THE SPATIAL AND URBAN DIMENSIONS OF DEVELOPMENT IN THE PHILIPPINES

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FOREWORD

Issues relating to the processes of urbanization, industrialization and spatial development have gained prominence through the years. However, while studies on these areas have contributed to a stimulating discussion of policy questions, these have often been conducted on a piecemeal basis. Noticeably lacking in research efforts especially during the 60s and 70s is an integrative study, defining in a broader perspective, the interrelationships among urban growth, industrialization and the space economy.

This volume, authored by Ernesto M. Pernia, Cayetano W. Paderanga, Jr., Victorina P. Hermoso and their associates from the University of the Philippines School of Economics, is an integrative study of the interlinked problems of urbanization, industrialization and spatial development. The book attempts to respond to the long felt need for a thorough discussion and analysis of the interrelationships among these three aspects of modernization, especially as they have become priority areas of development policy in the 80s.

By embarking on this research undertaking, the authors have achieved a milestone in Philippine development research. In particular, their study helps to clear up a number of misconceptions about spatial and urban issues. Likewise, they have clarified certain frequently raised questions, such as: is the level of urbanization too high or too low; is the speed of urbanization too fast or too slow; why have rural and regional development policies failed to keep industries from locating, and population from migrating toward main city centers; how can a more balanced urbanization and regional development conducive to greater efficiency and equity be achieved? And so on.

This study not only builds on previous research endeavors but also opens wider vistas for discovering fresh insights needed in plan and policy formulation. It is an important contribution to our better understanding of the process of urbanization and spatial development.

The PIDS gratefully acknowledges the financial assistance received from the National Economic and Development Authority for the conduct of this study.

FILOLOGO PANTE, JR.
President

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PREFACE

This volume embodies the product of a collaborative research effort at the U.P. School of Economics (UPSE) involving faculty members and graduate students. Under the arrangement, these students were able to work on their dissertation and thesis research while contributing to this joint output. The time frame of the research project stretched from June 1980 to October 1981.

Aside from us, the other members of the research team were Victorina P. Hermoso, a Ph.D. candidate; Virginia Gonzales, Cardozo Luna, Gilda Reyes and Evangeline Soliman, all M.A. candidates. Rosario Gulinao-Quirubin acted as research assistant while Ana R. Aureo served as secretary-typist. At various points during the project period, a few other graduate students and members of the UPSE staff were also involved, including Ellen Rose Payongayong and Fely Galaites.

Dr. Richard F. Muth of Stanford University came for about two weeks in February 1981, under PIDS-UNDP sponsorship, to lend some advice on certain aspects of the project. Dr. Edwin S. Mills of Princeton University served as reader of the draft report and offered useful criticisms and suggestions. Likewise, Dean J. Encarnacion gave specific comments on certain parts of the study. In addition, the draft report profited from the presentation made at the PIDS/NEDA seminar in April 1982. Finally, it was inevitable but fortunate that we benefited either directly or indirectly from conversations with our colleagues, as well as from the conducive research milieu at the School of Economics.

The project also obtained the indispensable cooperation of a number of government agencies particularly regarding its data requirements. Prominent among these offices were the National Economic and Development Authority, the National Census and Statistics Office, the Central Bank, the Commission on Audit, the Ministry of the Budget, and the Ministry of Public Works and Highways.

Lastly, but certainly not least, the research project was made viable by the financial support of the Philippine Institute for Development Studies (PIDS) and the NEDA-UNFPA Population/Development Program, as well as by the encouragement of the PIDS president, Dr. Filologo Pante, Jr. and, subsequently, Dr. Romeo M. Bautista. The research undertaking may per-

haps be considered as an example of a case where academic interest and policy concern coincide and where such coincidence can be invigorated by the skillful entrepreneurship of an institution such as the PIDS.

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PART I

THE SPATIAL AND URBAN
DIMENSIONS OF DEVELOPMENT

Ernesto M. Pernia
and
Cayetano W. Paderanga, Jr.

CHAPTER 1

INTRODUCTION

A survey of Philippine development literature would reveal that a number of studies have been devoted to the subject of urbanization and cities. A later genre of research has touched on regional development which started to become a fashionable topic in the late 60s. These two types of studies have, in separate ways, not only contributed fruitfully to academic discussion but have also stimulated thinking about relevant policy issues. During the 70s, research efforts on the urban and regional aspects of development continued to move along largely independent lines.[1]

In recent years, there has been an increasing appreciation of the close relationship among the processes of urbanization, industrialization and spatial development. Likewise, there has been a deepening concern about urban and spatial issues with respect to development in the 80s. It seems appropriate and timely to consider urbanization and spatial development as one research problem or as two interlinked aspects of national development.

A study of the spatial and urban dimensions of development is important for a number of reasons. First, because urbanization and spatial concentration of economic activity have implications on the distribution of the benefits of development and the satisfaction of human needs since people and economic resources are located in space. On account of such constraints as friction of space, market segmentation, information gaps and imperfect mobility, access of people to resources and to the benefits of development has been patently uneven.

Second, there are a good many misconceptions and ambiguities about spatial and urban issues needing clarification, as exemplified by the following frequently-asked questions: is the level of urbanization high or low; is the speed of urbanization too fast or too slow; is urbanization related to industrialization; is Metropolitan Manila too big and, if so, why does it continue to grow or attract people and resources; what was the basis for the 50-kilo-

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[1]A survey of Philippine urbanization and spatial development research has been done by Pernia and Paderanga (1980) and has in fact served as the take-off point of the present study.

meter-radius ban against the location of industries in Metro Manila; why have rural and regional development policies largely failed to keep population from migrating to the usual destinations, e.g., Manila or the central industrial region; are local community government-sponsored projects effective in raising household incomes and stemming out-migration?

Third, because the phenomenon of urbanization and spatial concentration is likely to become a more prominent issue in the 80s, answers or clues to the foregoing questions are called for by the scientific community, policy planners and the public in general. Policymakers, in particular, need a firm handle on the so-called "urbanization problem". For instance, at one level this problem may refer to urban primacy or the polarization phenomenon and how regional urban centers could serve to reverse such polarization. At another level, the problem may be in terms of urban poverty and how to cope with rapidly increasing demands for social services in cities.

Fourth, a good deal of research effort has been expended by various scholars on the broad topics of urbanization and regional development, as already mentioned above. It is worthwhile to continue the scholarly tradition in order to build on these previous studies, be able to come up with answers to new research questions, and thus keep up with the dynamism of social science research.

The foregoing points constitute the general rationale for a continuing research effort on the subject. The present study is meant to be a part of such an endeavor. The objectives are: a) to describe analytically the historical processes of urbanization and spatial concentration of population and economic activity, highlighting the role played by government policies; b) to determine quantitatively the factors that influence manufacturing concentration and population movements; c) to examine the extent to which urbanization affects agricultural productivity; and d) to draw possible lessons or implications for policy planning.

Conceptual Framework

We use the terms "urbanization" and "spatial development" together or interchangeably since we regard them as two ways of looking at or expressing the same phenomenon.[2] Urbanization usually refers to the rise in the proportion of the population that is urban, or the growth of urban population relative to rural population, or the extent to which population becomes concentrated in cities or urban areas. A concomitant phenomenon is

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[2]Actually, the term "spatial development" is comprehensive enough but "urbanization" is the more popularly used expression.

industrialization, which denotes the shift of economic activity away from agriculture as well as the location of new economic activities or industries in places of concentration to take advantage of urbanization and agglomeration economies. Urbanization therefore connotes industrialization, and vice versa.

In the course of urbanization and industrialization, changes in the organization of the space economy result in a continuing alteration of the country's economic landscape. This process we call spatial development. Some points of concentration or cities prosper faster than others; in the same vein, some regions grow more rapidly than others. Over time, spatial development becomes uneven and tends to be concentrated in one or a few places, resulting in polarization which can perpetuate itself indefinitely (Myrdal 1957, Hirschman 1958).[3] Polarization can be socially undesirable because it can work against the efficiency of the socioeconomic system and a broad-based popular participation in development, as well as militate against national integration.

The foregoing discussion suggests that urbanization and spatial development are intrinsic and essential aspects of national development. They reflect the industrial and occupational restructuring of the economy and society. The forces that have shaped urbanization and spatial development are multifarious, but we can attempt to handle analytically only some of the major ones.

A major force considered to have brought about urban concentration or primacy is historical inertia, particularly colonial heritage. In colonial times the development of the present metropolis got underway apparently by virtue of its natural strategic advantages. Through time, this city served as an *entrepot* between the colony and the mother country (see, e.g., Cressey 1960). It drew resources from the rest of the colonial economy for the mother country but did not give anything in return to the peripheral economy. This dependency arrangement between colony and mother country seems to have had favorable consequences for the metropolis but debilitating effects on virtually the rest of the economy. Some development theorists contend that dependency arrangements and their effects persist in LDCs to the present day (Prebisch 1969, Frank 1972). These effects and other international forces impinge not only on overall national development but also on its spatial pattern.

After independence, the core-periphery dichotomy became more pronounced as social, political and demographic forces in conjunction with agglomeration economies increasingly favored the primate city and its

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[3]Although some recent literature (e.g., Richardson 1977, 1980; Alonso 1980) suggest that market forces would sometime automatically spur a polarization reversal.

environs. In addition, there are strong indications to suggest that the natural and economic advantages of the primate city have been further heightened by macroeconomic (trade and growth) policies that exert potent spatial biases in its favor and against the outer regions (Alonso 1970, Sicat 1970, Renaud 1979). It is largely on account of these implicit spatial biases, besides city-specific policies and programs, that later regional and rural policies explicitly intended to disperse population and development have been largely ineffective.[4]

Figure 1.1 depicts schematically the above hypothesized relationships. On the left-hand side is a big box containing smaller boxes labeled historical, economic, social and demographic forces which are largely natural or endogenous. These forces shape (and are themselves affected by) spatial development via household migration decisions, which in turn affect the urbanization process (lower loop). At the same time, the same forces influence (and are themselves influenced by) industrial location decisions of firms and the industrialization process itself, which then bear on the configuration of the space economy (upper loop).[5] It bears pointing out that implicit in the processes of urbanization and industrialization is agricultural development which is the other side of economic transformation; often, this point is missed in urbanization studies.

Around the middle of Figure 1.1 are the various government policies, viz. macroeconomic, regional, rural and urban, acting as exogenous forces. Macro and sectoral policies particularly those relating to trade and industry (and agriculture) were initiated in the 50s in the form of the exchange rate system, tariff and domestic tax/subsidy programs, and other fiscal and monetary measures. Although they were adopted purportedly to achieve the usual economic goals, it has become apparent that they have strongly influenced the spatial pattern of industrialization, agricultural development and urbanization.[6] Additionally, urban policies in the form of infrastructure investments and the provision of social services have also greatly benefited the city at the expense of the provinces (rural areas). Toward the late 60s, it apparently dawned on government planners and policymakers that something had to be done for the regions and rural areas in order to redress the imbalance and prevent the city from becoming "too big". Our hypothesis is that these regional and rural policies (e.g., industrial estates, industrial

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[4]At least up to 1975 since lack of more recent data precludes a more complete analysis of policy effectiveness. Richardson (1980), for example, suggests that policy impact can be felt only after a lag of 15-20 years.

[5]Cf. also Paderanga's Special Paper on firm location in LDCs.

[6]These unintended policy impacts are also referred to as government-induced externalities (see Tolley, Graves and Gardner 1979).

Figure 1.1 A Simple Conceptual Framework Depicting the Key Relationships with Respect to Urbanization, Industrialization and Spatial Development
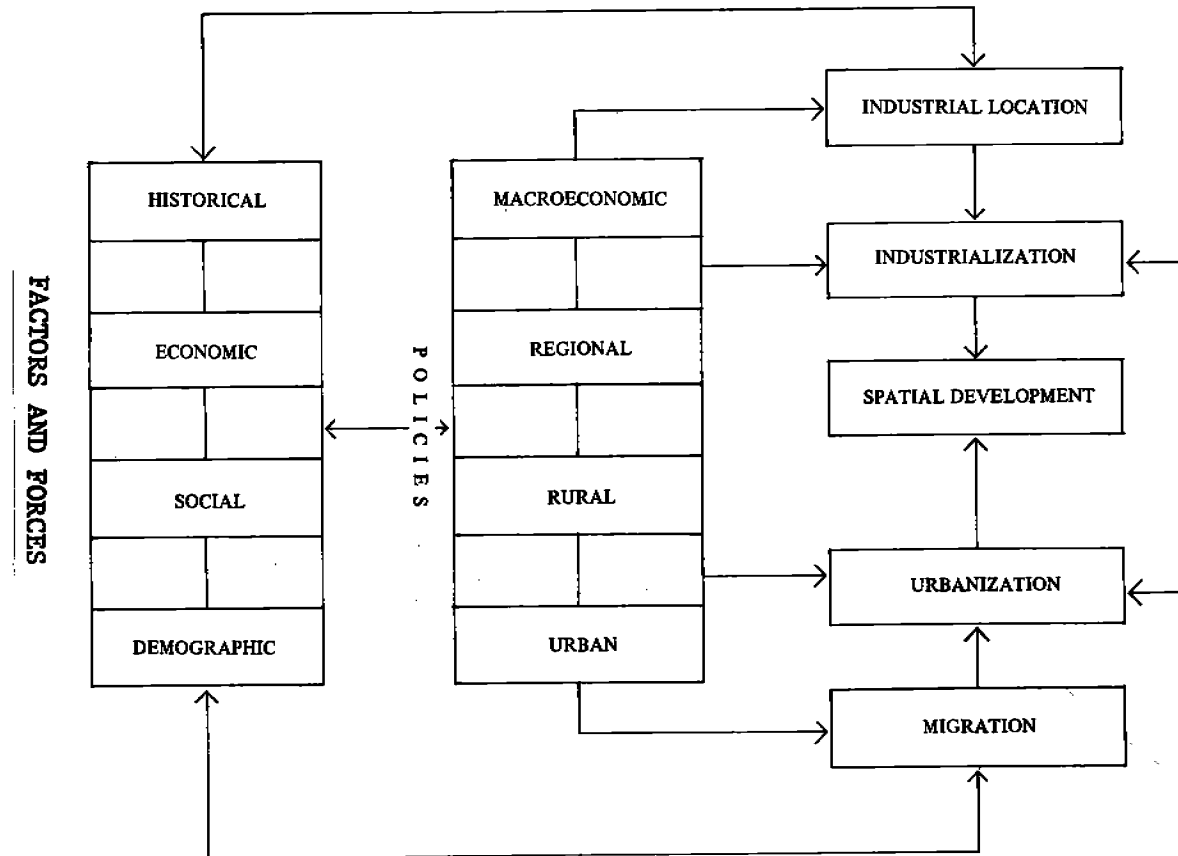
dispersal, and integrated area development) have been largely ineffective owing to the powerful biases for concentration of the macroeconomic and urban policies.

In sum, our central thesis is that the spatial development of the economy is shaped by the pace and pattern of urbanization, industrialization and agricultural development. These in turn are determined by natural economic and social forces as well as by the exogenous impacts of implicit spatial policies, even more so than the explicit ones. If so, a careful review of economic policies in terms of their direct and indirect spatial effects, in addition to the analysis of natural forces, is called for in the evolution of a sound urban and spatial development strategy.

Organization of the Study

To put the Philippines in perspective, the next chapter provides a cross-country analysis of Asian urbanization and development. By looking at trends in the various Asian countries, one can get a better idea of the relative performance of the Philippines. The chapter also offers a broad view of the determinants of urbanization and primacy.

Chapter 3 gives an analytical description of the country's spatial development and urbanization from 1900 through 1975, breaking this long historical stretch into the Colonial Period (1900-39), the Import Substitution Period (1948-67), and the Regional Awareness Period (1967-70s). The chapter traces the shift and evolution of the nation's center of population and economic activity as influenced by socioeconomic forces and changing policy thrusts. This is followed by an analysis of the growth and structure of the urban system, resulting in a classification of cities that depict the current urban hierarchy in the context of regional development.

Chapter 4 discusses the spatial pattern of manufacturing activity within the framework of the three historical periods that reflect changing policy themes. It then presents the analytical results concerning the determinants of manufacturing concentration in the national capital region (NCR). A noteworthy feature of the analysis is the inclusion of policy-related variables along with the usual market factors. The second part of the chapter presents the patterns of interregional migration prior to 1960, between 1960 and 1970, and during 1970-75. This is followed by a discussion of the regression results on the factors that explain spatial population movements.

Finally, Chapter 5 pulls together the salient findings of the study. On the basis of these findings, some implications for policy and planning are put forward.

Part II of the volume is an extensive study of the development of the Philippine space economy which provides part of the analytical underpinning for Part I. The rest of the background papers make up Part III of this volume.

CHAPTER 2

ASIAN URBANIZATION AND DEVELOPMENT: A CROSS-NATIONAL PERSPECTIVE*

This chapter offers a comparative perspective on Asian urbanization in relation to development, thus putting the Philippines in context. An analysis of certain indicators of urbanization and spatial concentration across countries may provide a broad clue to the particular aspects of the "urbanization problem" we should be concerned about. The focus of the chapter is on South, Southeast and East Asia, and the constituent countries exclude city-states (Hongkong and Singapore) and countries in turmoil (Cambodia and Vietnam) or with inadequate data (Nepal). In addition, two centrally planned Asian countries, namely, the People's Republic of China (PROC) and the Peoples Republic of Korea (North Korea) are included to increase the range of experiences.[1]

The trends for the different Asian regions are first presented in the context of the world's more developed and less developed regions. Comparative data on the constituent countries in each of the regions are next shown. Then an urbanization-development model is proposed and subsequently tested empirically. The concluding section summarizes the findings and implications.

Asian Regions in Context

According to data from the United Nations (1980), the world in 1980 was about 41 percent urban; more developed regions were 70 percent urban and less developed regions, 30 percent urban. In absolute terms, these

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*A version of this chapter appeared as an article in the *Philippine Review of Economics and Business,* Vol. XIX, 1982.

[1]Professor Oshima has written important treatises (1978, 1980, 1981) on the economic performance of, and prospects for, Asian countries. The present paper could perhaps serve as a complement to these treatises.

translate to 1,806 million urban population in the world as a whole, 834 million in more developed regions and 972 million in less developed regions. Against this background, we can situate the Asian regions in 1980 with the following statistics (from Tables 2.1 and 2.2):

	Percent Urban	Urban Population (in millions)
South Asia	22.0	201.1
Southeast Asia	22.7	61.4
Centrally Planned Asia	26.1	241.4
East Asia	72.5	112.9

The data readily indicate extremes in urbanization levels in these regions. At one end is East Asia which corresponds closely to the average for the more developed world, and at the other end are South, Southeast and Centrally Planned Asia which fall below the mean for the less developed world and far below the average for the world as a whole.[2] The majority of Asia is thus still relatively unurbanized, reflecting the low level of development in these regions. This is particularly true of South Asia and Southeast Asia which are less than a quarter urban.

The relatively unurbanized status of Asia is the result of its slow pace of urbanization even in recent decades. This is contrary to the common impression that Asia has a problem of rapid urbanization. If anything, the problem seems to be more that Asian regions have been urbanizing rather sluggishly as evinced by the following comparative data (from Table 2.1) on rates of urbanization[3] (in percent) over three decades:

South Asia's rate (or speed) of urbanization has been the slowest and that of Southeast Asia has been practically the same especially in the 70s. These rates resemble the world average but are still lower than the mean for less developed regions.[4] Centrally Planned Asia's urbanization has been faster than South and Southeast Asia (unusually fast during 1950-60) and close to

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[2]The less developed world average is actually pulled up by Latin America whose urbanization level is closer to the more developed world than to the less developed world.

[3]Rate of urbanization is here defined as the percentage change in urban-rural ratio rather than the change in proportion urban. The former measure is superior because it does not have an upper limit of 1.

[4]There is also evidence to show that the rate of urbanization in LDCs is not rapid compared to the historical experience of Western countries (see Davis 1975, Pernia 1976, Preston 1979).

the less developed world average. The remarkable performance is that of East Asia whose speed of urbanization has been over 50 percent faster still than the average for the more developed world.

	1950-60	1960-70	1970-80
South Asia	11.3	14.5	19.4
Southeast Asia	20.3	16.0	19.0
Centrally Planned Asia	82.8	21.4	24.3
East Asia	53.3	45.8	46.8
World	25.7	17.0	17.3
More developed Regions	28.5	28.7	28.3
Less developed Regions	39.3	24.3	26.4

The pattern of urban population growth is quite the reverse. Southeast Asia manifests the highest rate of urban growth, approximating the average for the less developed regions, followed closely by South Asia. What is more striking is the pattern of rural population growth. The growth rates for South and Southeast Asia are very high relative to the average for the less developed regions as well as for the world as a whole. But the real contrast is with East Asia and the more developed regions whose rural growth rates have been negative throughout the three decades. The comparative rates of urban and rural population growth (from Table 2.2) are (in percent):

It is clear that in purely demographic terms the high rate of rural population growth is slowing down the pace of urbanization in Asia (except East Asia) and in the less developed world (despite high urban growth rates). If we compute for urban-rural growth difference (URGD), we would see the same interregional pattern as that for rates of urbanization (Table 2.2).[5]

South Asia

This region, as already mentioned, is predominantly rural. It was 16 percent urban in 1950 and, even in 1980, only 22 percent urban. The countries in this region are among the lowest in terms of levels of income and their growth rates. Recent data on levels of urbanization, industrialization

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[5]URGD is also used to measure speed of urbanization.

	1950-60		1960-70		1970-80	
	Urban	Rural	Urban	Rural	Urban	Rural
South Asia	33.5	20.0	42.8	24.6	47.6	23.7
Southeast Asia	47.3	22.2	48.7	27.9	52.3	28.3
Centrally Planned Asia	95.5	7.1	37.9	13.5	39.0	11.8
East Asia	41.5	−7.7	32.9	−8.8	29.5	−11.8
World	39.8	11.1	33.9	14.3	33.4	13.8
More developed Regions	27.6	−0.8	22.7	−4.6	18.7	−7.5
Less developed Regions	59.6	14.6	48.3	19.1	49.3	18.2

and GNP per capita for individual countries (from Tables 2.1 and 2.5) are as follows:[6]

	Urbanization	Industrialization	GNP per capita	
	(1980) Percent	(1978) Percent	(1978) US$	(1960-78 annual change) Percent
Bangladesh	11.2	8	90	−0.4
Burma	27.2	10	150	1.0
India	22.3	17	180	1.4
Sri Lanka	26.6	23	190	2.0
Pakistan	28.2	16	230	2.8

[6]Industrialization level is here indicated by manufacturing share of GDP since this is the most dynamic component of the industrial sector. Data on GNP per capita are taken from the World Bank (1980).

