and stagnant growth. The challenging tasks that are going to confront planners of the delta will be to resolve internal economic problems such as chaotic production, inflation, and overheated real estate, to consolidate the foundation of the region's economy according to its comparative advantages, and to sharpen up several key industries that have regional strengths, so that a strong regional economy can be developed to win in both national and international competition.

It may not be possible to give an accurate prediction for the future of the Zhujiang Delta because the region is, like the nation as a whole, about to enter an uncertain stage when China's supreme leader Deng Xiaoping passes away and when the Communist People's Liberation Army takes over the capitalist enclave of Hong Kong. It is foreseeable, however, that the Zhujiang Delta, with its development headstart over other Chinese regions, will continue to serve as a rare laboratory for testing the validity of many theoretical hypotheses about development and for assessing the effectiveness of different policies or planning approaches. For the immediate future, research is needed to see if the development experience of the Zhujiang Delta also appears in the less developed regions of China after their economies have been exposed to the similar global market forces of regional development identified in this study. Given China's regional diversity, the role of local forces in regional development may also vary. If this is the case, it would then be necessary to consider whether the realities of regional development in China can be accounted for by one general national model, or whether several more specific regional models are required.

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