The degree of concentration (proportion of urban population in largest city) in these countries in 1980 ranged from a low of 6 percent for India to a high of 30 percent for Bangladesh (Table 2.3). Urban concentration has remained more or less stable in India and in Pakistan (at 21 percent) but has markedly risen in Bangladesh from 20 percent in 1960. By contrast, Sri Lanka has shown remarkable deconcentration, from 28 percent in 1960 to 16 percent in 1980 despite the presence of only one city of over 500,000 inhabitants.

Southeast Asia

The region as a whole has exhibited practically the same urbanization trend as South Asia although all countries are now classified by the World Bank as middle-income countries. Indonesia used to belong to the low-income group of countries until recently. Comparative data on urbanization, industrialization and GNP per capita for individual countries (from Tables 2.1 and 2.5) are shown below:

	Urbanization	Industrial-ization	GNP per capita	
	(1980) Percent	(1978) Percent	(1978) US$	(1960-78 annual change) Percent
Indonesia	20.2	9	360	4.1
Thailand	14.4	18	490	4.6
Philippines	36.2	25	510	2.6
Malaysia	29.4	17	1,090	3.9

The income levels as well as their growth rates are significantly higher in Southeast than in South Asian countries. Thus, if the link between urbanization and economic growth continues to hold, Southeast Asian countries would probably accelerate in urbanization in the coming years, at least relative to South Asian countries.

Urban concentration (proportion of urban population in largest city) is very pronounced in the region, ranging from 23 percent in Indonesia to 69 percent in Thailand (Table 2.3). This indicator has been steadily rising in all four countries, as can be seen below:

	1960	1970	1980
Indonesia	20	22	23
Thailand	65	68	69
Philippines	27	29	30
Malaysia	19	23	27

It may be hypothesized that the exceptionally marked urban concentration or primacy in Southeast Asian countries is not unrelated to the import-substitution industrialization strategy pursued by these countries in the 50s and 60s.[7] This point will be discussed further and partial support for the hypothesis will be shown in subsequent sections.

Centrally Planned Asia

This region includes two countries: the People's Republic of China (PROC) whose level of urbanization appears similar to some countries in South and Southeast Asia, and North Korea which resembles more the countries in East Asia than elsewhere. By World Bank income standards, PROC would be considered a low-income country and North Korea, a middle-income country, as denoted by the following data (from Table 2.1):

	Urbanization	GNP per capita	
	(1980) Percent	(1978) US$	(1960-78 annual change) Percent
PROC	25.4	230	3.7
North Korea	59.7	730	4.5

[7]For a discussion of import-substitution policies widely adopted among Southeast Asian countries, see Myint (1972). While there has been a shift away from these policies, their spatial impacts probably continue to linger up to the present. An additional reason for the extreme urban concentration in Thailand may be a geographical one: the lack of good harbors in coastal areas to service big cities other than Bangkok.

Another point that may be noted is that the economic growth performance of both countries compares well with those of the high performers in Southeast Asia.

The remarkable characteristic that seems to set these two countries apart from the other Asian countries is the relative absence of urban concentration. PROC exhibited only 6 percent urban concentration from 1960 to 1980 while North Korea had 15 percent concentration in 1960 which declined to 12 percent in 1980. It would seem that such relative lack of concentration is due to central controls on population movements.

East Asia

The countries in this region are among the great economic performers of the post-war era: Japan in the 50s and 60s, Taiwan in the 60s and 70s and South Korea in the 70s (see, e.g., Oshima 1980). The average annual growth rate of GNP per capita in these countries from 1960 to 1978 was in the vicinity of 7 percent. (See also Table 2.4)

It is not surprising, therefore, that they have also experienced very rapid urbanization rates of over twice those manifested by the other Asian countries. By 1980, more than half of the population in South Korea was urbanized, and over three-fourths of both Taiwan and Japan's populations were urbanized. The growth rates of rural population in these countries have been negative for some time already. Data on 1980 degree of concentration show that 41 percent of South Korea's urban population are in Seoul, while for Japan, 22 percent are in Tokyo. The relatively low concentration in Japan may be attributed to its policy of regionalization of industrial development and more developed system of transportation and communication. The high concentration in South Korea may be partly explained by its heavy industrialization-cum-protection policy — in a way similar to the phenomenon in Southeast Asian countries.

Urbanization and Development

The level of urbanization at a point in time, its pace over time, and the degree of concentration are indicative of the current and future scale of the urbanization problem. These are among the major indicators of concern relative to the urbanization issue. From the previous discussion of experiences across Asian regions and countries within each region, it appears that urbanization is closely related to economic development. What needs to be done now is to determine the principal correlates of urbanization. The Asian countries included in this study portray varied experiences and cir-

cumstances such that a cross-sectional statistical analysis should throw some light on the urbanization-development nexus. Specifically, what this cross-sectional analysis should do is to identify the factors that account for the variation in urbanization levels and rates, as well as in the degrees of concentration across Asian countries.

On the basis of standard development theory (e.g., Lewis 1954, Ranis and Fei, 1961), it is commonly supposed that overall development of the economy as well as developments in both the agricultural and industrial sectors determine urbanization in a fundamental way. Agricultural development tends to release farm labor and population over time which are then attracted to the urban-industrial sector. Thus, it has been assumed that the speed of rural-urban transformation is directly conditioned by agricultural and industrial developments. This seems to be the traditional view. Recent data on LDCs, however, suggest that rapid population growth tends to retard the urbanization process. The relationship may be hypothesized to operate in two ways. In the first place, where overall population growth is high, it is usually pronouncedly higher in the rural sector than in the urban sector, and this has the direct demographic effect of dampening the rise in the proportion urban. In the second place, population growth tends to hamper economic development and thus, indirectly, the urbanization process itself. It therefore seems warranted to expand the standard urbanization-development model by adding the population growth variable.

Concerning degree of urban concentration, our hypothesis is that it is also influenced by industrial development (or manufacturing activity) and population growth. In addition, degree of openness of the economy would play a crucial role inasmuch as importation of goods and services requires licenses and foreign exchange which are more easily obtainable in the capital city. Likewise, most other support services for manufacturing are found in the metropolis. There is then clearly a strong incentive for industries and business concerns to locate in the capital metropolis which, in most cases, is also the capital port of the country. This is all the more so in developing countries where transportation and communications are deficient (Alonso 1968). The spatial coincidence of the capital metropolis and the capital port is thus advantageous for manufacturing activity with its import requirements. As is known, import-intensive industrialization characterized many Asian economies during most of the post-war era.

Data, Notations, and Results

The data employed in our regression exercise pertain to the South, Southeast, Centrally Planned and East Asian countries considered in the

previous discussion. The data are reported in the most recent publications of the United Nations (1980) and the World Bank (1980). (See Tables 2.1 through 2.6.) To increase the number of cases, we pooled the cross-section observations for 1960, 1970, and 1980 (or 1978). The variable notations and their specifications are as follows:

URB_t = level of urbanization at time t, specified as urban-rural ratio (or $\frac{\text{proportion urban}}{\text{1-proportion urban}}$) rather than simply proportion urban which has an upper limit of 1.

$RURB_{t-1, t}$ = rate (or speed) of urbanization during some interval, specified as percentage change in URB.

$CONC_t$ = degree of concentration at time t, specified as $\frac{L}{1 - L}$, where L denotes the proportion of urban population in the largest city.

IND_t = industry share of GDP at time t, which represents economic level.

$GRAG_{t-1, t}$ = average annual growth rate of agricultural production.

$GRMAN_{t-1, t}$ = average annual growth rate of manufacturing production.

$GRPOP_{t-1, t}$ = average annual growth rate of production.

$OPEN_t$ = degree of openness of the economy, specified as the import share of GDP.

Our regression results correspond to three dimensions of an urbanization-development model explaining: (1) level of urbanization, (2) rate of urbanization, and (3) degree of concentration.[8]

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[8]t-values are enclosed in parentheses underneath regression coefficients.

$$(1)\ URB = -1.249 + 1.669\ IND - 0.732\ GRAG + 0.234\ GRMAN$$
$$\qquad\qquad\quad (4.683)\qquad (2.211)\qquad\quad (0.917)$$

$$R^2 = 0.66$$

$$(1')\ \ URB = 0.559 + 1.292\ IND - 0.533\ GRAG + 0.276\ GRMAN - 1.129\ GRPOP$$
$$\qquad\qquad\quad (3.494)\qquad (1.685)\qquad\quad (1.178)\qquad\qquad (2.146)$$

$$R^2 = 0.73$$

Equation (1) shows that level of urbanization is significantly conditioned positively by economic level (IND) and negatively by agricultural growth (GRAG).[9] A 1.0 percent increase in economic level brings about a 1.7 percent change in urbanization level; on the other hand, a similar change in agricultural growth pulls down urbanization level by 0.7 percent. Manufacturing growth (GRMAN) has a positive effect on urbanization but is not significant.

Equation (1') is an enhanced model with population growth (GRPOP) added as an explanatory variable. GRPOP has a significant negative influence on URB and the overall explanatory power of the model increases from 66 percent to 73 percent. This result lends strong support to our hypothesis.

The results for rate of urbanization (specified in semi-log form) are as follows:

$$(2)\ \ \ RURB = 3.910 - 0.006\ IND - 0.415\ GRAG + 0.110\ GRMAN$$
$$\qquad\qquad\qquad\quad (0.483)\qquad (3.716)\qquad\quad (3.288)$$

$$R^2 = 0.48$$

$$(2')\ \ \ RURB = 5.270 - 0.021\ IND - 0.313\ GRAG + 0.097\ GRMAN$$
$$\qquad\qquad\qquad\quad (1.632)\qquad\quad (2.898)\qquad\quad (3.220)$$
$$\qquad\qquad\quad - 0.556\ GRPOP$$
$$\qquad\qquad\quad\ (2.351)$$

$$R^2 = 0.61$$

Equation (2) parallels equation (1) but the dependent variable is expressed as speed of urbanization over time. Economic level (appropriately lagged as IND_{t-1}) has the reverse sign as expected but is now insignificant. The negative

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[9]Both equations (1) and (1') are in double-log formulations.

sign simply means that urbanization tends to slow down at higher economic levels. Agricultural growth (GRAG) continues to be negative and significant, and manufacturing growth now exhibits a significant positive effect.

Equation (2') is likewise analogous to equation (1') with the added population growth variable (GRPOP) once again figuring importantly with its negative sign, and raising the explanatory value of the model by 13 percent.[10] The negative effect of agricultural growth on urbanization in all four regressions, though contrary to standard urbanization-development theory, seems to reflect absorption of labor in agriculture which would otherwise migrate to urban areas.

Our last regression results have to do with urban concentration (in double-log):

(3) CONC = 1.914 − 0.055 URB + 0.682 GRMAN + 0.655 GRPOP
            (0.203)   (2.501)   (0.802)

$$R^2 = 0.34$$

(3') CONC = 1.020 − 0.192 URB + 0.433 GRMAN − 0.096 GRPOP
             (0.827)   (1.761)   (0.130)

+ 0.889 OPEN
  (2.822) $R^2 = 0.56$

Among the independent variables in the previous equations, GRMAN and GRPOP were picked for both theoretical and statistical significance reasons (equation 3). URB (similar to IND) is included as a control variable but is not significant. Equation (3') shows that adding degree of openness (OPEN) raises the R^2 by 22 percentage points. All the signs are in accord with expectations although they are not significant for URB and GRPOP. The important thing to note, however, is the significance of the variable OPEN — a 1.0 percent increase in degree of openness raises urban concentration by about 0.9 percent. This result strongly supports our hypothesis that openness of the economy to the foreign sector is a strong incentive for concentration in the principal port and city of the country.

Conclusion

Asia is still predominantly rural — a reflection of both its low level and pace of development. From within this vast region, however, East Asia has

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[10]We also experimented with 2-SLS regressions to deal with possible simultaneity bias but the results were not useful.

sprung forth as a great achiever (at least in a relative sense) in both urbaniza-
tion and development so that it can now be better associated with advanced
countries than with developing Asian countries.

Whether or not South and Southeast Asian countries will follow the
trajectory of East Asian countries would depend on many things. The
empirical results of an expanded urbanization-development model suggest
that, in addition to manufacturing activity and agricultural development,
population growth plays a crucial rule in urbanization.[11] Population growth
seems to result in a slowing down of the urbanization process. Hence, if
population growth is going to decelerate in South and Southeast Asian coun-
tries, *ceteris paribus,* we could expect faster urbanization in the coming
decades.

Another important point to consider is that agricultural development
appears to retard urbanization, perhaps because it allows for labor absorp-
tion in the rural sector which would otherwise migrate. This could be the
effect of agricultural growth at low levels of economic development. It is
possible that at higher levels, agricultural development would have the re-
verse consequence, as observed, for example, in industrialized countries. In
any case, the negative relationship between agricultural development and
urbanization observed for Asian countries lends further support to the
notion that rural/agricultural development can reduce unwarranted migra-
tion to cities.

Urban concentration or primacy seems moderate in South Asian
countries but high and rising in Southeast Asian countries, including South
Korea. It is virtually negligible in the Centrally Planned countries of PROC
and North Korea for obvious reasons. There is no clear development-con-
centration relationship, however, even if the exceptional cases of PROC and
North Korea are set aside. Countries like Thailand and South Korea have
extremely high concentration ratios but differ substantially with respect to
urbanization and development levels. Then there is India which has little
concentration, and Bangladesh which is less urbanized and developed than
India but has a moderate degree of concentration similar to Japan.

It would seem, therefore, that there are other factors that account for
urban primacy differentials (after allowing for measurement problems).
Our analysis suggests that degree of openness of the economy, in addition
to manufacturing growth, is a significant determinant of the primacy pheno-
menon. The reason behind manufacturing growth is known: manufacturing
activity has invariably been concentrated in the metropolitan capitals of

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[11]Needless to say, one should be cautious about using the results of cross-section
analysis for predicting future trends.

many Asian countries. The finding on degree of openness bears out our hypothesis that concentration in the metropolis is a response to the need to be near the principal port as well as to offices that issue licenses and foreign exchange, among other things. Thus, spatial concentration appears to be partly an unintended consequence of macroeconomic and growth policies in the past, salient among which was the now-famous import-substitution industrialization strategy. This point seems worth noting in the design of urbanization and spatial development policies for Asian countries, including the Philippines.

Table 2.1 Urbanization indicators for Selected Asian Regions/Countries, 1950-1980

Region/ Country	Percent Urban				Urban-Rural Ratio[a]				Percent Change in Urban-Rural Ratio		
	1950	1960	1970	1980	1950	1960	1970	1980	1950-60	1969-70	1970-80
South Asia	15.7	17.1	19.1	22.0	0.186	0.207	0.237	0.283	11.3	14.5	19.4
Bangladesh	4.4	5.2	7.6	11.2	0.046	0.054	0.082	0.127	17.4	51.8	54.9
Burma	16.1	19.3	22.8	27.2	0.192	0.239	0.296	0.373	24.5	23.8	26.0
India	16.8	17.9	19.7	22.3	0.202	0.218	0.245	0.286	7.9	12.4	16.7
Sri Lanka	14.4	17.9	21.9	26.6	0.168	0.218	0.280	0.362	29.8	28.4	29.3
Pakistan	17.5	22.1	24.9	28.2	0.212	0.284	0.331	0.392	34.0	16.5	18.4
Southeast Asia	15.0	17.5	19.8	22.7	0.177	0.213	0.247	0.294	20.3	16.0	19.0
Indonesia	12.4	14.6	17.1	20.2	0.142	0.171	0.206	0.253	20.4	20.5	22.8
Thailand	10.5	12.5	13.2	14.4	0.117	0.143	0.152	0.168	22.2	6.3	10.5
Philippines	27.1	30.2	32.9	36.2	0.372	0.432	0.491	0.568	16.1	13.7	15.7
Malaysia	20.4	25.2	27.0	29.4	0.256	0.337	0.369	0.416	31.6	9.5	12.7
East Asia[b]	44.6	55.2	64.2	72.5	0.803	1.231	1.795	2.635	53.3	45.8	46.8
South Korea	21.4	27.7	40.7	54.8	0.272	0.383	0.686	1.212	40.8	79.1	76.7
Taiwan	—	58.0	—	77.0	—	1.381	—	3.348	—	—	—
Japan	50.2	62.4	71.3	78.2	1.008	1.659	2.484	3.596	64.6	49.7	44.8
Centrally Planned Asia	11.3	18.9	22.1	26.1	0.128	0.234	0.284	0.353	82.8	21.4	24.3
PROC	11.0	18.6	21.6	25.4	0.124	0.228	0.276	0.341	83.9	21.0	23.6
North Korea	31.0	40.2	50.1	59.7	0.450	0.672	1.003	1.481	49.3	49.3	47.7
World	29.0	33.9	37.5	41.3	0.408	0.513	0.600	0.704	25.7	17.0	17.3
More Developed Regions	52.5	58.7	64.7	70.2	1.107	1.423	1.831	2.350	28.5	28.7	28.3
Less Developed Regions	16.7	21.8	25.8	30.5	0.201	0.280	0.348	0.440	39.3	24.3	26.4

[a]Ratio of urban population to rural population or $\dfrac{\text{proportion urban}}{1\text{-proportion urban.}}$

[b]Regional average for East Asia excludes Taiwan.

Source: Table 2.2 of this Chapter.

Table 2.2 Urban and Rural Populations, and Growth Rates: Asian Regions/Countries, 1950-80

Region/Country	Urban Population (in millions)				Percent Growth of Urban Population			Rural Population (in millions)				Percent Growth of Rural Population			Urban-Rural Growth Difference		
	1950	1960	1970	1980	1950-60	1960-70	1970-80	1950	1960	1970	1980	1950-60	1960-70	1970-00	1950-60	1960-70	1970-80
South Asia	71.5	95.4	136.3	201.1	33.5	42.8	47.6	384.7	461.8	575.3	711.6	20.0	24.6	23.7	13.5	18.2	23.9
Bangladesh	1.8	2.6	5.1	9.5	48.3	94.4	85.1	39.2	48.8	62.5	75.3	24.3	28.2	20.4	24.0	66.2	64.7
Burma	3.0	4.3	6.3	9.6	44.6	47.8	50.9	15.4	18.0	21.4	25.6	16.6	19.2	19.7	28.0	28.6	31.2
India	59.2	76.6	107.0	154.5	29.2	39.7	44.4	293.4	351.2	436.1	539.8	19.7	24.8	23.8	9.5	19.2	20.6
Sri Lanka	1.1	1.8	2.7	4.1	60.2	54.4	50.1	6.6	8.1	9.8	11.4	23.5	20.5	16.1	36.7	33.9	34.0
Pakistan	6.4	10.1	15.0	23.4	58.7	48.4	55.3	30.1	35.7	45.4	59.6	18.8	27.1	31.2	39.9	21.3	24.1
Southeast Asia	18.4	27.1	40.3	61.4	47.3	48.7	52.3	104.2	127.4	162.9	209.1	22.2	27.9	28.3	25.1	20.8	24.0
Indonesia	9.4	13.5	20.4	31.3	44.4	50.8	53.4	66.1	79.2	99.1	123.6	19.8	25.1	24.7	24.6	25.7	28.7
Thailand	2.1	3.3	4.7	7.1	57.5	43.1	50.5	17.9	23.1	31.0	42.4	28.9	34.3	36.6	28.6	8.8	13.9
Philippines	5.7	8.3	12.4	18.9	45.8	49.2	52.6	15.3	19.2	25.2	33.3	25.6	31.3	32.0	20.2	17.9	20.6
Malaysia	1.3	2.0	2.8	4.1	58.2	41.6	45.6	4.9	5.9	7.6	9.9	20.0	29.2	29.4	38.2	12.4	16.2
East Asia[a]	46.3	65.6	87.2	112.9	41.5	32.9	29.5	57.6	53.2	48.5	42.9	−7.7	8.8	−11.8	49.2	41.7	41.3
South Korea	4.3	6.8	12.8	20.9	57.4	86.6	63.9	16.0	17.8	18.6	17.3	11.5	4.2	−7.2	45.9	82.4	71.1
Taiwan	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Japan	42.0	58.8	74.4	92.0	39.9	26.7	23.6	41.6	35.4	29.9	25.6	−15.0	−15.4	−14.6	54.9	42.1	38.2
Centrally Planned Asia	64.4	125.9	173.7	241.1	95.5	37.9	39.0	503.5	539.1	612.0	684.2	7.1	13.5	11.8	88.4	24.4	27.2
PROC	61.4	121.7	166.7	230.7	98.2	37.0	38.4	496.8	532.8	605.1	677.0	7.2	13.6	11.9	91.0	23.4	26.5
North Korea	3.0	4.2	7.0	10.7	39.9	64.4	53.8	6.7	6.3	6.9	7.2	−6.3	10.2	4.2	46.2	54.2	49.6
World	724.1	1012.1	1354.4	1806.8	39.8	33.8	33.4	1776.9	1973.7	2255.8	2567.0	11.1	14.3	13.8	28.7	19.5	19.6
More Developed Regions	448.9	572.7	702.9	834.4	27.6	22.7	18.7	405.5	402.4	383.9	355.0	−0.8	−4.6	−7.5	28.4	27.3	26.2
Less Developed Regions	275.2	439.3	651.6	972.4	59.6	48.3	49.3	1371.4	1571.3	1871.9	2212.0	14.6	19.1	18.2	45.0	29.2	31.1

[a]Regional average for East Asia excludes Taiwan.

Source: United Nations, *Patterns of Urban and Rural Population Growth,* 1980, Annex II, Table 48 and 49.

Table 2.3 Urban Concentration Indicators: Asian Countries, 1960-80

Country	Percentage of Urban Population						Number of Cities Over 500,000 Persons			Index of Primacy[a]		
	In Largest City			In Cities of Over 500,000 Persons								
	1960	1970	1980	1960	1970	1980	1960	1970	1980	1960	1970	1980
Bangladesh	20	25	30	20	39	51	1	2	3	0.80	1.0	1.20
Burma	23	23	23	23	23	29	1	1	1	1.56	1.81	1.89
India	7	6	6	26	31	47	11	19	36	0.68	0.56	0.46
Sri Lanka	28	20	16	0	20	16	0	1	1	4.85	2.17	1.92
Pakistan	20	21	21	33	50	52	2	6	7	0.88	0.95	0.99
Indonesia	20	22	23	34	44	49	3	6	1	1.15	1.32	1.48
Thailand	65	68	69	65	68	68	1	1		—	—	—
Philippines	27	29	30	27	29	36	1	1	3	3.55	3.68	3.71
Malaysia	19	23	27	0	23	27	0	1	1	0.96	0.99	1.17
South Korea	35	42	41	61	69	77	3	4	7	1.07	1.52	1.49
Taiwan												
Japan	18	20	22	35	38	41	5	7	9	1.25	1.35	1.48
PROC	6	6	6	42	41	44	38	47	65	0.72	0.72	0.71
North Korea	15	13	12	15	13	19	1	1	2	1.00	0.85	0.73

[a]Ratio of population of largest city to the combined populations of the second, third and fourth largest cities.
Source: World Bank, *World Development Report,* 1980, Annex Table 20; and United Nations, *Patterns of Urban and Rural Population Growth,* 1980, Annex Tables 48 and 50.

Table 2.4 Average Annual Percent Growth Rates of Population, GDP and Sectoral Production: Asian Countries, 1960-70, 1970-78

Country	Population		GDP		Agriculture		Industry		Manufacturing		Services	
	1960-70	1970-78	1960-70	1970-78	1960-70	1970-78	1960-70	1970-78	1960-70	1970-78	1960-70	1970-78
Bangladesh	2.5	2.7	3.6	2.9	2.7	1.6	7.9	5.9	6.6	5.3	3.8	4.7
Burma	2.2	2.2	2.6	4.0	4.1	3.6	2.8	4.5	3.3	4.2	1.5	4.2
India	2.3	2.0	3.6	3.7	1.9	2.6	5.5	4.5	4.8	4.6	5.2	4.6
Sri Lanka	2.4	1.7	4.6	3.4	3.0	2.3	6.6	3.0	6.3	1.2	4.6	4.3
Pakistan	2.8	3.1	6.7	4.4	4.9	1.9	10.0	4.8	9.4	3.5	7.0	6.2
Indonesia	2.2	1.8	3.5	7.8	2.5	4.0	5.0	11.2	3.3	12.4	8.0	8.7
Thailand	3.0	2.7	8.2	7.6	5.5	5.6	11.6	10.2	11.0	11.5	9.0	7.4
Philippines	3.0	2.7	5.1	6.3	4.3	4.9	6.0	8.6	6.7	6.8	5.2	5.4
Malaysia	2.9	2.7	6.5	7.8	—	5.0	—	9.6	—	12.3	—	8.4
South Korea	2.4	1.9	8.5	9.7	4.5	4.0	17.2	16.5	17.2	18.3	8.4	8.7
Taiwan	2.6	2.0	9.2	8.0	3.4	1.6	16.4	12.9	17.3	13.2	7.8	4.1
Japan	1.0	1.2	10.5	5.0	4.0	1.1	10.9	6.0	11.0	6.2	11.7	5.1
PROC	2.1	1.6	5.0	6.0								
North Korea	2.8	2.6	7.8	7.2								

Source: World Bank, *World Development Report*, 1980, Annex Tables 2 and 17.

Table 2.5 Percentage Distribution of GDP: Asian Countries, 1960-78

Country	Agriculture			Industry			Manufacturing			Services		
	1960	1970	1978	1960	1970	1978	1960	1970	1978	1960	1970	1978
Bangladesh	61	59	57	8	10	13	6	7	8	31	31	30
Burma	33	38	46	12	14	13	8	10	10	55	48	41
India	50	47	40	20	22	26	14	14	17	30	31	34
Sri Lanka	34	34	35	22	19	31	17	12	23	44	47	34
Pakistan	46	37	32	16	22	24	12	16	16	38	41	44
Indonesia	54	47	31	14	18	33	8	9	9	32	35	36
Thailand	40	28	27	19	25	27	13	16	18	41	47	46
Philippines	26	28	27	28	30	35	20	23	25	46	42	38
Malaysia	37	32	25	18	26	32	9	14	17	45	42	43
South Korea	40	30	24	19	27	36	12	18	24	41	43	40
Taiwan	28	15	10	29	41	48	22	33	38	43	44	42
Japan	13	6	5	45	47	40	34	36	29	42	47	55

Source: World Bank, *World Development Report, 1980,* Annex Table 3; and *World Tables,* 1980 (Second Edition),
Table 4, pp. 392-395.

Table 2.6 Export and Import Shares of GDP (in percent)

Country	Exports of Goods and N.F.S.[a]			Imports of Goods and N.F.S.[a]		
	1960	1970	1977	1960	1970	1977
Bangladesh	10.0	8.3	9.1	9.3	12.5	15.7
Burma	19.7	5.2	6.0	20.7	8.7	10.0
India	5.3	4.1	6.2	8.3	4.7	7.1
Sri Lanka	29.8	17.5	23.4	32.8	19.7	20.7
Pakistan	8.4	7.8	9.5	15.0	14.6	19.4
Indonesia	13.3	12.8	21.6	12.6	15.8	18.8
Thailand	17.4	16.7	21.5	18.9	21.5	27.0
Philippines	10.6	19.1	19.0	10.4	19.4	22.5
Malaysia	53.6	43.8	50.3	40.8	39.2	41.9
South Korea	3.4	14.3	35.6	12.8	24.1	35.6
Taiwan	11.1	29.5	53.5	18.6	29.6	47.8
Japan	11.0	10.8	13.1	10.5	9.5	11.4

[a] N.F.S. means non-factor services.

Sources: World Bank, *World Tables*, 1980 (Second Edition), Table 3.

CHAPTER 3

ECONOMIC POLICIES AND SPATIAL AND URBAN DEVELOPMENT

The first three quarters of the century saw profound changes in the Philippine economy. Over the period 1900-75, the country experienced a more than quintupling of its population and a roughly twenty-one-fold increase of the total number of industrial establishments. This was accompanied by a structural transformation of the economy as exemplified by the evolution of a rural economy to an industrializing one as well as by shifts away from some industries towards others. Estimates of gross value added indicate that in 1903, the primary (agricultural) sector accounted for 55 percent of total output, followed by the tertiary (service) sector with 32 percent and the secondary (industrial) sector with 13 percent.[1] By 1975, the primary sector's share had declined to 27 percent, with the tertiary and secondary sectors contributing expanded shares of 40 and 33 percent, respectively (Table 3.1).

Running parallel to the structural transformation of the economy was its changing spatial configuration. In general, the 75-year period saw a secular increase in the primacy of Metropolitan Manila, the national capital region (NCR). Already the administrative capital and economic center of the country at the turn of the century, Manila steadily became more dominant especially in the post-war period. From a share of 4.9 percent of total population and 6.5 percent of industrial employment in 1903, Metro Manila accounted for 12.4 percent of population and 47.4 percent of industrial employment by 1975 (Table 3.1). These changes were in response to the long-term influence of broad historical forces and to the changing regimes of macroeconomic and trade policies. These developments, especially those that are traceable to policy shifts, are examined in the present chapter.

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[1] There is strong reason to believe that the share of agriculture in gross value added failed to reflect the essentially agricultural state of the economy because of the following occurrences: the Philippine-American War in the early 1900s, the outbreak of cholera epidemic and the destruction of crops by the locusts and rinderpests (Willis 1905).

Table 3.1   Percentage Distribution of Output, Industrial Employment and Population, by Broad Sector and Region

	Output	
	1903	1975
Broad Economic Sector		
Primary	55.0	26.6
Secondary	13.4	33.2
Tertiary	31.6	40.2

	1903		1975	
	Industrial Employment	Population	Industrial Employment	Population
Broad Region				
National Capital *	6.5	4.9	47.4	12.4
Metropolitan Periphery	23.1	22.2	16.2	21.8
Traditional Agricultural	67.1	59.6	22.2	39.5
Frontier	3.3	13.3	14.2	26.3

*Includes the rest of Rizal province.

Sources: Hooley (1966) — for 1903 output; NEDA, *The National Income Accounts, CY 1946-75, 1978 — for 1975 output: 1903 Population and Economic Census* — for 1903 industrial employment and population; *1975 Census of Establishments* — for 1975 industrial employment; *1975 Population Census* — for 1975 population.

Each policy regime or period tended to favor some regions over others and this became imprinted on the socioeconomic landscape. Discernible similarities in economic activity and their responses to policies call for the grouping of regions into broad categories which help highlight the more important spatial developments. The broad regions are as follows (see Map 3.1):

1. Metropolitan Manila – National Capital Region (NCR).
2. Metropolitan Periphery (MP): Central Luzon and Southern Tagalog.
3. Traditional Agricultural Region (TAR): Ilocos, Bicol, Eastern Visayas, Western Visayas, and Central Visayas.
4. Frontier Region (FR): Cagayan Valley, Northern Mindanao, Western Mindanao, Central Mindanao, and Southern Mindanao.

The rationale for this delineation will become clearer as the analysis progresses. The metropolitan periphery (MP) is treated separately because, as will also be shown, it evolves from being a member of the traditional agricultural region (TAR) to being under the influence of the national capital region (NCR). A more recent classification would lump all three regions of the NCR, Central Luzon and Southern Tagalog as one – the central industrial region (CIR).

Spatial-Temporal Developments

An historical review of economic policies reveals the change in attitude from that of a colonizer, the United States, attempting to integrate a colony into its production and market sphere to that of an independent country, the Philippines, trying to chart its own destiny. The incorporation of the colonial economy required that the Philippines specialize in those products where it possessed comparative advantage relative to the American economy, rather than attempt a balanced industrial structure. It was reasonable to expect that each region on its own would in time mesh closely with the rest of the American market instead of the different regions getting more closely intertwined with each other.[2]

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[2]Alternatively, one could say that each region's development would be dictated by its comparative advantage vis-a-vis the whole American economy instead of its own comparative advantage in relation to the other Philippine regions.

Map 3.1 Philippines: Broad Economic Regions — NCR, CIR, TAR and FR

1. Ilocos
2. Cagayan
3. Central Luzon
4. Metro Manila
4-A. Southern Tagalog
5. Bicol
6. Western Visayas
7. Central Visayas
8. Eastern Visayas
9. Western Mindanao
10. Northern Mindanao
11. Southern Mindanao
12. Central Mindanao

SCALE 1:2,000,000

LEGEND

- CENTRAL INDUSTRIAL REGION
  NCR, CENTRAL LUZON, SOUTHERN TAGALOG
- TRADITIONAL AGRICULTURAL REGION
  ILOCOS, BICOL, VISAYAS
- FRONTIER REGION
  CAGAYAN VALLEY, MINDANAO

NCR:
METROPOLITAN MANILA AREA

The Colonial Period, 1900-39

At the turn of the century, the level of economic activity in the country was relatively low and the pattern of settlements was generally dispersed. The island of Mindanao was virtually unexplored and four hundred years of Spanish rule had left a traditional agricultural economy oriented towards the production of export crops. Such was the take-off setting of the special trade relationship between the Philippines and the United States.

The task of the American policymakers at the start of their occupation was basically quite simple. To effect an integration into the American market, all that had to be done was to lower the barriers to trade between the Philippines and the United States. This was implemented by a series of tariff laws starting in 1902.[3] By 1913, the task of freeing trade was essentially accomplished with the Underwood-Simmons Act although minor changes were continually being made up to the middle of the 1930s. The common theme of all these acts was the unrestricted flow of Philippine and American goods with minor concessions to vested groups on both sides of the Pacific. Because of historical antecedents and by virtue of the Philippine economy's comparative advantage, the end result was a very strong encouragement for the production of primary products. The Philippine Independence Act of 1934 continued the spirit of the earlier laws, at least for the 10-year transition before actual independence would be granted.

The initial picture given by the 1903 Census shows the economy largely pivoting around the traditional agricultural region (TAR) as manifested by its share of industrial employment and population at about three-fifths of the total.[4] This pattern persisted throughout the Colonial Period although changes became evident over time. If one adds the shares of Southern Tagalog and Central Luzon (the metropolitan periphery), which at that time were agricultural areas, the importance of the TAR is further emphasized. The structure of services closely followed agriculture's geographical distribution.

External developments led to a decline of the agricultural sector's share during the 1918-39 period. In particular, services which were largely ancillary to agriculture reflected this trend. The share of industrial output, on the other hand, increased during this latter part of the Colonial Period, signaling initial industrialization. At the end of the period, industrial output would be much more diversified than at the outset. Geographically, these developments were manifested in the maintenance of the share of the TAR

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[3]See Reyes and Paderanga's Special Paper in this volume for an elaboration.

[4]Presentation of the data and more detailed discussion are provided in Hermoso's Special Study in this volume.

and the surge of the frontier region (FR), although at a declining rate in the second half of the era.

In the face of the decline of agriculturally-based industries in the later part of the Colonial Period, the NCR evinced comparative advantage in industrial activity. Economic statistics for the manufacturing sector such as average size of firms, capital intensity, and labor and capital productivity are shown to be highest for the NCR. Furthermore, indices of industrial speciali- zation show that the NCR tended to specialize in industry, the FR in agri- culture, and the TAR in diversified activities. Thus, even while it was being adversely affected in a relative sense by the general policies of the Colonial Period, the national capital and its environs already exhibited its potential as the base for the impending industrialization.

The Import Substitution Period, 1948-67

The formal cutting of the close ties between mother country and colony on July 4, 1946 dictated a different set of priorities for the newly independent economy. Access to markets became mutually more difficult although "special relations" would persist for a longer period. For the Phil- ippines, this implied that a larger portion of its use of industrial products would have to be generated from within. Consequently, the various regions would now have to evolve differently. This new relationship would be mani- fested in two ways: first, the new policy regime would require that the regions interact among themselves more closely; second, following the com- parative advantage of some locations, some regions would become more in- dustrialized than others. The new set of policies necessary to make the country more economically independent would, therefore, imply some trans- formation and rearrangement of the regional patterns of growth and econo- mic activity.

The main policies used to implement the new thrust during the imme- diate post-war period were exchange and import controls. Rather than ad- just the overvalued peso, policymakers saw in it a chance to direct capital funds to preferred industries at subsidized rates. In order to make the offi- cial exchange rate stick, the use of foreign exchange for importations had to be controlled and a system of priorities instituted. In keeping with the over- all strategy, import-substituting activities, like textile and appliance manu- facturing, were preferred.

Another major component of the package included tax incentives for preferred industries that were classified as "new and necessary". Typically, these incentives took the form of exemptions from taxes, sometimes even income taxes, for limited periods of time.

Completing the three main planks of the program was a comprehensive restructuring of the tariff structure. Tariffs were structured to include some discrimination between types of commodities. They were essentially biased

towards the production of non-essentials and the importation of so-called essential items (Power and Sicat 1970). The tariff structure, together with the tax incentives, reinforced the priorities imposed by the monetary system, and was later instrumental in letting the import-substitution bias persist after exchange and import controls were dismantled in 1961.

A host of other policies backed up the major control instruments of the period. Among these were selective credit policies that also discriminated in favor of "preferred" industries. These were further strengthened as the government set up institutions charged with supplying long-term financing to investors. Still other instruments, albeit unintentional, were measures to keep the price of consumption goods down, which, naturally, had the effect of discouraging the domestic production of these mostly agricultural commodities. The final policy of the period was the continued raising of the minimum wage in response to agitation in the urban areas where standards of living and skill levels were higher. Whatever its applicability for urban areas, it was invariably too high relative to wages in rural areas. Its unintended result was to discourage labor-intensive industries and further bias investment toward the capital-intensive, import-substituting activities.

The bias in favor of capital-intensive industries was the common thrust of the whole package of policies during this period. It was by far the most important side effect of the import-substituting scheme, epitomizing the complete turnaround in strategy from the promotion of exports before Independence.

The shifting of policy gears during the immediate post-independence period led to a phase of dramatic economic changes. Starting with relatively dispersed industries, this era witnessed the evolution toward more spatial concentration. The 1948 Census, for instance, shows a spectrum of localization indices with mining/quarrying and other resource-oriented industries characterized by relative spatial concentration. These were followed by the transportation, communication, storage and manufacturing in descending order of concentration. Utilities had a low index of localization, indicating relatively low provision of this infrastructure throughout the islands. The ubiquity of agriculture, by contrast, led to an extremely low index of localization of concentration.[5]

In 1961, the localization indices for all industries, except agriculture, indicated higher concentration. This was particularly true for construction and utilities which followed the preferences of firms and households to locate in the NCR, or more broadly the CIR. It may also be noted that resource-oriented industries yielded relatively high values for the index of

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[5]*Localization index* denotes the tendency of employment in a particular economic sector to be spatially dispersed (if low value) or spatially concentrated (if high value). *Index of locational change,* a comparative static index, measures the degree of change in the spatial distribution of an economic activity over a given time period. More detailed discussion is given in Hermoso's Special Study.

locational change during the 1948-61 period, implying that the locale of these activities moved about as different sources were exploited.

The main beneficiary of the package of policies during the Import Substitution Period was the NCR and, especially toward the end of the period, also the metropolitan periphery. The comparative advantage that the NCR enjoyed was now being utilized to the maximum as the impact of policies that favored it became felt. The growth stimulus also spilled over into its periphery and, consequently, the NCR and its expanded version, the CIR, was growing at a rate disproportionately faster than the rest of the economy. The CIR's role as the leading region appeared to be self-sustaining as its industrial structure became more integrated. For example, in response to the increasing urbanization and industrialization in Metro Manila, Central Luzon's agriculture became more intensive in character and exhibited a rising trend in yield per hectare, supporting a rapidly increasing population density.

Meanwhile, the frontier region (FR) experienced some kind of resurgence during this period. The unexploited natural resources of the region and government-sponsored relocation programs initially induced significant inmigration, and resource-based industries were set up. The FR therefore led the rest of the country in rural population and agricultural growth.

The growth of the CIR was at the expense of the traditional agricultural region (TAR). Since the policies implicitly taxed the predominant economic activities in thsi region, the TAR experienced diminishing shares and sluggish growth in population and economic activity all throughout the Import Substitution Period. A by-product of the burden effectively imposed on agricultural production and the simultaneous bias for the capital region was that the activities of the TAR largely remained diversified.

The period of rapid growth due to import substitution could not last indefinitely, however. By the latter part of the period (1961-67), the rate of growth started to slacken. This was true of all regions as the possibilities for import substitution became used up and the growth of agriculture and exports remained discouraged by the unintended effects of policy. Removal of some of the major policies of the early import-substitution stage, like exchange controls, was negated by the increasing effectiveness of the other policies, such as the tariff structure, that had been installed in connection with the overall strategy. As a result, the essence of the earlier policy thrust continued to be operative for some time.

The Regional Awareness Period, 1970s

Towards the end of the 1960s, policy interest shifted from import substitution to export promotion. At the same time, the government displayed a conspicuous awareness of the spatial dimension of development.

The indirect effect of the new theme of export promotion was the renewed invigoration of traditional exports which are based in the TAR. Explicit consideration of the spatial aspect also found its way into investment priority and loan granting formulae.

Major indications of the change in emphasis were the various incentive acts of the late 60s and early 70s, especially the Investment Incentives Act of 1967 which also created the Board of Investments (BOI). Over time, the BOI has refined its priority formula by explicitly including employment creation, export promotion and geographical diversification among its objectives. All of these three aims have strong implications for spatial development.

The encouragement given to the agricultural sector in order to attain self-sufficiency in food and the incentives for export generation also tend to exert beneficial effects on regions outside the CIR. Additionally, direct policies for regional dispersal, such as the fifty-kilometer radius ban in Manila and concerted efforts at integrated area development, have been instituted. An indirect policy but one of lasting effect is the national infrastructure program which is considered a precondition for regional development.

The installation of the new policy regime was spread out over an extended period and is still continuing. While the Investment Incentives Act and the Export Promotion Act were passed in 1967 and 1970, respectively, other measures like the revision of the tariff structure were not started until 1980. The period available for an evaluation of the new thrust is, therefore, still too short for any definitive trend to show. Still, early data on the direct effects of the first policies already seem to indicate changing directions. The regional distribution of projects approved by the Board of Investments from 1968 to 1974, for example, shows the share of the CIR to be just a little more than one-half of total approved projects (cf. Reyes and Paderanga's Special Paper). While still biased in favor of the capital region and its periphery, the regional shares are not as lopsided as was the case during the import substitution era. Nevertheless, as will be shown in the next chapter, there was little change in the proportion of manufacturing activity found in the CIR between 1967 and 1975. Just how far subsequent spatial patterns will differ from the past will depend on how effectively the new policies are enforced and what complementary measures are adopted to seriously pursue the regional development goal.

The Development of the City System

The forces that have shaped the overall growth of the economy and its accompanying spatial configuration necessarily also left deep imprints on the

system of cities. Cities have developed in varying ways and at different rates corresponding to their roles in the regions and in the country as a whole. They tend to reflect the importance of their regions of influence as well as their relationship to the macroeconomy. The predominance of Metro Manila, for example, manifests not only its centrality in the economy; it also shows the importance of the central industrial region of which it is a part. It is therefore also instructive to examine the structure and changes of the urban system which serves as the neural network of the economy.

Hierarchy of Settlements before 1900

The pattern of settlements during the pre-colonial period reflected both the prevailing political decentralization (because the basic socio-political unit was the barangay) and the economic activity in the settlements. Most of the largest communities were coastal villages engaged in extensive external trade. Manila and Cebu were large agricultural and fishing villages with strong secondary trade functions.

Urban clusters were established during the Spanish colonial regime to act not only as trading centers but also as defensive points from which control of indigenous villages was possible. Doeppers (1972) identified a three-level hierarchy of settlements: (a) capital city with Manila directing the affairs of the country; (b) provincial centers (ciudades and villas) which were centers of military, political and ecclesiastical control and composed of Cebu, Naga, Nueva Segovia, all ciudades and villas in Panay, and Fernandia (Vigan); and (c) central church village or cabeceras which became the focal points of activity and cultural change. These settlements were given functional importance and social prestige which distinguished them from other settlements.

In the late nineteenth century, the end of the Spanish colonial period, the urban hierarchy that evolved mirrored the economic development of that period. Consistent with the development pattern and the "pacification" level of that time, the urban hierarchy in 1900 was such that urban places were not evenly distributed. Almost half of the third-ranked towns, for instance, was concentrated in Southern Tagalog and Central Luzon; and Cebu and Iloilo, both second-ranked cities, were found in the Visayas.

The Urban System since 1900

Since the turn of the century, the urban system has been growing both in terms of the proportion urban of the total population and the number of urban places. Likewise, there have been remarkable mutations within the

urban hierarchy in the past 75 years. Membership in the top thirty urban places, for example, has continually changed, implying that centers of population and economic activity have been shifting (cf. Hermoso's Special Study). The earlier census years have more top central places located in Luzon and in the other traditional agricultural regions (the Visayas), reflecting the earlier development of places closer to the seat of government (such places were, therefore, more easily "pacified"). The later years show the representation to be more evenly balanced among regions (cf. Soliman and Paderanga's Special Paper).

Through all of the policy shifts, the country's urbanization level (proportion urban) has been rising though at uneven rates, inidication that the ultimate effect of rising real incomes cannot be completely offset by policies which encouraged the growth of the rural sector during the colonial period or during the more recent regional awareness phase. Furthermore, there is evidence showing that in spite of the dispersing effect of colonial policies on the growth pattern of the regions, Metro Manila experienced a secular trend of increasing primacy, as illustrated by the two indicators in Table 3.2.

Table 3.2   Indices of Urban Concentration

	1903	1918	1939	1948	1960	1970	1975	1980*
Index of Primacy	1.75	1.73	2.07	3.24	3.23	3.44	3.54	3.44
Pareto Coefficient	-0.85	-0.80	-0.70	-0.60	-0.59	-0.58	-0.55	-0.56

*Preliminary.

Source: cf. Hermoso's Special Study.

The first is the four-city index of first-city primacy which shows the predominance of the largest city over the next three urban centers. The second indicator is the coefficient of the rank size distribution of cities which is an empirically estimated function showing the relationship between the rank of a city and its size. Over the census years, the Pareto coefficient has been increasing algebraically, meaning that the larger cities have been growing faster than the smaller ones.[6]

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[6]Alternatively, since the sign is negative, the absolute value has been decreasing.

Both statistics show that the national capital has been growing faster than places fulfilling ordinary central functions, and that the growing population and increasing income required that higher levels of central services be supplied. Another source of rapid growth for Manila was the export orientation of economic activity during the Colonial Period which required the development of a good administrative machinery and an international port. During the Import Substitution Period, the need for industries to be in the capital city to procure import licenses and to bring in imported inputs gave further impetus to its growth.

As far as the urban system is concerned, the effects of the changing constellation of policies may be seen in the shifting patterns of the urban places and population. At the start of the century, the traditional agricultural region (TAR) accounted for about three-fourths of urban places. As a reflection of the decline of the TAR's importance after World War II and partly as a result of the growth of the frontier region (FR), this share dropped to 44 percent in 1975. Perhaps the most visible effects of policy changes may be found in the urban population of the metropolitan periphery, a region that shifted from the TAR category to become part of the CIR in the late 60s. From 1903 to 1948, what is now the CIR suffered declining shares in urban settlements at a time when Metro Manila was already increasing its primacy, implying that during that earlier period, the metropolitan periphery was suffering from Manila's backwash effects. At that time, a separate magnet was also being exerted by the TAR which was receiving the boon of free trade with the United States. During the Import Substitution Era when policy tended to encourage the rapid growth of the national center, spillover effects were felt in the metropolitan periphery, and the whole CIR rapidly increased its share of urban places. The FR, having characteristics not too different from the TAR, showed the reverse of CIR's trend although, in general, its share of urban population and settlements was increasing as it was slowly being filled up.

The Present Hierarchy of Cities

The conceptual description of cities as belonging to a hierarchically arranged system is based on the notion that cities are central places performing progressively more comprehensive services not only for the city population itself but also for the surrounding areas. Higher order places offer a wider array of goods and services and have larger tributary areas than lower order places. With that hierarchy, classes of cities are distinguished according to what and how many functions the cities fulfill. The hierarchical classification of cities based on relative importance and complexity, therefore, leads to a recognition of differences among cities from one region to ano-

ther. At the same time, knowing that the needs of the tributary areas represent a demand for central functions, differences among cities also point to differences among the regions themselves.

A classification of Philippine cities was carried out using data on chartered cities of 1975 and provincial capitals (cf. Soliman and Paderanga's Special Paper). Chartered cities were used because they are autonomous government units with taxing power not enjoyed by ordinary municipalities, thereby giving them greater leeway in the provision of urban services. Provincial capitals, on the other hand, serve as administrative, transportation and communication centers. Generally, provincial capitals rank first in urban population, commercial and industrial establishments, utilities, and facilities relative to other towns. Most provincial capitals are also chartered cities.

Seven types of urban centers are identified: (a) the national center and regional center for Luzon: Metro Manila; (b) broad regional centers: Metro Cebu and Davao City; (c) regional centers: Iloilo, Bacolod, Cagayan de Oro, Zamboanga, Tacloban, Legaspi, Cotabato, and San Fernando (La Union). The other chartered cities are classified as (d) major urban centers; (e) secondary urban centers; (f) minor urban centers; and (g) satellites, depending on the types of central functions and service activities present (Table 3.3).

National Center. Metro Manila with a population of about 5.9 million in 1980 is close to eight times larger than the next largest urban center, Metro Cebu, with a population of 767 thousand in the same year. The primacy of Manila has been brought about by historical forces, natural endowments and economic policies making it the dominant political, administrative, commercial and industrial center of the country.

Broad Regional Centers. Metro Cebu serves as the regional center for the Visayas. Its domestic trade by water for the year 1973-74, for example, was bigger than Manila's because its only connection with the other areas is by water while Manila has the longest land connections. Cebu's strategic location and accessibility make it the trading center for the central part of the Philippines. Its influence extends beyond its immediate hinterland to Eastern Visayas and the northern half of Mindanao.

Davao City, the third broad regional center, is the largest settlement in Mindanao and is agriculture-based. In addition to the export of abaca and maize production, an examination of its narrow industrial base reveals that wood industry has also been a leading industry in the past. It possesses a deep water port for international shipping and has one of the country's leading hotels.

Broad regional centers have a whole complex of central functions in

Table 3.3   Classification of Cities: the Urban Hierarchy

Cities	*Region*
National and Broad Regional Center	
Metro Manila	Philippines and Luzon
Broad Regional Centers	
Metro Cebu	Visayas
Metro Davao	Mindanao
Regional Centers	
Iloilo	Western Visayas
Bacolod	Western Visayas
Cagayan de Oro	Northern Mindanao
Zamboanga	Western Mindanao
Tacloban	Eastern Visayas
Legaspi	Bicol
Cotabato	Eastern Mindanao
San Fernando (La Union)	Ilocos
Major Urban Centers	
Angeles	Central Luzon
Olongapo	Central Luzon
Butuan	Northern Mindanao
Batangas	Southern Tagalog
Iligan	Eastern Mindanao
San Pablo	Southern Tagalog
Cabanatuan	Central Luzon
Dagupan	Ilocos
Ormoc	Eastern Visayas
Naga	Bicol
Ozamis	Northern Mindanao
Dumaguete	Central Visayas
Tarlac	Central Luzon
Baguio	Ilocos
General Santos	Southern Mindanao
San Fernando (Pampanga)	Central Luzon

Cities	Region

Secondary Urban Centers

Tuguegarao	Cagayan
Lucena	Southern Tagalog
San Carlos (Negros Occidental)	Western Visayas
Roxas	Western Visayas
Laoag	Ilocos
Pagadian	Western Mindanao
Surigao	Northern Mindanao
Dipolog	Western Mindanao
Daet	Bicol
Gingoog	Northern Mindanao

Minor Urban Centers

Oroquieta	Northern Mindanao
Cavite	Southern Tagalog
Toledo	Central Visayas
Iriga	Bicol
Marawi	Eastern Mindanao

Satellites

Cadiz	Western Visayas
Lipa	Southern Tagalog
Silay	Western Visayas
San Carlos (Pangasinan)	Ilocos
La Carlota	Western Visayas
Bago	Western Visayas
San Jose	Central Luzon
Danao	Central Visayas
Dapitan	Western Mindanao
Bais	Central Visayas
Tangub	Northern Mindanao

Note: The classification was done on the basis of whether or not specific central economic functions were being performed in each city. An alternative classification scheme that considered the provision of social services came out with almost identical results (cf. Soliman and Paderanga's Special Paper in this volume).

contrast to the lower types of centers. They have adequate hospitals, universities, recreation and tourist facilities, telephone and other communication facilities, roads and other transport modes. Their large trade area requires an extensive transportation system which serves to link the center with the surrounding hinterland as well as with the lower types of centers. They possess a primary or a secondary port facility and an international or trunk-line type of airport.[7] The presence of other economic functions such as breweries, softdrink warehouse and branch plants, depots of major oil companies, and the availability of local and provincial buses for cities with fairly good roads distinguish broad regional and regional centers from lower types of urban centers.

Regional Centers. Cities classified as regional centers rank next to broad regional centers on the basis of measures used in discriminating various classes of cities. These centers possess the same types of service functional units as broad regional centers except that they have less service type establishments. The significant role of these cities as a link to the region and the national economy makes the different economic and service functional establishments locate in these cities. Regional centers have recently become the focus of the development thrust of the government.

Depending on the region's level of development, a regional center serves as a substitute for the broad regional center where this (broad regional center) is absent. Except for Western Visayas which has two regional centers (Iloilo and Bacolod), almost all other regions have one regional center. The exceptions are Cagayan Valley, Central Luzon and Southern Tagalog. Since Central Luzon and Southern Tagalog are parts of the CIR, the cities in these two regions tend to be satellites of Metro Manila rather than true central places on their own. The absence of a regional center for Cagayan Valley may be natural for its level of development.

Major Urban Centers. These are important because they provide basic urban services, i.e., health, education, transport and communication services to the surrounding areas. Apart from the kind of services present, there are additional features about the geographic area needed in the classification of cities. It is important to consider the spatial relationships among urban centers as well as the volumes of traffic flows for cities with extensive road networks. The volume of traffic flow does not only delimit the extent of the trade area but is also used as an indicator of the size of the hinterland. Thus, the volume of cargo of principal ports is another measure used in classifying

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[7]Primary ports are capable of handling domestic and foreign traffic of national significance; secondary ports serve the main population centers of the region. An international airport is used for operation of aircraft engaged in international air navigation; a trunkline airport serves commercial centers of the Philippines.

major urban centers. Most of these major urban centers have tertiary ports and secondary airport facilities.[8]

Secondary Urban Centers. These centers offer the minimum service functions usually confined to health or education services. With regard to such economic variables as the number of commercial banks, number of large wholesale establishments, and type of port and airport facilities, secondary urban centers have the least.

Minor Urban Centers and Satellites. Cities comprising minor urban centers lack most of the different types of economic and service activities which higher order centers offer. Still, these centers perform minimal services of some type or another for their tributary area. These centers possess at least one of the factors used as a measure of centrality. For example, cities like Toledo and Iriga have only a bank branch located within their geographic area and have no establishments present for the other types of economic and service activities. On the other hand, there are chartered cities close to a larger urban center which exhibit substantial population concentrations though they possess none or very few of the service functions considered. Service functional establishments are usually localized in the larger urban center close by.

Cities and Regions: An Organic View

The foregoing view of the system of cities in the Philippines highlights the dominant influences of geography and economic forces on the pattern of human settlements. A look at Map 3.2 indicates that the broad regional centers, the highest order of central places, are relatively evenly distributed. Each broad region (Luzon, Visayas and Mindanao) is served by a city that is quite complete in central functions.[9] The evenness of the representation of the next lower level of urban places, regional centers, is also quite remarkable. The archipelagic topography of the country and the resulting difficulty in transportation and communications seem to dictate that each region be autarkic to some extent (see also Ullman 1960). Consequently, the number of urban centers in the country is more than what would otherwise have been expected.

The other interesting picture depicted by the data is the close association between the development of cities and the relative maturity of the

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[8]Tertiary ports are capable of handling traffic serving a limited portion of the regional hinterland and capable of performing local port functions. Secondary airports serve principal towns and cities with regular traffic densities that warrant the operation of jet-prop aircrafts.

[9]Although Metro Manila still has a distinct advantage in the very specialized services like accounting firms, advertising agencies, consultancy and research firms.

Map 3.2 Philippines: Broad Regional Centers, Regional Centers,
Major Urban Centers

South
China Sea

■ Broad Regional Center
● Regional Centers
▲ Major Urban Centers

LUZON

Philippine Sea

0   100   200

VISAYAS

Sulu Sea

Mindanao Sea   MINDANAO
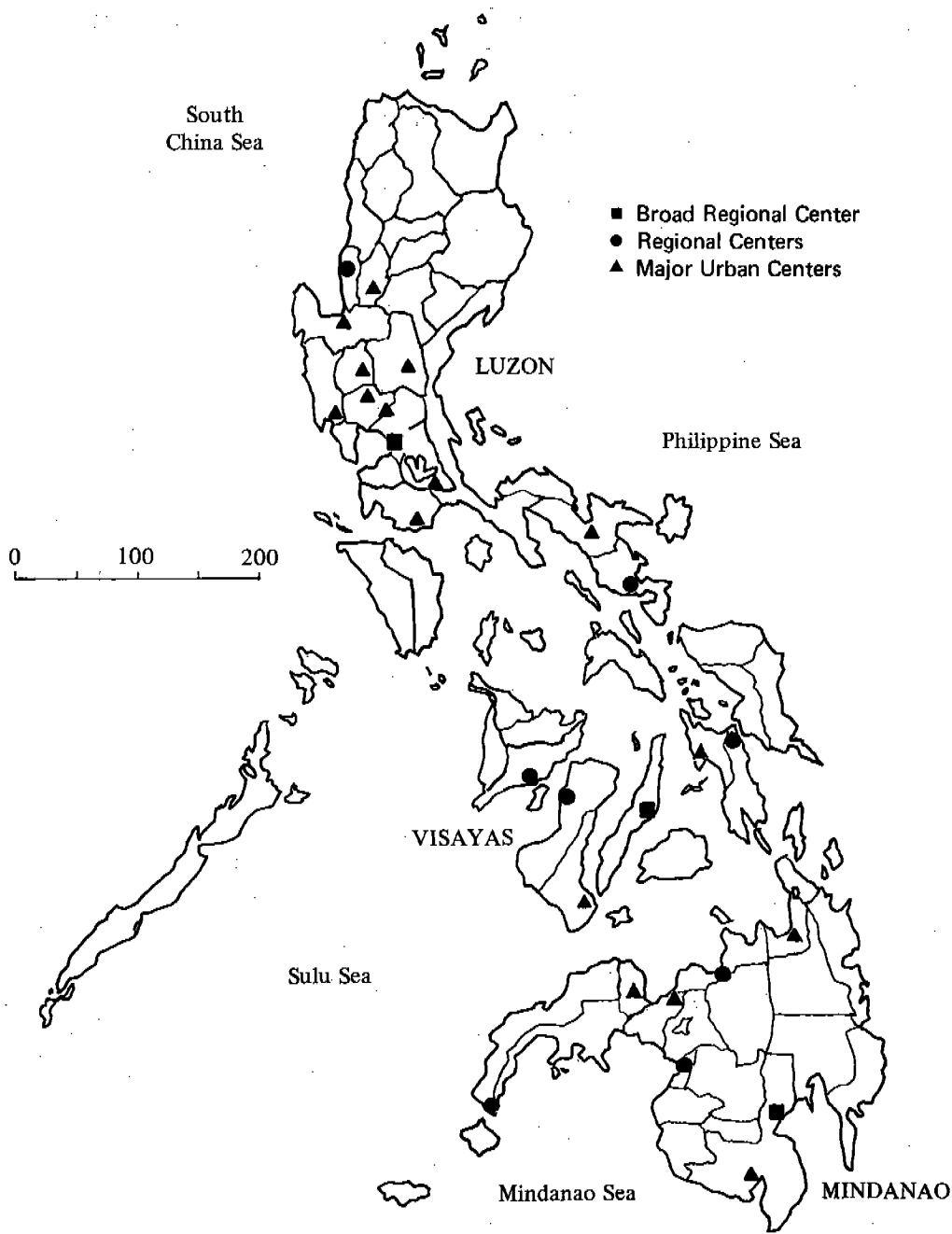
regions (cf. also Pernia's Special Paper on cities and regional development). Note, for example, the cities in the CIR, the most developed economic region of the post-war era. Although proximity to the national urban center has prevented the evolution of regional centers (as defined above) in Central Luzon and Southern Tagalog, there is a relative abundance of major urban centers in these two regions (Table 3.3). In contrast, most of the other regions have their lower ranked cities at the level of secondary urban centers. The level of development of the CIR has enabled it to support more developed central places than the other regions. This it did at the same time that the primate city was growing in its midst.

A closer look at the broad region of Luzon uncovers corroborating evidence on this phenomenon. Close to the CIR are two of the least developed regions of the country, Cagayan Valley and Bicol. The former is conspicuous for the absence of a large city within its bounds. Its highest order central place is classified as a secondary urban center, Tuguegarao. Bicol, on the other hand, has a relative scarcity of all types of central places except for the presence of a regional center, Legaspi City. The same observation may be made of Eastern Visayas. The conclusion that may be inferred is that less developed regions demand lower level central functions and therefore exhibit a less developed city system.

The preceding discussion illustrates the symbiotic relationship between the city and the region that it serves. The region requires and gives a reason for central functions to exist in a city. The city in turn provides the necessary services at the same time that it draws on the surrounding area the wherewithal for its continued existence.[10] Depending on the role it plays, the city's tributary area will be of some corresponding size.

The urban system interlaces the spatial fabric of the country, serving as a mechanism for the interaction of various places. The impacts of both macroeconomic and area-specific policies tend to be communicated throughout the archipelago primarily via the interconnection of cities. The city system should therefore be viewed as the nervous system of the economy. Recognition of this point is important in planning national and regional economic growth (cf. Pernia's Special Paper).

The organic view of cities and regions has useful implications. On a superficial plane, the degree to which a city has developed is an indication of the level of development of the region to which it belongs. As already implied, the types of cities found in the region would be one of the indicators of the region's maturity; the more developed its system of cities is

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[10]The influence of urban centers on neighboring agriculture is analyzed in Luna, Pernia and Hermoso's Special Paper. It shows that the effect tends to be negative at low levels of regional development but becomes positive at higher levels of development.

(i.e., the higher the order of the cities), the more advanced the region would be. Beyond that, however, the development of its cities also largely determines the extent to which the region can avail itself of impulses from other regions and from the overall growth of the economy. At the same time, a region's cities also affect its ability to transmit forces that start within its boundaries.

The centrality of a city is therefore a key factor that has to be considered in regional development policy. What the policymakers should strive for is the integration of the whole country as one market such that the spread effects of economic changes are not stifled. This seems best done by exploiting the city system. For a less developed region, for example, an important part of a development program is the improvement of the economic and social infrastructure as well as an increase in the availability of central functions in its cities. This would connect the region with the rest of the economy and at the same time prevent the choking off of the initial impulses due to a shortage of crucial services (e.g., banking and communication). Hence, hand in hand with any program to develop a region should be a plan to upgrade the system of cities in that region. More balanced regional development entails a more systematic development of cities if the full effectivity of a development program is to be achieved.

CHAPTER 4

PATTERNS AND DETERMINANTS OF MANUFACTURING CONCENTRATION AND POPULATION MOVEMENTS

As discussed in the preceding chapter, Manila (the National Capital Region -- NCR) and, subsequently, the central industrial region (CIR) emerged as the nation's center of economic activity and population as a response to changing economic policy regimes besides market forces. The shift in regional comparative advantage from the traditional agricultural region (TAR) to the CIR became particularly noticeable during the post-war period with the adoption of industrialization and trade policies based on import substitution. While preferential tariffs induced the cultivation of crops and the production of resource-based manufactures in the TAR for export to the mother country during the Colonial Period, the economic environment of heavy protection during the Import Substitution Period via import and exchange controls, tariffs and indirect taxes stimulated the production of consumer goods in the country's urban and industrial capital. Thus, the overall effect of the shift in the country's development strategy was not only to strongly encourage consumer-oriented industrialization but also to discriminate against or even penalize agro-based industries, export production and backward integration (Bautista, Power and Associates 1979).

In this chapter, we first describe the regional distribution of manufacturing activity over time, as well as in 1975, which happens to be the latest period for which we have data. We then attempt to identify the determinants of the spatial concentration of manufacturing. In the second part of the chapter, we take a look at a related phenomenon -- the patterns of population movements and the factors explaining them.

The focus of the first part of the analysis is on manufacturing industries for three reasons. First, manufacturing accounts for a substantial proportion of industrial activity and is often the most dynamic component of the industrial sector. Second, manufacturing firms are relatively free to locate anywhere and tend to be responsive to economic factors and policies. And

third, there are more data on manufacturing industries than on other types of economic activities.

Historical Perspective, 1903-75

In 1903, 43 percent of all manufacturing establishments were found in the TAR (the Visayas regions, Bicol and Ilocos). This share rose to 70 percent by 1939 (Table 4.1). The increase in manufacturing firms in the TAR was especially rapid in the first half (1903-18) of the American Colonial Period. The NCR had about 30 percent of the establishments in 1903 which dropped to 3 percent in 1939, while the CIR as a whole started with 55 percent and ended the period with only 14 percent of all establishments.

In terms of manufacturing employment, the TAR accounted for two-thirds of the total in 1903 and a little over one-half in 1939 (Table 4.2). The diminishing share was brought about by negative growth rates in manufacturing work force particularly in the latter part of the period, due most likely to increasing out-migrations from the region. During the same period, the NCR's share steadily rose from 6 to 16 percent while that of the CIR stood at around 30 percent throughout.

Data on manufacturing output indicate that, during the period 1903-38, resource-based industries such as food manufacturing, tobacco and wood products captured from 58 to 65 percent of manufacturing gross value added (Table 4.3). Hence, together with the data on establishments and employment, there is sufficient evidence to show that during the Colonial Period agro-based industries in the TAR played a pivotal role in the economy.

The early post-war years (1948-61) saw precipitous declines in the TAR's shares of manufacturing establishments and employment from 48 and 41 percent to 35 and 20 percent, respectively (Tables 4.1 and 4.2). By contrast, the NCR experienced phenomenal increases in its share of establishments from 17 to 28 percent, and of employment, from 29 to 54 percent. This reflected, at least in part, the policy shift to import-substitution industrialization which benefited the national urban center. Furthermore, in terms of manufacturing output, such urban-based industries as textile, paper, rubber, chemical and metallic products became noticeable at the onset of the 1960s (Table 4.3).

After the dismantling of the import and foreign exchange controls with the peso devaluation in the early 60s, the NCR exhibited slightly diminished proportions of establishments and employment — from 28 and 54 percent in 1961 to 22 and 51 percent in 1967, respectively (Tables 4.1 and 4.2). And on the whole, the urban-based industries just mentioned also experienced decreased shares in manufacturing value-added (Table 4.3). During

Table 4.1   Percentage Distribution of Manufacturing Establishments
by Region

Region	1903	1939	1948	1961	1967	1975
Central Industrial	55.28	14.07	37.53	48.26	43.12	42.76
NCR and Rizal	29.70	3.01	16.58	28.03	22.13	18.87
Central Luzon	14.65	4.39	8.76	8.94	10.08	10.46
Southern Tagalog	10.93	6.67	12.19	11.29	10.91	13.43
Traditional Agricultural	42.51	69.58	48.07	34.78	35.53	35.81
Ilocos	5.01	24.86	9.88	9.39	8.65	10.68
Bicol	5.53	11.68	5.73	5.86	5.42	7.37
Western Visayas	23.56	4.29	11.88	7.21	10.52	9.17
Central Visayas	7.31	12.40	10.92	7.82	7.58	5.58
Eastern Visayas	1.10	16.35	9.66	4.50	3.36	3.01
Frontier	2.21	16.35	14.40	16.96	21.35	21.43
Cagayan Valley	0.46	0.78	3.47	3.34	3.36	4.71
Western Mindanao	1.17	12.86	3.00	2.27	5.39	2.80
Northern Mindanao	0.58	2.03	3.97	3.33	3.49	4.38
Southern Mindanao	–	0.30	1.91	3.68	5.58	6.07
Central Mindanao	–	0.38	2.05	4.34	3.53	3.47
Philippines	100.00	100.00	100.00	100.00	100.00	100.00

Sources: *Census of Population and Economic Activities*, 1961, 1939, 1948; *Economic Census*, 1961, 1967; *Census of Establishments*, 1975, Volume on Manufacturing

Table 4.2   Percentage Distribution of Manufacturing Employment by Region

Region	1903	1939	1948	1961	1967	1975
Central Industrial	29.55	31.35	46.59	67.75	64.20	64.53
NCR and Rizal	6.48	16.19	29.39	53.66	51.25	46.84
Central Luzon	9.40	6.64	7.34	7.27	7.22	7.73
Southern Tagalog	13.67	8.52	9.86	6.82	5.73	9.96
Traditional Agricultural	67.13	55.72	41.47	20.49	18.68	20.72
Ilocos	15.12	14.74	6.99	3.75	2.89	3.69
Bicol	8.38	9.88	4.85	2.34	2.15	3.62
Western Visayas	19.27	7.86	10.51	7.20	6.96	6.45
Central Visayas	14.29	10.65	11.89	5.61	5.28	5.76
Eastern Visayas	10.07	12.59	7.23	1.59	1.40	1.20
Frontier	3.32	12.93	11.94	11.76	17.12	14.75
Cagayan Valley	0.80	1.03	2.17	1.52	2.11	2.61
Western Mindanao	0.26	8.76	1.67	1.63	1.50	1.40
Northern Mindanao	2.13	2.04	4.93	3.44	4.06	3.49
Southern Mindanao	0.11	0.45	1.71	2.40	5.80	4.73
Central Mindanao	0.02	0.65	1.46	2.77	3.65	2.52
Philippines	100.00	100.00	100.00	100.00	100.00	100.00

Sources: *Census of Population and Economic Activities* 1903, 1939, 1948; *Economic Census*, 1961, 1967; *Census of Establishments*, 1975, Volume on Manufacturing.

Table 4.3   Percentage Distribution of Manufacturing Gross Value Added by Industry Groups

	1903	1938	1948	1960	1967	1975
Food Manufacturing	25.7	52.1	30.8	27.0	29.72	25.67
Beverages	12.7	4.7	25.1	8.6	4.49	4.89
Tobacco Products	24.2	7.2	4.7	5.6	6.94	9.32
Textile Products	0.5	0.8	2.6	4.6	6.07	5.58
Footwear & Other Wearing Apparel	5.9	7.8	6.6	3.0	4.49	3.57
Wood and Cork Products	8.0	5.3	9.7	4.0	5.46	2.85
Furniture & Fixtures	2.3	1.9	1.8	0.9	0.73	0.45
Paper & Paper Products	0.0	0.0	0.0	2.3	2.70	2.94
Printing & Printed Products	4.9	3.6	3.7	3.2	2.18	2.70
Leather Products	0.7	0.1	0.0	0.3	0.40	0.18
Rubber Products	0.0	0.0	0.6	3.2	1.35	1.59
Chemical & Chemical Products	1.9	6.9	2.9	10.0	6.96	13.09
Products of Coal & Petroleum	(a)	(b)	(b)	(b)	7.56	7.44
Non-Metallic Mineral Products	3.9	3.3	2.1	3.7	4.56	3.61
Basic Metal & Metallic Products	0.9	0.7	1.9	8.0	5.88	5.96
Machinery	3.6	0.2	0.5	4.2	4.20	3.83
Transportation Equipment	(a)	0.4	1.0	2.2	5.09	5.09
Miscellaneous	4.2	3.9	5.7	8.2	1.22	1.24
Total Manufacturing	100.0^c	100.0^c	100.0^c	100.0^c	100.0	100.0

(a) = negligible   (b) = included in miscellaneous manufacturers

(c) =   the sum of the figures do not total 100.0 due to rounding.

Sources: Umaña (1966), Appendix Table 1 for 1903, 1938, 1960; and *Philippine Statistical Yearbook,* 1978 for 1967 and 1975.

the same interval, the TAR remained more or less stable, while the frontier region (FR) expanded its shares of establishments and employment from 17 and 12 percent in 1961 to 21 and 17 percent in 1967, respectively. This represented the effects of the government's frontier settlement program.

In the subsequent period, the NCR experienced further diminution in manufacturing activity but Southern Tagalog made up for it, thereby making CIR as a whole maintain its dominant position. At the same time, both the TAR and the FR maintained their secondary positions despite the avowed regional development policy of the government during this period. What appears to have happened was that, despite the change in policy to decontrol and devaluation, the import-substitution strategy was effectively carried over with the continuation of the tariff structure and tax incentives, including wage and price policies. It is also very likely that most of the instruments of the rural/regional development thrust (e.g., rice policy, land reform, agricul-

tural credit schemes, pricing policies, infrastructure expenditures and social services) favored primarily Southern Tagalog and Central Luzon. It thus seems that in the mid-70s, the spillover effects started to be felt in the metropolitan periphery which, together with the NCR, subsequently became known as the CIR.

Determinants of Spatial Concentration of Manufacturing

In 1975, the NCR had about one-fifth of all manufacturing establishments and just under one-half of total manufacturing employment and output (Tables 4.1, 4.2, 4.4). Industries located in the other regions were mostly the resource-based types such as food manufacturing, leather, wood, paper, non-metal products and petroleum refineries. Taking the CIR into account, concentration rose to about 43 percent of all manufacturing establishments, 65 percent of aggregate employment, and three-quarters of total output. This was because Southern Tagalog and Central Luzon had substantial shares of such resource-based industries as leather, paper, nonmetal products and petroleum refineries. The balance of manufacturing activity was largely found in the budding industrial regions of Western and Central Visayas, Northern and Southern Mindanao.

As Hermoso discusses in her Special Study, Weberian industrial location theory posits that the location of manufacturing activity is determined primarily by markets, resources and agglomerative economies. Economic policies, however, also play a key role especially in developing countries where markets are imperfect on account of deficient information and transportation.

In a regression analysis of the theoretically likely determinants of manufacturing concentration in the NCR (which is elaborated on in Hermoso's Special Study), effective protection of consumer goods and imported inputs orientation of firms figure prominently (Table 4.5). Other factors that significantly promote concentration are forward industrial linkage, export orientation, employment size of establishment, and relative wage rate. In contrast, primary materials orientation of firms operate against concentration in the NCR, in favor of location in the regions. This is why resource-based industries are mostly found in the regions.

Of the various forces that bring about spatial concentration, two forces — effective protection rate and imported inputs orientation — distinctly reflect the import-substitution industrialization policy of the 50s and 60s whose effects were perpetuated in the 70s through the tariff structure (Tan 1979). Since the protected industries essentially catered to the urban market, they naturally located in the capital city. These consumer-oriented

Table 4.4 Percentage Distribution of Manufacturing
Census Value Added by Region

Region	1961	1967	1975
Central Industrial	74.26	71.28	74.28
NCR and Rizal	55.19	54.00	47.24
Central Luzon	10.25	6.06	13.29
Southern Tagalog	8.82	11.22	13.75
Traditional Agricultural	19.83	15.43	17.42
Ilocos	1.57	1.49	1.23
Bicol	0.79	1.29	0.73
Western Visayas	11.95	8.43	9.16
Central Visayas	4.92	3.34	5.37
Eastern Visayas	0.60	0.88	0.93
Frontier	5.91	13.29	8.30
Cagayan Valley	0.63	0.99	0.63
Western Mindanao	0.79	0.45	0.57
Northern Mindanao	1.86	3.82	2.59
Southern Mindanao	1.28	4.11	2.20
Central Mindanao	1.35	3.92	2.31
Philippines	100.00	100.00	100.00

Sources: *Economic Census,* 1961 and 1967; *Census of Establishments,* 1975, Volume on
Manufacturing.

Table 4.5   Determinants of Spatial Concentration in NCR

Independent	Dependent: CRCVA		Independent	Dependent: LCRCVA	
	(1)	(2)		(1)	(2)
EPR	0.151 (2.073)	0.194 (4.880)	EPR	0.013 (1.869)	0.018 (2.322)
FM	31.809 (2.584)	41.343 (3.259)	FM	5.264 (2.176)	5.687 (2.159)
FUNCR	6.594 (2,864		LFUNCR	0.246 (2.468)	
FX	45.042 (3.629)	51.845 (4.193)	FX	3.987 (1.925)	2.155 (0.821)
NER	0.008 (0.455)		LNER	0.710 (7.663)	
FPI	−16.970 (−2.287)	−17.709 (−2.089)	LFPI	−0.218 (−3.421)	−0.128 (−1.720)
WNCR	(1.824)	5.040	LWNCR		0.959 (2.908)
KER	(−0.627)	−0.000	LKER		0.236 (0.900)
Constant	−6.098	−11.677		−4.082	−2.962
R^2	0.643	0.570		0.922	0.897
F-value	9.413	7.176		56.558	41.747

Note: t-values in parentheses underneath regression coefficients.

Notations:

CRCVA = concentration ratio of census value added in NCR,
EPR = weighted effective protection rate,
FM = fraction of imported material inputs (from 1969 I-O Table),
FYNCR = fraction of industry output to Manila manufacturing firms,
FX = fraction of exported output,
NER = employment to establishments ratio in NCR,
FPI = fraction of material inputs from primary industries.
WNCR = ratio of NCR's average wage rate to national average wage rate excluding NCR's,
KER = capital (fixed assets) to establishments ratio in NCR,
LCRCVA = natural log of CRCVA,
LFYNCR = natural log of FYNCR,
LNER = natural log of NER,
LFPI = natural log of FPI,
LWNCR = natural log of WNCR,
LKER = natural log of KER.

Source: Hermoso's Special Study in this volume.

industries included, among others, paper and plastic products, textiles, footwear and household appliances, to mention only the heavily protected ones (cf. Bautista and Power 1979). Moreover, by being in the capital city, they could more easily take advantage of the domestic tax/subsidy programs besides being close to skilled labor markets and ancillary services. Likewise, because these industries required imported raw materials, intermediate and capital goods, they needed easy access to the international port and to offices that issue import licenses and foreign exchange. This finding is supportive of the cross-country analysis in Chapter 2 which showed that openness of certain Asian economies in the 60s and 70s contributed to urban primacy.

Another variable — urban wage rate — is directly linked to policy, namely, the minimum wage law which has artificially inflated money wages, making the NCR attractive to migrant labor.[1] Alternatively, to the extent that a high relative wage rate is indicative of the presence of skilled workers, it can serve as one of the criteria for industrial location decision.

Export orientation, which was stimulated in the 70s,[2] apparently also tends to induce concentration because of the need to be near government offices that issue export licenses, major banks and international trading companies, among others for the requirements of the export business. Moreover, it is very likely that several of the import substituting firms in the 50s and 60s that were already situated in the NCR switched to exports in response to policy.

The two other explanatory variables mentioned — forward industrial linkage and firm size — have to do with certain technological characteristics of firms which can make them benefit from agglomeration economies. Because of such characteristics, firms have to locate in the NCR in order to be viable.

It seems clear that the forces for spatial concentration unleashed with the industrial and trade policies of the 50s and 60s continued to be operative in the 70s. Not only did the effectiveness of the former policies continue to linger, but the later ones, such as the tariff structure and export promotion, continued to engender the concentration bias that would offset the dispersal policies. It is hardly surprising, therefore, that the government's regional development thrust would have produced little palpable results by the end of the 70s.

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[1] The minimum wage law also stipulates minimum wages for the regions but, for understandable reasons, enforcement tends to be much less rigid.

[2] The de factor peso devaluation in February 1970, for instance, served as a strong inducement for exports, not to mention the Export Incentives Act of 1970 itself.

Patterns of Population Movements

The national settlement system is made dynamic by population movements in addition to the shifting location of industries. Like industrial location, population distribution tends to be uneven especially in the early and intermediate stages of development. This characterizes the Philippine space economy in post-war decades.

Prior to the 1960s, there were two major migration streams: from Luzon regions and Eastern-Western Visayas to the National Capital Region (NCR) and Cagayan Valley, and from the Visayas regions and some parts of Luzon to frontier areas in Mindanao (Table 4.6; see also Pascual 1966, Smith 1977). Southern Mindanao ranked first both in terms of in-migration and net migration rates, followed closely by the NCR. Three other regions proved to be net receivers of migrants: Western Mindanao, Cagayan Valley and Northern Mindanao. The rest exhibited negative net migration rates, with the heaviest population losses experienced by Central Visayas, Western Visayas, Eastern Visayas and Ilocos, in that order.

The strong currents of migration to the NCR were consonant with the nation's post-war industrializing trend in the direction of Manila, as already discussed. On the other hand, the population movements to Cagayan Valley and Mindanao were a response to the rich agricultural resources in those regions and to the resettlement programs of the government in the 50s. Because of the shift of economic activity away from the Visayas, Ilocos and Bicol, these traditional agricultural regions (TAR) became the sources of migrants.

In the 60s, the NCR became the most preferred destination, with Southern Mindanao coming only second although it continued to be the top net receiver of migrants (Table 4.7). Similarly, Northern Mindanao surpassed Western Mindanao in terms of both in-migration and net migration. Cagayan Valley lost some of its attractiveness but it remained a net absorbing region. Southern Tagalog changed status from a losing to a gaining region, reflecting, together with NCR, the rise of the Central Industrial Region (CIR). Thus, on the whole, population movements during the 60s signalled a definite shift from a frontierward to an urbanward orientation.

The urban-industrial direction of migration that began in the 60s became more visible in 1970-75 (Table 4.8). Both Southern Tagalog and Central Luzon (which, together with NCR, form CIR) appreciably improved their relative rankings in terms of net migration. There was also a change in the destination preference of Visayan migrants, from Mindanao to the NCR and Southern Tagalog, resulting in some net loss to Western and Central Mindanao. Furthermore, Cagayan Valley which used to be a net in-migration region started to suffer a net outflow in the first half of the 70s.

Table 4.6   In-migration, Out-migration and Net Migration Rates
Birth-to-1960 (per thousand)

Region	In-migration Rate	Rank	Out-migration Rate	Rank	Net Migration Rate	Rank
I Ilocos	35.0	8	139.4	3	−104.4	9
II Cagayan Valley	157.7	6	66.5	8	91.2	4
III Central Luzon	40.9	7	138.3	4	−97.4	8
IV Southern Tagalog	110.7	4	126.2	9	−15.5	6
IV-A National Capital	375.1	2	46.2	10	328.9	2
V Bicol	34.8	9	83.9	7	−49.1	7
VI Western Visayas	22.7	11	142.9	2	−120.2	11
VII Central Visayas	31.5	10	243.5	1	−212.0	12
VIII Eastern Visayas	18.1	12	132.0	5	−113.9	10
IX Western Mindanao	293.0	3	37.1	11	255.9	3
X Northern Mindanao	166.5	5	113.5	6	48.0	5
XI Southern Mindanao	378.0	1	27.0	12	351.0	1

Source: Census of Population and Housing, 1960, Appendix.

Table 4.7   In-migration, Out-migration and Net Migration Rates 1960-70 (per thousand)

Region		In-migration Rate	Rank	Out-migration Rate	Rank	Net Migration Rate	Rank
I	Ilocos	20.35	12	52.71	9	−32.65	10
II	Cagayan Valley	57.05	7	41.33	10	15.72	5
III	Central Luzon	66.54	5	94.46	4	−27.92	9
IV	Southern Tagalog	64.16	6	55.44	7	8.72	6
IV-A	National Capital	231.59	1	104.14	3	127.14	2
V	Bicol	18.45	13	35.43	12	−16.98	8
VI	Western Visayas	22.08	11	86.32	5	−64.24	11
VII	Central Visayas	39.47	8	135.71	1	−96.24	13
VIII	Eastern Visayas	29.06	9	115.38	2	−86.32	12
IX	Western Mindanao	83.67	4	40.67	11	43.00	4
X	Northern Mindanao	156.27	3	85.05	6	71.21	3
XI	Southern Mindanao	212.63	2	53.42	8	159.21	1
XII	Central Mindanao	28.30	10	26.32	13	1.97	7

Source: Flieger et al. (1976), Table 21, p. 40.

Table 4.8   In-migration, Out-migration and Net Migration Rates 1970-75
(per thousand)

Region	In-migration Rate	Rank	Out-migration Rate	Rank	Net Migration Rate	Rank
I Ilocos	12.2	9	29.1	2	−16.9	13
II Cagayan Valley	13.3	8	15.6	12	−2.3	7
III Central Luzon	21.8	4	15.9	11	5.9	5
IV Southern Tagalog	64.5	1	50.5	1	14.0	2
IV-A National Capital	34.0	3	25.3	4	8.7	4
V Bicol	11.5	10	21.8	7	−10.3	10
VI Western Visayas	10.3	11	14.4	13	−4.1	8
VII Central Visayas	15.9	6	28.0	3	−12.1	12
VIII Eastern Visayas	17.9	5	19.9	9	−2.0	6
IX Western Mindanao	9.2	12	20.9	8	−11.7	11
X Northern Mindanao	34.0	3	19.0	10	15.0	1
XI Southern Mindanao	35.3	2	22.9	6	12.6	3
XII Central Mindanao	14.6	7	23.9	5	−9.3	9

Source: NCSO, Census Place-of-Residence data, 1975 (unpublished).

Determinants of Interregional Migration

Conventional migration analysis has almost always shown that economic factors, particularly income and employment opportunities, provide a good explanation of migration behavior, whether viewed in a macro or micro context. This result is also essentially borne out in the present study using Philippine census data (cf. Gonzales and Pernia's Special Paper). However, besides these standard economic indicators, such other factors as kinship and ethnicity also figure significantly, as also illustrated by a few studies in the United States (see, e.g., Greenwood 1975).

Analysis of the 1960-70 interregional migration pattern highlights the drawing power of economic (employment) opportunities at the destination region and the facilitating effects of kin (migrant stock) at destination and of ethnicity (common language between origin and destination). As in other studies, level of education at origin also comes out as a significant determinant in that it represents initial human capital, improves knowledge about alternative places and opportunities, and at the same time, raises aspirations (Table 4.9). Farm density serves as a push factor, as would be expected; by contrast, extent of farm irrigation at origin tends to prevent out-migration because irrigated farms raise productivity as well as absorb more labor. The transportation factor appears insignificant, as might be expected, given the important functions performed by kinship, ethnicity and education (see Schwartz 1973). The salience of employment opportunities over income at destination and the significance of the kinship effect are consistent with earlier studies using household data (Pernia 1978, 1979).

The regression results for 1970-75 further substantiate the crucial role in migration of kinship and enthnicity (making transport consideration immaterial), as well as of economic (employment) opportunities at destination (Table 4.9). Likewise, farm density at origin does appear again to exert the pressure for moving out. At the same time, however, poverty incidence at origin seems to hamper the ability to migrate, i.e., given that migration entails some initial capital, the very poor are forced to stay put. This last point is worth noting because, while migration has become a highly noticeable phenomenon in recent years, the inability of other people to migrate has been overlooked. If such inability to migrate is related to poverty as suggested by the analysis, then large segments of the population especially in the depressed regions must be potential migrants. The question for policy would seem to be: should these people be given assistance to move to where they can be better off, or would the development of depressed areas be a more promising solution?

Table 4.9 Determinants of Interregional Migration

Independent Variables	1960-70		1970-75	
EST$_i$		−0.017 (−0.089)		0.056 (0.233)
EST$_j$	0.788 (5.495)		0.725 (5.547)	0.693 (2.970)
FD$_i$	0.381 (1.689)	0.217 (0.626)	0.907 (3.113)	1.840 (3.618)
FD$_j$	−0.806 (−3.913)	−0.162 (−0.758)	0.346 (1.615)	−0.152 (−0.396)
IRR$_i$	−0.737 (−6.575)	−0.765 (−4.772)	−0.116 (−1.037)	−0.615 (−3.096)
UN$_i$			0.013 (0.145)	
UN$_j$		−0.328 (−1.693)		
ED$_i$	1.533 (4.553)	1.253 (2.527)	−0.125 (−2.071)	0.181 (1.770)
ED$_j$	0.395 (1.382)		−0.101 (−1.998)	0.000 (0.003)
FY$_j$		0.252 (1.075)		
MS$_{ij}$	0.624 (14.339)	0.713 (12.479)	0.582 (12.922)	
TRANS$_{ij}$	0.001 (0.005)	−0.088 (−0.477)	0.082 (0.398)	−0.185 (−0.498)
L$_{ij}$	0.778 (4.975)	0.455 (2.508)	0.535 (3.540)	
POV$_i$			−0.256 (−1.578)	−0.682 (−2.446)
Constant	−6.118	−2.626	−2.640	1.392
$\bar{R}^2$	0.848	0.802	0.731	0.116

Note: t-values are in parentheses underneath regression coefficients.

Notations:

EST$_{i,j}$ = employment opportunities at i (origin), j (destination);
FD$_{i,j}$ = farm density at i, j;
IRR$_i$ = farm irrigation at i;
UN$_{i,j}$ = unemployment rate at i, j;
ED$_{i,j}$ = level of education at i, j;
FY$_j$ = family income at j;
MS$_{ij}$ = migrant stock from i at j;
TRANS$_{ij}$ = transportation access between i and j;
L$_{ij}$ = common language between i and j;
POV$_i$ = poverty incidence at i.

Source: Gonzales and Pernia's Special Paper.

CHAPTER 5

CONCLUSIONS AND
POLICY IMPLICATIONS

Summary of Salient Findings

Despite a steadily rising level of urbanization during this century, the Philippines remains a predominantly rural country, reflecting its overall level of industrialization and development. As of 1980, only about 36 percent of total population could be considered living in urban places,[1] compared to the world average of 41 percent and to East Asia's 72 percent. The notable, though not surprising, aspect of the nation's spatial and urban development, however, has been the mounting concentration of population and economic activity in Manila, the National Capital Region (NCR), despite the proliferation of lower-level urban centers — an indication of the rapid growth of total urban population.

In an historical context, the center of population and economic activity of the country can be viewed as having shifted from the traditional agricultural region (TAR — Visayas, Bicol and Ilocos) to the national capital region (NCR), gradually spilling over into the metropolitan periphery of Southern Tagalog and Central Luzon and forming what is now known as the Central Industrial Region (CIR). The central thesis of this study is that the spatial development of the economy has been shaped by natural economic and social forces in certain areas accentuated by the spatial biases of trade and industrial policies, such that the later regional and rural policies were largely ineffective in countering the polarization phenomenon.

Thus, during the Colonial Period (1900-1939), the agricultural regions were the center because they produced, with the incentive of preferential tariffs, the crops for export to the mother country. During this period, urban population increase occurred mainly in cities located in the agricultural

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[1]According to the official definition of urban. On closer inspection, one finds that many of these so-called urban places are not really quite urban in character. This implies the need for a more rigorous definition as well as its faithful application. However, for international comparison purposes, the above figure is most likely suitable.

regions. However, increasing population density on a limited resource base, the vulnerability of primary exports to the vagaries of international trade, and the shift in emphasis from agriculture to industry brought about a slackening of the relative and absolute growth of population and economic activity in these regions — making them sluggish from the late 40s through the 70s.[2]

During the 50s through the mid-60s, the government pushed an industrialization policy anchored on import substitution. Given Manila's locational advantages as the administrative and financial center and as the locus of the country's international port, its absolute and comparative advantage in manufacturing activity evolved rapidly. Hence, manufacturing firms clustered in the NCR for ease of access to the port, to import licenses and foreign exchange, to skilled labor markets and ancillary services, as well as to the domestic market for their products which catered to urban tastes. At the same time, during the Import Substitution Period, there was a noticeable shift in migration from frontierward streams to movements to the urban-industrial center of Manila that subsequently expanded into Southern Tagalog and Central Luzon. During this period, too, urban places mushroomed within the CIR.

In the meantime, the frontier region (FR — Mindanao and Cagayan Valley) was activated by government resettlement programs during the late Colonial Period and early post-independence period, but the impact appeared short-run in nature. Moreover, the deteriorating peace and order condition in the FR further heightened the attractiveness of the CIR. The earlier developments in the FR, in any case, contributed to the further decline of the TAR.

The spatial pattern of manufacturing activity in 1975 can be described as one in which resource-based industries (e.g., food, wood, paper, iron and steel) were located outside the NCR; by contrast, import-substituting and final-stage processing industries (e.g., textile, wearing apparel, footwear, chemical, rubber, leather and plastic products) were concentrated in the NCR and more broadly in the CIR. It thus seems that the strong forces for concentration unleashed by the import-substitution industrialization strategy of the 50s through the mid-60s became so deeply imbedded in the economic structure that their effects continued to be felt through the 70s. And these effects were sustained by the retention of the tariff structure which was one of the main planks of the import-substitution policy.

Meanwhile, population movements, facilitated by kinship and ethnic

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[2]One could conjecture that without the drastic shift in policy thrust, the polarization that ensued may have been more moderate (i.e., perhaps Cebu may now be a stronger metropolis for the Visayas and Northern Mindanao).

networks developed over the years, proceeded in their urban-industrial orientation, promoting further regional inequalities in skilled labor and domestic demand. Thus, past developments have engendered a self-perpetuating imbalance that may still be abetted by remaining policies.

The late 1960s saw the start of the Regional Awareness Period when dispersed development became an explicit goal. Initial indications seem to show some faint response to the new policy theme. The lingering spatial effects of earlier trade and development policies, the well-developed networks for migration, as well as established agglomeration economies may be inhibiting the smooth operation of dispersal policies. Moreover, the instruments of the rural/regional development thrust (e.g., rice policy, land reform, agricultural credit schemes, pricing policies, infrastructure expenditures, social services and the 50-kilometer radius ban) appear to have made their initial impact primarily on Southern Tagalog and Central Luzon which have become parts of the CIR conurbation. For instance, the 50-kilometer radius industrial-location ban in the early 70s to decongest Metro Manila resulted in about 30 percent of new plants locating Southern Tagalog and Central Luzon and another 17 percent given special exemptions to situate in the NCR. Thus, close to hal fof the locational clearances issued by the then Human Settlements Commission ended up in the CIR. While apparently an improvement over past periods, this development still does not go a great way towards the desired dispersal. It also suggests that the dispersal policies still have to contend with the ongoing historical and economic forces unleashed in prior periods.

Finally, the influence of urbanization on agricultural labor productivity appears to be negative or in the nature of a backwash effect at low levels of regional development. In other words, cities tend to develop at the expense of the farms. At higher levels of development, the impact of regional urban centers on nearby agriculture becomes increasingly beneficial. On the other hand, agricultural development tends to dampen urbanization, reflecting absorption of labor which would otherwise migrate to urban centers.

Implications for Policy

First of all, policymakers should aim for greater consistency between regional and rural policies, on the one hand, and policies designed for macro goals, on the other. In other words, conflicts between macro (or sectoral) objectives and regional (spatial) aims should be resolved first at the policy/ planning level. Unless this is done, macro and regional policies would weaken each other's effectiveness if not altogether cancel each other out. Beyond that, it may be possible to exploit whatever complementarities there are between the two major types of policies. For example, the concentration

of certain industries in the CIR may actually already have pushed them onto the range of diminishing returns (although the returns may still be positive). From the viewpoint of macro goals, it would seem more sensible for newer firms to now be located in the other regions. However, they may be deterred by the absence of alternative industrial sites which can support them. In this case, utilizing alternative urban centers that can provide the necessary supporting functions may actually facilitate the attainment of macro goals.

As a minimum effort, it may be possible to purge macro (sectoral) policies of their spatial biases, without unduly sacrificing macro goals, in order to ease the functioning of spatial policies that, for example, encourage resource-based and small industries. The current restructuring of industrial promotion policies is in the right direction. But it seems to be explicitly designed solely for greater efficiency in resource allocation; consideration of the spatial dimension is implicit at best.

Second, the rapid growth of Southern Tagalog and Central Luzon is an indication of the fortunate confluence of spillover effects from the NCR and of regional dispersal policies. These two peripheral regions now seem to possess the natural advantages to further develop on their own. To inadvertently add to these advantages through regional dispersal policies may start another round of polarization — now toward the broader CIR region. It would seem that blanket dispersal policies to counteract the attraction of Metro Manila are now too broad — in the same way that macro policies were unable to provide close spatial guidance. It may now be necessary to be more specific about which regions are going to be the recipients of the impacts of decentralization policies.

Third, following up on the first two suggestions, the development effort for the other regions should exploit the national urban system. Broad regional urban centers (Cebu and Davao) may be developed in order to support the overflow of those industries that now experience agglomeration diseconomies in the CIR. Given that regional policy can become effective if it is introduced where natural economic and social forces are already in motion, intervention may be made at the level of these broad regional urban centers. This would also enable the government to design programs that are more region-specific.

The rest of the urban hierarchy may also be utilized. However, because certain infrastructures and some degree of agglomeration economies are needed for multiplier and spread effects, the dispersal effort should be concentrated in urban centers of requisite order (e.g., regional urban centers or major urban centers) so that available resources would not be dissipated.

Fourth, the government should strive for some balance between the welfare of populations in different areas of the country, especially between rural and urban households. This may entail the provision of assistance

to groups who are willing but unable to migrate to places of better opportunities, and the design of aid programs for those who remain behind. It would also require that programs of urban development and management be made consistent with a national spatial development policy. Specifically, urban programs should not distort economic signals to households so as to lead to disproportionate movements to congested areas. For instance, given that migration tends to be basically responsive to employment opportunities, the delivery of urban social services (health, education, housing, etc.) may be improved as long as it is accompanied by a decentralized employment policy or a shift away from urban-biased investments. However, more research into urban management, the delivery of public services and decentralized employment policy, among other issues that are not touched in this study, is needed.

In sum, the findings of this study point to the need to evolve a national spatial development policy that brings together all the seemingly disparate policies — macroeconomic and trade policies in addition to dispersal programs. Properly discussed and designed, this unifying approach may result in something closer to maximum economic growth with more socially beneficial regional balance.

PART II

THE DEVELOPMENT OF THE PHILIPPINE SPACE ECONOMY: 1900-75

Victorina P. Hermoso

CHAPTER 1

INTRODUCTION

The Philippines evolved from a predominantly agricultural economy in 1900 to an industrializing one with fairly developed industrial and service sectors in 1975. This process of transformation was accompanied by a rise in the level of urbanization as well as regional shifts in population and economic activity, which may be briefly described as follows. First, during the postwar years, the agricultural regions (Ilocos, Central Luzon, Southern Tagalog, Bicol and the Visayas) of the Colonial Period (1900-39) lost their status as the erstwhile population and economic center with Ilocos, Bicol and the Visayas exhibiting a declining share in total population and economic activity. Those regions contiguous to Manila (Central Luzon and Southern Tagalog) were then converted into industrial regions. Second, Manila, serving as the major entrepot since the Colonial Period, became the prime urban-industrial core of the postwar period. This economic core subsequently widened to form the broader Central Industrial Region (Manila, Central Luzon and Southern Tagalog). Third, the Frontier Region (Cagayan Valley and Mindanao), although historically considered as the fastest growing regions in terms of population and economic activity, has failed to make a significant contribution to national output and employment in the postwar years.

The objective of this study is threefold: (a) to analytically describe the evolution of the urban and regional economy from 1900 to 1975; (b) to determine the extent to which spatial development in terms of the distribution of population and economic activity has been influenced by public policies in addition to historical and socio-economic forces; and (c) to identify the determinants of the locational concentration of manufacturing activity.

Three propositions are advanced to summarily describe the changing spatial milieu contemporaneous with shifting policy regimes during the 75-year period. First, during the Colonial Period (1900-39), the relative abundance of good agricultural land and the stimulus of preferential tariff agreements between the Philippines and the United States fostered the cultivation of traditional export crops and the setting up of ancillary agricultural indus-

tries. These developments resulted in the concentration of population and economic activity in the agricultural regions. Second, the pursuit of rapid industrialization during the Import Substitution Period (1948-67) shifted the concentration of population and economic activity to Manila due to its locational advantage, its status as the country's capital city and its comparative advantage in manufacturing, among others. Subsequently, the spillover of industrialization to Manila's peripheral regions (Southern Tagalog and Central Luzon) and the presence of adequate economic and social infrastructures together with built-in polarization policies resulted in the expansion of the initial economic core into the broader Central Industrial Region. Third, the marked locational preference of households and firms for the Central Industrial Region and the perceived interregional disparities prompted the incorporation of a conscious spatial dimension in development policy during the most recent period – what may be referred to as the Regional Awareness Period (1967-70s). However, the effectiveness of regional and rural policies has been limited by the strong polarization forces at the Central Industrial Region and the lack of sustained dynamism in the other regions.

Analytic Framework

A framework depicting historical, social, demographic and economic forces as well as economic policies is sketched in Figure 1.1[1] The primary product export-led growth induced by the preferential tariff agreements during the Colonial Period stimulated the development of the Traditional Agricultural Region. The industrialization policies pursued in the Postwar Period favored the Central Industrial Region and initiated the decline of some agricultural regions. While the resettlement policies promoted the rapid growth of the Frontier Region, the growth pole strategy pursued and the sporadic infrastructure investments in that region proved inadequate in tapping its vast economic potential. Recently, concern over the actual location decisions of households and firms and such considerations as regional income inequality, sectoral inefficiency, ethnic fragmentation and the deterioration of peace and order conditions in depressed regions have prompted the incorporation of some conscious spatial dimension in development policy.

The processes of labor and capital transfer from the rural-agricultural to the urban-industrial sector and from the rural-agricultural to the frontier area are effected by migration and industrial location decisions. Assuming economic rationality, it may be posited that the decision of households to

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[1]This derives from the more general framework sketched and discussed in Part I of this volume. The fuller version of this analytic framework is expounded in the theoretical considerations of Hermoso (1982).

Figure 1.1. A Framework Depicting Key Factors in Regional Economic Growth
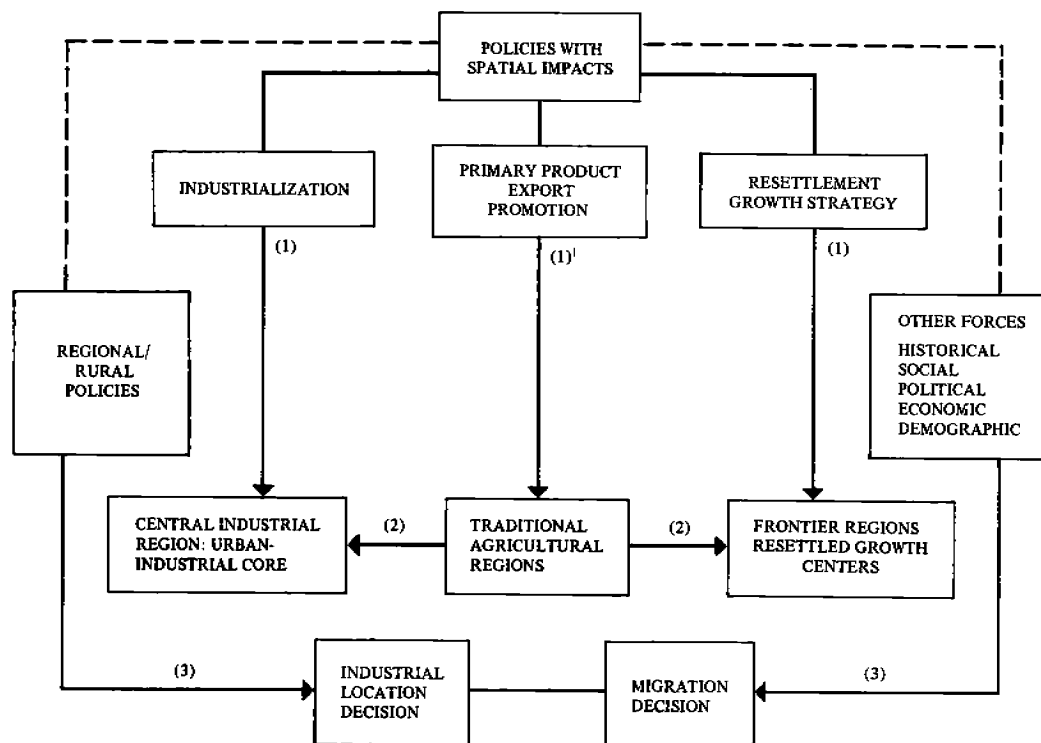
[1] Impact of Economic Policies on the broad regions.

[2] Outflow of population and economic resources are manifestation of locational preferences of twins (industrial location decision) and households (migration decision).

[3] Other factors affecting industrial location and migration decision.

migrate depends on urban-rural or frontier-rural expected wage differentials, while the decision of firms to locate depends on perceived profit differentials at alternative sites. In a broader context, the locational preferences of households and firms may be seen as being responsive to government policies in addition to historical, socio-political, economic and demographic forces.

Methodology

Regional Economic Structure and Growth

For purposes of data comparability from 1903 to 1975, the levels of regional economic activity for the agricultural, industrial and service sectors[2] are represented by the number of employed workers and establishments. The *Economic Census* (1903, 1918, 1948, 1961, 1967 and 1972) and the *Census of Establishments* (1975) report statistics on industrial and service activity while the *Census of Agriculture* (1903, 1918, 1939, 1948, 1960 and 1971) furnishes data on agricultural activity. Regional population data are derived from the *Census of Population* (1903, 1918, 1939, 1948, 1960, 1970 and 1975). The availability of census data at the provincial level allows for a consistent application of the 1976 regional delineation through the years (Appendix Note 1).[3]

Agricultural establishment refers to the number of farms. Various definitions of manufacturing establishment are noted.[4] Regional estimates of service establishments are obtained for 1903 and 1918 when the household

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[2]The economic sectors are broadly grouped as follows: agricultural (agriculture, forestry and logging, and fishing); industrial (mining and quarrying, manufacturing, construction, and utilities) and service (transportation, communication and storage, commerce, and services).

[3]From 1903 to 1948, population, agricultural, and economic censuses were conducted simultaneously. Beginning 1960, population, agricultural and non-agricultural censuses were made separately. In 1975, agricultural and non-agricultural activities were jointly reported in the *Census of Establishments* (COE); however, agricultural activity was limited to large establishments.

[4]In 1903, manufacturing establishment refers to those producing manufactured goods worth ₱1,000 or more, annually. For 1918 and 1939, manufacturing establishment in addition to the 1903 definition includes those household industries with an annual production value of ₱100 but less than ₱1,000. Manufacturing establishment in 1948 refers to an individual, association, corporation, partnership or agency with the proper Internal Revenue license engaged in the production of goods from raw materials on a commercial scale. And from 1961-75, a manufacturing establishment refers to an economic unit which engages, under a single ownership or control, in one or predominantly one kind of manufacturing activity at a fixed single physical location with permanent assets in its premises during its operation.

constituted the reporting unit.[5] From 1939 thereafter, business establishment has become the reporting unit of non-agricultural activity.

Data on small and large establishments[6] and census value added[7] for small and large non-agricultural establishments became available starting in 1961 at the provincial level. To capture fhe changing economic milieu over the seven decades, data on value of production, in the absence of census value added, and book value of fixed assets are obtained for the various census years.

Intercensal growth   rates for (a) regional urban and rural population, (b) regional establishments engaging in different economic pursuits, and (c) regional sectoral employment are computed from 1903 to 1975. Also, some economic characteristics of firms for the various census years are described by the following measures: (a) *factor intensity* which is expressed as the ratio of book value of fixed assests to total employment; *(b) average size of firms* which is alternatively defined as the ratio of total employment to total number of establishments, the ratio of book value of fixed assets to total number of extablishments, or the ratio of value of production of census value added to total number of establishments; (c) *capital productivity* which is given as the ration of value of production of census value added to book value of fixed assets; and (d) *labor productivity* which is the ratio of value of production or census value added to total employment.

Using employment data, the following supplementary measures of the distribution of economic activity in a regional economy are computed:

(a) *localization index* quantitatively describes the extent of spatial concentration or dispersion of an economic activity;

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[5]To obtain regional estimates, the number of service establishments was prorated based on regional population shares.

[6]Large non-agricultural establishment is defined by the National Census and Statistics Office (NCSO) as an establishment employing 10 or more workers, whereas small non-agricultural establishment employes less than 10 workers. Similarly, large agricultural establishment is defined by NCSO (1971) as a farm having an area of 5 or more hectares, whereas small agricultural establishment refers to a farm having an area of less than 5 hectares.

[7]Census value added is defined as the value of shipment less the cost of materials, supplies and containers, fuel, purchased electric energy and contract work. Gross value added consists of returns to the factors of production (land, labor, capital, enterpreneur) that cooperate in bringing about the national output. Hence, gross value added (from the national income viewpoint) is less than the census value added by the amount of such nonfactor charges as indirect taxes, depreciation, allowances for bad debts and overhead expenses (Trinidad 1958).

(b) *coefficient of specialization* determines whether a given region specializes in an economic activity or engages in diversified economic pursuits; and

(c) *index of locational change* measures the degree of spatial shift of an economic activity.[8]

The following data limitations or constraints are to be noted:

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1.   Employment data

Year	Percentage Employed of Total Population at Each Economic and Agricultural Census
1903	39.79
1918	62.45
1939[9]	29.80
1948	20.22
1960/61[10]	35.17
1971/72	40.69

These only include employed workers reported by the *Economic and Agricultural Censuses.* Noticeably, the figures are understated by a magnitude equal to those workers employed in establishments not reported in the Census. Nor can we infer that these reported workers constitute the economy's labor force.[11]

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[8]See Methodological Appendix for a full description of these indices and their usefulness as analytical devices.

[9]Starting 1939, *Economic Census* centered on business establishments, instead of households, as the unit of reporting employment by industry. Hence, the decline in total population's share of employed workers.

[10]Due to the absence of 1960 data on farm workers, estimates were derived applying the ratio of provincial population aged 10-65 to total farm population per province.

[11]*Population Census'* enumeration of employment by industry would more aptly depict the economy's labor force, and yield closer figures to those of the *Philippine Statistical Survey of Household (PSSH),* Averch *et al.* (1971) showed that employment by industry reported in the *1960 Population Census* in twice that of the *1961 Economic Census* since the former captures the entire non-institutional population. Likewise, employment enumerated in the *1960 Population Census* represented three-fourths of the October 1960 *PSSH's* labor force.

2.   Establishment data. "Since the *Economic Census* draws a sample from the universe of business establishments, it is likely to overlook activities that are not associated with particular fixed locations, do not require municipal licenses, do not pay business taxes and the like. Obviously, a great deal of economic activity is carried on outside the census establishments" (Averch *et al.* 1971, p. 85).

3.   Sectoral output data. Unlike employment and establishment data which are directly derived from the *Agricultural and Economic Censuses,* sectoral output data have to be estimated. The gross value added estimates of Hooley (1966) and NEDA (1978) are used for the periods 1903-39 and 1948-75, respectively. However, these estimates are economic aggregates.

4.   Regional output data. Provincial data on the value of agricultural production are used to estimate regional agricultural output for 1960. Estimates of regional agricultural output for 1971 are derived by weighting the provincial crop production value with the input-output value-added coefficient of the corresponding crop. Census value added estimates for 1961, 1967, 1972 and 1975 are used to denote the regional output of industrial and service activity.

The Urban System

Prior to 1948, there were only 16 chartered cities; this number increased to 21 by 1948. The creation of more chartered cities by Republic Acts further increased this number to 31 in 1960 and 60 in 1970-75. The population of all the chartered cities accounted for 12, 16, 23 and 25 percent of the total population in 1948, 1960, 1970 and 1975, respectively. Misgiving about the definition of urban places using either the chartered city delineation or the changing definitions of urban population adopted for the different census years (see Appendix Note 2) prompted some modification. Alternative definitions of urban places are based on the political-administrative delineation and the broad economic concept of a city.

Method I: Political-Administrative Delineation. The analysis is limited to the 1948-75 *Population Census* data on chartered cities because of the dearth of chartered cities prior to 1948. Manila in 1948 was defined to include Quezon City and Pasay City, and in 1960, it embraced, in addition, Caloocan City and the four municipalities of Makati, San Juan, Mandaluyong and Navotas. For 1970 and 1975, Metro Manila encompassed the above-

mentioned four cities and the 13 municipalities of Las Piñas, Makati, Mala-
bon, Mandaluyong, Marikina, Muntinlupa, Navotas, Parañaque, Pasig, Pateros,
San Juan del Monte, Taguig and Valenzuela. Likewise, Cebu City for 1948
and 1960 included the municipalities of Mandaue and Talisay, whereas,
for 1970 and 1975 Metro Cebu comprised Cebu City, Mandaue City, Lapu-
lapu City and the municipalities of Talisay and Minglanilla.

All chartered cities are included regardless of city size.[12] Even if
chartered cities are politically determined, for the 1948-75 period, only five
to ten of them fell below the 40,000 population benchmark used in Method
II.

Method II: Broad Definition of Urban Places. Alternatively, an urban
place may refer to a chartered city or a municipality which satisfies simul-
taneously the following economic criteria:[13] (a) it must have a population
of 40,000 or more,[14] and (b) its population density must be greater than
the Philippine average population density.[15] This is consistent with the
1939-63 census definitions of urban areas incorporating chiefly some mini-
mum size and density criteria. Modifications to the above-mentioned criteria
are introduced to make the urban definition consistent with both the evolving
census definition of urban areas (see Appendix Note 1) and the demographic
trends of the pertinent periods. Regarding the 1903-39 period, those muni-
cipalities which qualified as urban in 1948, exceeded some urban threshold
level (5,000 for 1903 and 1918 and 17,000 for 1939),[16] and satisfied the

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[12]The smallest city is Trece Martires with a registered population of 4,422, 6,522,
and 7,179 in 1960, 1970 and 1975, respectively.

[13]Richardson (1978) suggests that the economic definition of a city should satisfy
some minimum size and the density rule.

[14] A municipality may become a city when its population exceeds 40,000. This
population level appears to have been chosen to reflect that some degree of urbanization
had occurred and the recognition that it has urban problems that require some resources
to deal with. A city is permitted to collect more tax in its area than either a municipality
or a province and, therefore, city status is advantageous.

Municipalities may apply to the Ministry of Local Government and Community
Development to become cities but to avoid annual administrative problems, the Govern-
ment tends to redesignate municipalities into cities at about five-year intervals." (World
Bank 1979, Vol. II, p. 82).

[15]A critical level of population density supports Mill's general hypothesis that "a
city is a place where population density is high compared to that of the surrounding
areas" (1972, p. 3). Because of the difficulty in arbitrarily determining the appropriate
cut-off population density, the average national density is used.

density requirements are considered. Specifically, for the 1970-75 period, an additional economic criterion is included, namely, that the urban area must have at least six establishments whether commercial, manufacturing, recreational or personal services.

Throughout 1903-75, Metro Manila includes the four cities of Manila, Pasay, Quezon and Caloocan and the thirteen municipalities of Las Piñas, Makati, Malabon, Mandaluyong, Marikina, Muntinlupa, Navotas, Parañaque, Pasig, Pateros, San Juan del Monte, Taguig and Valenzuela. Similarly, Metro Cebu embraces the three cities of Cebu, Lapulapu and Mandaue, and the municipalities of Talisay and Minglanilla.

The four-city index of first-city primacy and the Pareto coefficient, $\hat{q}$, of the rank size distribution are then computed, using the two definitions of urban places. The index of primacy is the ratio of the largest city to the next three largest cities of the urban system. Meanwhile, the estimating equation of the rank size distribution is given as:

$$\log P_i = \log P_1 - q \log r_i$$

where
P_i population size of city $\underline{i}$
r_i rank of city $\underline{i}$
$\hat{P}_1$ estimated population of the largest city
$\hat{q}$ estimated Pareto coefficient

Broad Regional Delineation

The Philippine space economy is classified into three broad regions: (a) *Central Industrial Region* (CIR) consisting of the National Capital Region (NCR),[17] Central Luzon and Southern Tagalog,[18] (b) *Traditional Agricul-*

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[16]Derived as follows: the annual growth rate of urban population was 3.52 and 4.10 percent for the period 1903-39 and 1939-60, respectively (Pernia 1977). Given that P_t for 1960 is the minimum size of 40,000 one can compute P_{t-1} and P_{t-2} by reverse projection. P_{t-1} and P_{t-2} therefore represent the appropriate critical sizes for 1939 and 1903-18, respectively.

[17]NCR includes Metropolitan Manila (with its 4 cities and 13 municipalities) and the remaining 12 municipalities of Rizal province: Angono, Antipolo, Baras, Binangonan, Cainta, Jala-jala, Montalban, Morong, Pililla, San Mateo, Tanay and Teresa.

[18]Central Luzon and Southern Tagalog are referred to as the Metropolitan Periphery (MP).

tural Region (TAR) consisting of Ilocos, Bicol, Western Visayas, Central Visayas and Eastern Visayas, and (c) *Frontier Region* (FR) consisting of Cagayan Valley, Western Mindanao, Northern Mindanao, Southern Mindanao and Central Mindanao.[19] The following criteria constitute the basis for such classification: (i) similarity in the distribution of rural and urban population; (ii) parallel trends in the growth rates of population and economic activity; (iii) similarity in natural resource endowments or constraints; and (iv) similarity in the spatial impacts of certain government policies (see Chapter 3).

The classification scheme considers the traditional approaches used in defining a region, viz., (a) the stress on homogeneity with respect to some one or a combination of physical, economic, social or other characteristics; (b) the emphasis on nodality or polarization, usually around some central urban place; and (c) the adoption of spatial programming or policy-oriented considerations (Meyer 1963).[20] Although the programming approach especially refers to FR and polarization constitutes the core concept in the designation of CIR, the homogeneity criterion is consistently applied to the three broad regions (see Chapter 3).

A 1975 economic profile of the broad regions is sketched using selected demographic and employment variables, income and output, natural re-

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[19]Pernia's (1977) listing of frontier areas. The term frontier applies to some unsettled portions of the country with a low man-land ratio and abundant natural resources providing an opportunity for an individual to better himself economically and socially without external aid.

[20]*Homogeneity.* This criterion assumes the presence of a relatively high degree of uniformity in certain geographic (climatological factors, soil conditions, fertility of land, etc.), social (common historical background, similar institutional milieu) and economic (population density, comparable growth experience, urbanization, production activities, skill levels of labor force, per capita income, etc.) factors. Thus, regions can be classified as agricultural and industrial, low-income and high-income, stagnant and growing.

Polarization. "A polarized (nodal, core) region is a connex area in which the internal economic relationship is more intensive than the relationship external to the region. i.e., it possesses a high degree of integration or intradependence. . . (As such), this concept integrates both abstract, economic space and concrete, cartological space . . . [Note that] the polarization phenomena rest both on economic elements (such as intersectoral commodity flows and externalities), and on spatial elements (such as transportation, traffic and communication). In general, a polarized region does not rest on a spatial homogeneity, but on a tight, spatial integration of interwoven heterogeneous elements." (Paelinck and Nijkamp 1975, p. 173).

Programming. This refers to the uniformity of the spatial impact of specific government policies. It argues that economic growth is differentiated spatially and facilitated greatly by the designation of growth centers. These growth centers (having a high growth potential) are able to transmit economic growth intra- and inter-regionally by means of interregional and intersectoral linkages.

source endowments, housing and commuting characteristics, and certain policy variables (Table 1.1). CIR's status as the broad urban-industrial core is manifested in its disproportionately large share in urban population, in-migration, urban employment, industrial and service output, industrial and service loans, and business investments together with a high regional income per capita, population density, urbanization level and degree of motorization. On the other hand, CIR is confronted with resource constraints such as a high farm population density and a low share in some natural resource variables. As the erstwhile center of population and economic activity, TAR still captures a large share of rural population, rural workers, agricultural employment, dwelling units and road inventory. That TAR experiences the lowest regional income per capita and the highest poverty incidence attests to its declining prominence. Although replete in natural resources, FR's economic non-integration into the Philippine space economy is portrayed by its low share in population, employment, regional output, industrial and service activity, industrial and service loans, business investments, housing units and transportation facilities. Recently, FR has emerged as the locus of modern agricultural activity.

To ascertain the degree of homogeneity of the broad regional groupings, the coefficients of variation for broad intra-regional and interregional differentials of the economic variables listed in Table 1.1 are computed. The results (Methodological Appendix Tables 1 and 2) show that, in general, differences among the broad regions yield higher coefficients of variation than differences within the broad regions. These indicate that the designated broad regions possess a high level of internal uniformity with respect to some economic characteristics.

Determinants of Manufacturing Concentration

The *1975 Census of Establishments (Volume on Manufacturing)* contains regional data at the three-digit level on establishments, employment, census value added, wages and salaries, and book value of fixed assets. The data pertain to large establishments, defined by the *Census* as those having 10 or more employed workers. The regional concentration of manufacturing activity is used here to reflect the cumulative impact of past economic forces as well as the lingering effects of industrial policies implemented during the Import Substitution Period, including the tariff structure which was reformed only in 1980. For instance, as Tan (1979) points out, industry's structure of protection in 1974 has remained basically unchanged since the late 40s.

Tan's (1979) EPR estimates for 1974 are weighted for our purposes

Table 1.1   Broad Regional Share of Selected Economic Variables, 1975
(in percent)

	NCR (1)	CIR (2)	TAR (3)	FR (4)	Phil. (2+3+4)
Population [1]					
Total	12.44	34.21	39.45	26.34	100.00
Urban	37.58	57.81	27.56	14.63	100.00
Rural	0.81	23.30	44.95	31.75	100.00
Proportion Urban	95.55	53.44	22.10	17.57	33.40
Population density					
(in sq. km.)	2415.2	218.8	173.2	80.1	140.2
Rural farm population					
density (in ha.)	10.58	4.06	3.94	2.36	3.27
Migration [2]					
Gross migrants	25.84	44.95	30.07	24.98	100.00
In-migrants	29.63	51.40	22.62	25.98	100.00
Out-migrants	22.06	38.50	37.52	23.98	100.00
Employment					
Gainful occupation [1]					
Total	12.21	41.08	34.77	24.15	100.00
Urban	31.41	69.42	19.61	10.97	100.00
Rural		23.05	44.42	32.53	100.00
Non-gainful and new entrants [1]					
Total	11.51	41.06	34.81	24.13	100.00
Urban	29.85	66.79	21.62	11.59	100.00
Rural		24.91	43.09	32.00	100.00
Skilled [1]					
Total	40.22	59.44	25.47	15.09	100.00
Urban	56.45	70.60	19.57	9.83	100.00
Rural	1.32	32.68	39.63	27.69	100.00
Semi-skilled [1]					
Total	14.73	34.25	38.29	27.46	100.00
Urban	50.67	67.35	20.40	12.25	100.00
Rural	0.49	21.14	45.37	33.49	100.00
Unskilled [1]					
Total	32.34	50.72	33.23	16.05	100.00
Urban	55.61	69.05	22.07	8.88	100.00
Rural	1.28	26.25	48.13	25.62	100.00
Persons engaging in agriculture [3]					
Total	0.22	14.93	51.98	33.09	100.00
Urban	2.70	19.59	48.67	31.74	100.00
Rural		14.52	52.27	33.21	100.00

Table 1.1 (cont'd.)

	NCR (1)	CIR (2)	TAR (3)	FR (4)	Phil. (2+3+4)
Income					
Gross regional domestic product (1971-75)[4]	32.05	51.47	28.63	19.90	100.00
GRDP per capita, 1975 (in pesos)[4]	4,561.85	2,564.76	1,098.84	1,119.57	1,605.16
Poverty Incidence[5]					
Total	30.9	36.1	51.3	48.0	45.3
Urban	30.9	33.9	48.6	49.0	40.2
Rural		38.4	52.0	47.8	47.5
Output[6]					
Census value added, Agriculture (large)[6]	0.31	9.78	20.45	69.77	100.00
Census value added, Industrial[6]	46.28	68.55	21.47	9.98	100.00
Census value added, Service[6]	67.37	74.86	16.40	8.74	100.00
Paid-in capital of newly registered corporations, 1970-75[7]	43.94	73.03	14.97	12.00	100.00
Natural resources[8]					
Land area	0.72	21.93	31.94	46.13	100.00
Farmlands	0.25	18.73	37.26	44.01	100.00
Forest areas		21.72	25.80	52.48	100.00
Lakes and swamps		30.00	32.47	37.53	100.00
Copper reserves		9.05	82.70	8.25	100.00
Nickel reserves		21.84	2.09	76.07	100.00
Iron reserves		3.33	2.66	94.01	100.00
Dwelling units, 1970[2]					
Acceptable					
Total	10.60	31.76	41.85	26.39	100.00
Urban	33.98	55.21	29.49	15.30	100.00
Rural	0.56	21.69	47.16	31.15	100.00
Unacceptable					
Total	5.51	29.60	48.36	22.04	100.00
Urban	8.26	29.48	48.98	21.54	100.00
Rural	0.21	29.85	47.14	23.01	100.00
Number of registered motor vehicles[9]	40.34	61.70	23.68	14.62	100.00

Table 1.1.   (Cont'd.)

	NCR (1)	CIR (2)	TAR (3)	FR (4)	Phil. (2+3+4)
Road inventory[9]					
Total	7.87	23.03	41.19	35.78	100.00
Good	8.28	22.07	43.47	34.46	100.00
Fair	11.03	27.75	35.76	36.49	100.00
Bad	4.36	19.11	44.73	36.16	100.00
Irrigated lands, 1975[10]		29.34	17.77	48.16	
DBP Loans, 1947-75[11]					
Total	42.89	61.90	21.19	16.91	100 00
Agriculture	10.91	36.44	32.97	30.59	100.00
Industry	49.54	69.43	15.34	15.23	100.00
Service	64.95	71.97	19.74	8.29	100.00

Note: NCR-Manila and Rizal; CIR (Central Industrial Region) — NCR, Central Luzon
and Southern Tagalog; TAR (Traditional Agricultural Region) — Ilocos, Bicol
and the Visayas regions; FR (Frontier Region) — Cagayan Valley and the Min-
danao regions.

[1] 1975 Integrated Census of Population and Its Economic Activities, NCSO

[2] Unpublished NCSO data, 1975.

[3] Household Survey, Agriculture, NCSO

[4] Unpublished Regional Development Staff (NEDA) estimates.

[5] Table 1.2, p. 9 (World Bank 1980b).

[6] 1975 Census of Establishments, NCSO

[7] Statistical Bulletin of the Central Bank of the Philippines, Basic Data (Bureau of Com-
merce, Securities and Exchange Commission)

[8] Philippine Development Planning Studies, NEDA (1977).

[9] National Transportation System Study, Vol. 2, 1978

[10] Bureau of Agricultural Economics estimates.

[11] Development Bank of the Philippines Annual Report

to conform with the published three-digit classification level comprising 29 manufacturing industries. The 1974 Input - Output Table is used to compute for (a) fraction of imported materials, (b) fraction of output exported, (c) fraction of primary inputs, and (d) fraction of output to Manila final demand. Supplementary data on regional consumption required to compute index (d) are obtained from the *National Transportation System Study* (1978).[21] In addition indicators of firm characteristics are computed. They include: (e) factor intensity, (f) average size of firms, (g) average wage rate, (h) capital productivity, and (i) labor productivity.

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[21]Data on the regional consumption of tobacco were not available so we used as proxy NCSO data on 1971 family expenditures by region. However, we had to assume that the regional consumption pattern for tobacco had not changed from 1971 to 1975.

CHAPTER 2

THE EVOLUTION
OF THE URBAN SYSTEM

A Spatial Sketch of Population and Economic Activity, 1900-75

As of 1975, the Philippines had some 60 chartered cities, 157 urban places,[1] 1,461 municipalities, 21 municipal districts and 39,632 barangays. Set against the backdrop of a changing economic milieu, an analysis of cities and municipalities comprising the national urban hierarchy is useful for understanding the national settlement pattern.[2] A country's urbanization experience reveals the sectoral and spatial transition accompanying the development process.

Broad Sectoral Shifts

In 1903, the agricultural sector contributed the largest share to total output,[3] followed by the tertiary-service and the secondary-industrial sectors, in that order (Table 2.1). The substantial decline of the primary

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[1]An urban place refers to a chartered city or municipality which exceeds some minimum population size and the average national density. The minimum population sizes are: 5,000 (for 1903 and 1918), 17,000 (for 1939), and 40,000 (for 1948, 1960, 1970 and 1975). An additional economic criterion (that the urban area must have at least six establishments, whether commercial, manufacturing, recreational or personal services) is incorporated for 1970 and 1975. See Chapter 1 for a detailed description of the methodology.

[2]Richardson (1977) defines national settlement pattern as the spatial distribution of population in the national economy, whereas national urban hierarchy represents that truncated portion of the national settlement pattern starting from the largest city in the system, the primate city, and descending in rank to some urban threshold cut-off point.

[3]There is strong reason to believe that the share of agriculture in gross value added has failed to reflect the essentially agricultural state of the 1903 economy because of these occurrences: the Philippine-American was in the early 1900s, the outbreak of the cholera epidemic, and the destruction of crops by the locusts and rinderpests in 1903 (Willis 1905).

sector's share and the expanded shares of industrial and service activities after seven decades evidenced the transformation of the economy. Agricultural establishments nearly tripled from 815 thousand in 1903 to over 2 million in 1971 indicating the extensive cultivation and continuous segmentation of farmlands. The increased participation of business entrepreneurs in the industrialization process could be gleaned from the remarkable upsurge of industrial and service establishments over time, namely, a twenty-fold increase in industrial establishments and an increase in tertiary establishments from 164 in 1903 to just under half a million in 1972. The spatial shifts of the broad economic sectors are briefly summarized in Table 2.2.

Population Shifts

Over the period 1903-75, the country remained predominantly rural, with its proportion rural declining slowly from 87 percent in 1903 to about 67 percent in 1975 (Table 2.3). As the national population more than

Table 2.1   Sectoral Distribution of Output and Establishments, 1900s and 1970s (in percent)

| | 1 9 0 0 s | | 1 9 7 0 s | |
	1903 Output	1903 Establishments	1975 Output	1971/72 Establishments
Primary	54.96	99.58	26.59	82.85
Secondary- Industrial	13.37	0.40	33.23	2.19
Tertiary- Service	31.67	0.02	40.18	14.96
TOTAL (100.0%)	(P243.8)[a]	(818,873)[b]	(P68,122)[c]	(3,186,536)[b]

[a]Gross value added in millions of pesos at constant 1939 prices (Hooley 1966).

[b]Pertains to census data on total number of establishments.

[c]Gross value added in millions of pesos at constant 1972 prices (NEDA 1978).

Sources: Appendix Tables 1 and 2.

Table 2.2   Spatial Distribution of Employment and Establishments, 1903 and 1971/72 (in percent)

	1903					1971/72				
	NCR	MP	TAR	FR	Phil.	NCR	MP	TAR	FR	Phil.
Employment										
All sectors	6.75	25.34	60.21	7.70	100.00	5.91	17.84	43.56	32.69	100.00
Agriculture	1.19	26.15	59.73	12.93	100.00	0.46	18.00	46.37	35.17	100.00
Industrial	6.48	23.06	67.14	3.32	100.00	45.76	15.62	22.07	16.55	100.00
Service	15.54	26.77	52.84	4.85	100.00	32.43	17.57	30.28	19.72	100.00
Establishments										
All sectors	1.60	23.47	66.26	8.57	100.00	3.54	19.43	43.50	33.53	100.00
Agriculture	29.70	25.58	42.51	2.21	100.00	20.55	22.12	35.17	22.16	100.00
Service	4.88	22.56	59.76	12.80	100.00	17.69	23.68	35.39	23.24	100.00
Agriculture	1.48	23.46	66.46	8.60	100.00	0.53	18.59	45.19	35.69	100.00

NCR (National Capital Region) — Manila and Rizal; MP (Metropolitan Periphery) —
Central Luzon and Southern Tagalog; TAR (Traditional Agricultural Region) —
Ilocos, Bicol and the Visayas regions; FR (Frontier Region) — Cagayan Valley and
the Mindanao regions.

Source: Appendix Tables 2 and 3.

Table 2.3   Spatial Distribution of Population, 1903 and 1975 (In percent)

	1 9 0 3					1 9 7 5				
	Manila	MP	TAR	FR	Phil.	Manila	MP	TAR	FR	Phil.
Urban	32.05	13.63	52.42	1.90	100.00	37.35	20.46	27.56	14.63	100.00
Rural	0.64	23.56	60.75	15.05	100.00	0.81	22.49	44.95	31.75	100.00
Total	4.31	22.78	59.63	13.28	100.00	11.82	22.40	39.44	26.34	100.00
	(329)	(1,739)	(4,553)	(1,014)	(7,635)	(4,970)	(9,424)	(16,597)	(11,080)	(42,071)
Proportion Urban	76.90[a]	8.04	11.82	1.92	13.44	100.00	28.89	22.10	17.57	33.40
Proportion Rural	23.10	91.96	88.18	98.08	86.56	0	71.11	77.90	82.43	66.60

quintupled from 7.6 to 42 million, the population of its primate city swelled fifteen-fold. Recently, Manila and the urban areas of its peripheral regions, accounting for 58 percent of the urban population in 1975, has comprised the Central Industrial Region (CIR). The historical performance of the Traditional Agricultural Region (TAR), exhibiting a steady decline of its population share from 60 percent in 1903 to 40 percent in 1975, and the mere tripling of its total population reflected its decay as the traditional population center in the Colonial Period. The resource-rich Frontier Region (FR) was unable to attract a sufficiently large number of migrants although its population grew eleven-fold during the roughly 75-year period.

A glance at the regional population growth rates presented in Table 2.4 highlights several important points. The overall population growth rate during the Colonial Period (1903-39) was largely influenced by the agricultural regions' (TAR plus MP — Metropolitan Periphery) relatively slow demographic change. Consequently, the agrarian economy as a whole experienced a low population growth rate. Generally, urban growth outpaced rural growth throughout the 75-year period. Buoyant population growth during the Postwar Period accompanied the industrialization phase of economic development. Concomitant phenomena were a faster urbanization tempo occurring largely at the CIR, a slowdown in rural population growth in the TAR, and a higher-than-average frontier growth performance. CIR's vigorous urban growth during the Import Substitution Period (1948-67) slackened somewhat during the Regional Awareness Period (1967-75). The FR's population growth started decelerating in the 60s. Interestingly, TAR's slackening growth experience slightly improved during the Regional Awareness Period.[4]

There has been a growing urban system in terms of both the proportion urban and the number of urban places (Tables 2.3 and 2.5). An inspection of the top 30 urban places at various census years reveals that only 10 urban centers consistently belonged to the top 30, implying that urban population centers had been shifting over time (Appendix Table 6).[5] At the start of the century, the agricultural regions (TAR plus MP) accounted for 90 percent of urban settlements. This could have evolved partly from the Spanish policy of *reduccion*[6] and partly on account of the relative lead of these regions

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[4]Suggested factors accounting for these trends in population growth are discussed at length in Chapter 3.

[5]These were Metro Manila, Metro Club, Iloilo, Batangas, San Carlos (Pangasinan), San Pablo, Ormoc, Bacolod, Cagayan de Oro and Zamboanga. Metro Manila and Metro Cebu consistently ranked as first and second, respectively, while Iloilo belonged to the top 5 urban centers at the various census years.

[6]The Hispanic policy of *reduccion* (forming agglomerated settlements from scattered villages) strategically situated church-dominated settlement centers in various focal

Table 2.4   Broad Regional Population Growth Rates, 1903-75
             (in percent)

	1903-18	1918-39	1939-48	1948-60	1960-70	1970-75
Total	1.92	2.22	1.91	3.06	3.01	2.78
NCR	2.10	3.71	4.61	4.02	4.76	4.63
MP	1.70	2.02	1.53	4.18	3.61	3.11
TAR	1.79	1.83	1.51	1.94	1.85	2.06
FR	2.76	3.27	2.37	5.15	3.81	2.80
Urban	2.74	3.73	3.59	4.64	5.38	5.04
NCR	2.16	3.91	4.80	4.04	4.91	4.85
MP	0.94	2.71	1.37	11.74	9.48	6.06
TAR	2.86	2.98	2.62	3.55	3.70	4.74
FR	11.52	7.78	4.94	4.24	5.50	4.59
Rural	1.78	1.90	1.43	2.50	1.91	1.43
NCR	1.66	1.58	1.72	3.68	1.60	−1.82
MP	1.76	1.96	1.54	1.90	1.44	1.30
TAR	1.63	1.62	1.26	1.47	1.22	0.94
FR	2.39	2.72	1.78	5.38	3.38	2.25

NCR (National Capital Region) — Manila and Rizal; MP (Metropolitan Periphery) —
    Central Luzon and Southern Tagalog; TAR (Traditional Agricultural Region) —
    Ilocos; Bicol and the Visayas regions; FR (Frontier Region) — Cagayan Valley and
    the Mindanao regions.

Source: Appendix Table 5.

Table 2.5   Distribution of Urban Places by Broad Regions 1903-75
(in percent)

Region	1903	1918	1939	1948	1960	1970	1975
NCR	3.23	2.71	2.22	2.04	1.25	0.75	0.60
MP	16.13	13.51	11.11	14.29	25.00	34.33	34.73
TAR	74.19	70.27	64.45	59.18	52.50	43.28	44.31
FR	6.45	13.51	22.22	24.49	21.25	21.64	20.36
Philippines	100.00 (31)	100.00 (37)	100.00 (45)	100.00 (49)	100.00 (80)	100.00 (134)	100.00 (167)

Note; Figures in parentheses represent the total number of urban places. An urban place
refers to a chartered city or municipality which exceeds some minimum population
size and the average national density. The minimum population sizes are: 5,000 (for
1903 and 1918), 17,000 (for 1939), and 40,000 (for 1948, 1960, 1970 and 1975).

NCR (National Capital Region) – Manila and Rizal; MP (Metropolitan Periphery) – Cen-
tral Luzon and Southern Tagalog; TAR (Traditional Agricultural Region) – Ilocos,
Bicol and the Visayas regions; (FR (Frontier Region) – Cagayan Valley and the
Mindanao regions.

Source: Appendix Table 8.

then. By 1975, with the conversion of MP into the CIR, only 44 percent of
urban places were found in the TAR. Urban settlements at the MP which
suffered from declining shares during the Colonial Period sprouted during
the industrialization phase in response to agglomeration economies at the
NCR and subsequent spillover effects. FR's share in the number of urban
areas increased from 1903-48 but dipped thereafter. The drop in the shares
of TAR and FR may be seen as an indicator of the slow (industrial) develop-
ment pace of these regions.

points of the archipelago. Such policy gave due recognition to ethnic groups by attempt-
ing to keep these governmentally, ecclesiastically, socially and spatially separate (Doeppers
1976, p. 28).

The data available during the Colonial Period (Appendix Table 7) reveal household migrations from the agricultural regions (TAR and MP) to the frontier regions, primarily as an induced response to the government's resettlement program. As for the postwar years, population movements were toward the NCR, MP and FR from the TAR (cf. Gonzales and Pernia's Special Paper).

In summary, the population redistribution and the consequent birth and decline of urban settlements among the various regions from 1900 to 1975 could be explained in broad terms by the country's sectoral development and the accompanying shift in regional comparative advantage as well as differentials in regional resource endowments and regional economic growth (see Chapter 3).

The Urban System: Empirical Findings

The size distribution of cities has been one of the major issues in urban research. Models of city size have been conveniently classified as hierarchical (e.g., central place models) and non-hierarchical (e.g., rank size distribution).[7] On the other hand, general observations on the statistical relationship of city size distribution recognize two kinds of distribution: rank-size and primate.[8] The latter approach constitutes the main concern of this chapter.

Primate Distribution

Table 2.6 shows that, regardless of the definitions used, the Philippines experienced increasing primary from 1903 to 1975.[9] During the Colonial Period, the index of primacy increased from 1.75 in 1903 to 2.07 in 1939.

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[7]Beckmann (1958) first showed that the non-hierarchical rank size distribution is compatible with the hierarchical central place models. He proposed that if a hierarchical structure becomes subjected to random influences it would assume the approximate form of a rank size distribution. Parr (1970) similarly argued that if a rank size distribution is purged of its random components, then what remains should represent some hierarchical structure, i.e., the rank size distribution (within realistic limits) possesses an acceptable latent hierarchical structure.

[8]In the rank size distribution, the distribution of cities by population size is truncated log-normal, whereas primacy is characterized by the dominance of one or few large cities over a stratum of small towns and cities and by the deficiency in the number of intermediate-size cities.

[9]Pernia's (1976) index of primacy yielded consistently higher measures because of a different definition used. From 1903 to 1970, the small metropolitan area of Manila was defined to include the four chartered cities of Manila, Caloocan, Pasay and Quezon

The rise in primacy then may be attributed to Manila's role as the national administrative and trade center of an export-crop producing economy strongly supported by its vigorous commercial interactions with the leading agricultural centers of the TAR and MP (Table 2.7 and Appendix Table 6, as well as the existence of geographically-fragmenred hinterlands and the lack of adequate transportation and communication network in the country (Ullman 1960).

Table 2.6 Four-City Index of First-City Primacy

Urban Definition	1903	1918	1939	1948	1960	1970	1975	1980[a]
Chartered Cities				3.03	3.04	3.44	3.54	3.44
Broad Urban Areas	1.75	1.73	2.07	3.24	3.23	3.44	3.54	3.44

Note: Urban area is defined in footnote 1 of this chapter.
Index of primacy: $P_1 / P_2 + P_3 + P_4$

[a]Based on 1980 Census of Population (Preliminary Report).

Sources: Census of Population, various years.

As noted earlier, urban settlements at MP suffered from declining shares during the Colonial Period. Belonging to population size category of less than 100,000, these urban places may be considered small (Table 2.7). We could infer then that the primate city, at this stage of development, exerted an unfavorable influence on small cities located in its environs (cf. also Pernia's Special Paper on cities and regional development).[10] Mean-

and the four municipalities of Makati, Mandaluyong, Navotas and San Juan. Likewise, the large Metropolitan Manila covered the small metropolitan area plus nine other municipalities (Malabon, Makati, Las Piñas, Parañaque, Pateros, Pasig, Taguig Meycauayan and Valenzuela).

[10]In the literature, this is known as Myrdal's "backwash" effect (1957) or von Boventer's "negative hinterland" effects of small cities derived from locating near a big city (1969, 1970).

while, urban centers of FR and TAR situated far from the primate city had better growth performance (Table 2.8).

The continuing upward trend in primacy in the postwar period through 1975 may be attributed to agglomeration and urbanization economies boosted by the industrial and trade policies as well as the increasing frailty of the traditional agricultural centers, due chiefly to the relative neglect of agricultural development.[11] The persistently dominant role of Manila in the national urban hierarchy is therefore borne out by the data.[12] These results are consistent with Williamson's (1965) and El Shakhs' (1972) empirical findings that primacy seems to be a necessary condition for economic development. The primacy phenomenon may also be viewed in the context of the center-periphery model (Friedmann 1966) and the theory of development stages for less developed countries (Alonso 1969, 1980; Richardson 1977, 1980).

The emergence of postwar Manila as the country's urban-industrial core propelled the development of urban centers (belonging to population size category below 100,000 from 1948-70, and belonging to 100,000-499,999 size category from 1970-75) located at MP as shown by the rapid rise in the number of urban places and the accelerated growth of urban population (Tables 2.7 and 2.8). Seemingly, urban centers at MP benefited from the agglomeration economies of industrial Manila and its spillover effects.[13] Small urban centers (belonging to size category 40,000-100,000) in TAR and FR did not fare as well, apparently because big cities nearby siphoned off resources from them. Indeed, the vigorous urban population growth of the TAR and FR urban centers belonging to the 100,000-999,999 size category (e.g., Cebu, Davao, Iloilo, Zamboanga, Bacolod, Butuan, Cagayan de Oro and Iligan) seems to attest to such strong "pull" effects.

Rank Size Distribution

A consistent secular decline in the absolute value of $\hat{q}$, the Pareto coefficient, can be seen in Table 2.9, also implying the trend towards increasing

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[11] See the section on the Import Substitution Period of Chapter 3 for a full discussion.

[12] Although the index of primacy merely takes into account the top four cities of the urban system, Manila's share in urban population was somewhat retained during the postwar years (Tables 3.7 and 3.10).

[13] This phenomenon is described in von Boventer (1969, 1970), among others.

Table 2.7 Number of Urban Places, by Size Category and Region, 1903-75

	1903	1918	1939	1948	1960	1970	1975
Over 1,000,000	–	–	–	1	1	1	1
NCR				1	1	1	1
500,000-999,999	–	–	1	–	–	1	1
NCR		1			1		1
TAR			1			1	1
100,000-499,999	1	2	3	6	7	13	16
NCR	1	1					
MP						5	7
TAR		1	2	3	4	3	4
ER			1	3	3	5	5
40,000-99,999	2	6	24	42	72	119	149
MP		2	5	7	20	41	51
TAR	2	4	15	26	38	54	69
FR			4	9	14	24	29
10,000-39,999	25	27	17	—	–	–	—
MP	4	3	1				
TAR	20	19	12				
FR	1	5	4				4
Less than 10,000	3	2	–	—	–	—	—
MP	1						
TAR	1	2					
FR	1						
TOTAL	31	37	45	49	80	134	167

NCR (National Capital Region) – Manila and Rizal, MP (Metropolitan Periphery) –
Central Luzon and Southern Tagalog, TAR (Traditional Agricultural Region) –
Ilocos, Bicol and the Visayas; FR (Frontier Region) – Cagayan Valley and Min-
danao.

Sources: Population Census (1903, 1918, 1939, 1948, 1960, 1970 and 1975).

Table 2.8   Growth of Urban Population by Size Category
and Broad Regions, 1903-75 (in percent)

Size/Region	1903-18	1918-39	1939-48	1948-60	1960-70	1970-75
Over 1,000,000	a	a	b	4.04	4.91	4.85
NCR	a	a	b	4.04	4.91	4.85
500,000-999,999	a	b	0	a	b	2.91
NCR	a	b	0	a	a	a
TAR	a	a	a	b	a	2.91
100,000-499,999	1.63-1.07		5.34	4.30	4.75	6.03
NCR	1.63	0	a	a	a	a
MP	a	a	a	a	a	9.30
TAR	a	4.85	3.17	4.43	3.81	5.57
FR	a	a	9.72	4.10	6.29	4.06
40,000-99,999	4.66	7.38	6.05	5.15	5.03	5.00
MP	a	5.16	4.53	10.23	6.98	5.13
TAR	2.94	6.57	6.36	3.58	3.87	4.91
FR	a	a	6.41	4.35	4.93	4.99
10,000-39,999	1.39	-3.43	0	a	a	a
MP	-3.59	-3.43	0	a	a	a
TAR	1.32	-0.97	0	a	a	a
FR	15.67	-0.07	0	a	a	a
Less than 10,000	-1.50	0	a	a	a	a
MP	0	a	a	a	a	a
TAR	5.00	0	a	a	a	a
FR	0	a	a	a	a	a
Philippines	2.75	3.73	3.59	4.64	5.38	5.04

NCR— National Capital Regions, CIR (Central Industrial Region) — NCR, Central Luzon and
   Southern Tagalog; TAR — Traditional Agricultural Region) --Ilocos, Bicol and the
   Visayas regions; FR (Frontier Region) — Cagayan Valley and the Mindanao regions.

b Represents the ascent of a broad region to the next population size category.

Source: Population Census (1903, 1918, 1939, 1948, 1960, 1970 and 1975).

Table 2.9   Pareto Coefficient of the Rank-Size Distribution Chartered Cities

	1948	1960	1970	1975
$\hat{q}$	−1.17	−1.12	−0.95	−0.96
P_1	1.180,611	2,107,079	3,966,695	4,970,006
$\hat{P}_1$	707,756	1,073,400	1,377,820	1,605,642
N	19	28	54	55
r	−0.90	−0.89	−0.89	−0.91

Table 2.9 Broad Urban Areas

	1903	1918	1939	1948	1960	1970	1975
$\hat{q}$	−0.85	−0.80	−0.70	−0.60	−0.59	−0.58	−0.55
P_1	328,939	461,166	993,899	1,569,128	2,462,489	3,966,695	4,970,006
$\hat{P}_1$	180,954	244,326	362,198	370,372	469,704	620,487	622,369
N	31	37	45	49	80	134	167
r	−0.97	−0.96	−0.94	−0.90	−0.92	−0.91	−0.94

Note: $\hat{q}$ = Pareto coefficient, p_1 ñ population of the largest city,

$\hat{p}_1$ = estimated population of the largest city, N = number of chartered cities/urban places, r = correlation coefficient.

Sources: Population Census (1903, 1918, 1939, 1948, 1960, 1970 and 1975).

primacy.[14] The broader definition of urban places yield $\hat{q}$ values in the range of -0.85 to -0.55. A better fit of the rank size distribution is obtained, with $\hat{q}$ values ranging from -1.17 to -0.96 when data on chartered cities are used. The difference lies in the wider range of observations available for the former data set. Nevertheless, the broader definition of urban places seems to be the more appropriate economic concept to use. Rank size rule ($q = 1$) is associated with the existence of an integrated system of cities. A frequent reason for the failure of the rank size rule to hold ($q = 1$) is that the largest city is overdeveloped relative to the rest of the urban system.

Empirical estimates of the primacy index and the Pareto coefficient thus portray the urban system as continually dominated by Manila. Also, the postwar period witnessed the upsurge of small urban centers (belonging to size category 40,000-99,999) which account for about half of the urban population (Appendix Table 9). Earlier, Ullman (1960) noted the existence of a greater number of major and secondary centers in the Philippines than is called for by Christaller's central place model. On the whole, the findings seem to corroborate Johnson's (1970) contention regarding central place inadequacy in less developed countries.

Some caveats are in order. The above empirical findings are qualified by the following considerations. First, the empirical summary measures of size concentration such as the primacy index and the Pareto coefficient, being a generalization and simplification of reality, fail to capture the totality

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[14]Pareto's inverse exponential law of income distribution applied to population is:

   $N(P) = AP$

   Where $N(P)$ = cumulative percentage of cities above some threshold level
          A, = constants

The rank size distribution is derived by merely substituting the rank of the city for the cumulative percentage of cities.

   $r_i = K P_i^{-q}$

   where r_i = rank of city i
         P_i = population of city i
         q = Pareto coefficient
         K = constant
         i = 1,.1,...n

Rearranging the terms will yield

   $r_i P_i = K = P_1$

   where $K = P_1$ = population of the largest city.
   If $q = 1$, then $P_i = P_1/r_i$. (This is Zipf's Law).

of geographical, historical, social, demographic, economic and political characteristics of an urban system. These measures deal with the relative size distribution of cities, not its optimal size distribution. Hence, they may answer the question of "too many" or "too few" but they are unable to grapple with the issue of "too big" or "too small". Second, the arbitrary selection of threshold city size ignores the role of a large number of small-sized places in the national settlement system. Third, both measures neglect the spacing of cities. They merely indicate the existence and relative strength (are they large or small?) of urban places. The geographical location of these urban places relative to the primate city or any big city and the intervening distances are disregarded.[15] Lastly, the neglect in investigating the city's functional structure definitely obscured important analytical insights concerning a key determinant in urban growth and change.[16]

The purported value of Zipf's Law lies in its ability to predict P_i given r_i and P_1. when $q = 1$, the size distribution of the city population with ranks $1, 2, \ldots n$ is as follows: $P_1, 1/2\,(P_1), \ldots, 1/n\,(P_1)$.

If q 1, then P_i^q P_1/r_i. (City sizes will tend to be identical or will be relatively evenly distributed).

If q 1, then P_i^q P_1/r_i. (The largest city is over-developed relative to the rest of the urban system and there exists a high level of primacy.)

[15]The importance of incorporating the spacing element in analyzing the national settlement pattern can be illustrated as follows: the National Capital Region evolved partly because of the proximity of the three cities (Pasay, Caloocan, and Quezon) and the thirteen municipalities to Manila. Likewise, the increasing population concentration in the Central Industrial Region (NCR plus Central Luzon and Southern Tagalog) from 1948 to 1975 reflects the spillover of agglomeration economies (business, household or societal) in the NCR to the surrounding regions.

[16]Soliman and Paderanga's Special Paper pursues this approach but only for 1975 data.

CHAPTER 3

REGIONAL ECONOMIC STRUCTURE AND GROWTH, 1900-75

The Colonial Period, 1900-39

The nearly four centuries of Spanish domination left as vestiges ethnically differentiated population clusters, a virtually unexplored Mindanao region,[1] and· a traditional economy oriented towards the production of export crops (specifically abaca, sugar, coconut and tobacco). Thus, in 1903, population and economic activity were concentrated in the agricultural regions, with the Traditional Agricultural Region (TAR) and the Metropolitan Periphery (MP) claiming about 82 percent of total population, 86 percent of total employment and 90 percent of total establishments. This pattern was perpetuated throughout the Colonial Period, although the shares of the agricultural regions (TAR and MP) somewhat declined. In 1939, TAR and MP captured 75 percent of total population, 76 percent of total employment, and 80 percent of total establishments (Table 3.1). Briefly, the population and economic lead of the agricultural regions during this period could be attributed to the country's essentially agricultural state, the comparative advantage of these regions in the production of export crops (Appendix Table 10) given the relative abundance of good agricultural land farmed by a sparse population (Appendix Table 11), and the primary product export-led growth stimulated by preferential tariff agreements.[2]

Agriculture's bouyant performance in 1903-18 (Table 3.2 and Appendix Table 1) was related to the preferential tariff agreements between the

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[1]The spatial non-integration of Mindanao in the national settlement in 1900 was attributable to the continued Muslim resistance against Spanish colonial domination.

[2]For a detailed description of these policies, see Reyes and Paderanga's Special Paper.

Table 3.1 Broad Regional Distribution of Population and Economic Activity, Colonial Period (1900-39)

	1903					1918					1939				
	NCR	MP	TAR	FR	Phil.	NCR	MP	TAR	FR	Phil.	NCR	MP	TAR	FR	Phil.
Population	4.86	22.23	59.63	13.28	100.00	5.00	21.48	58.43	15.09	100.00	6.68	20.67	54.15	18.50	100.00
Total	32.05	13.63	52.42	1.90	100.00	19.31	20.31	53.42	6.96	100.00	30.37	8.47	46.20	14.96	100.00
Urban	0.64	23.56	60.75	15.05	100.00	0.62	23.49	59.34	16.55	100.00	0.59	23.80	56.20	19.41	100.00
Rural															
Economic Activity															
All sectors	6.75	25.34	60.21	7.70	100.00	5.88	22.91	61.36	9.85	100.00	4.25	18.59	57.47	19.69	100.00
Employment	1.60	23.47	66.36	8.57	100.00	1.69	22.84	66.70	8.77	100.00	1.65	22.66	57.09	18.60	100.00
Establishments															
Agricultural	1.19	26.15	59.73	12.93	100.00	1.58	20.99	64.61	12.82	100.00	0.99	19.24	58.56	21.21	100.00
Employment	1.48	23.46	66.46	8.60	100.00	1.57	22.15	67.15	9.13	100.00	0.95	23.69	56.24	19.12	100.00
Establishments															
Industrial	6.48	23.06	67.14	3.32	100.00	7.53	22.10	66.41	3.96	100.00	14.65	14.46	58.35	12.54	100.00
Employment	29.70	25.58	42.51	2.21	100.00	3.51	33.37	59.88	3.24	100.00	3.01	11.10	69.56	16.33	100.00
Establishments															
Service	15.54	26.77	52.84	4.85	100.00	9.18	24.85	57.00	8.97	100.00	17.93	17.44	49.58	15.05	100.00
Employment	4.88	22.56	59.76	12.80	100.00	5.02	21.50	58.42	15.06	100.00	7.90	21.61	55.50	14.99	100.00
Establishments															

NCR — Manila and Rizal; MP (Metropolitan Periphery) — Central Luzon and Southern Tagalog; TAR (Traditional Agricultural Regions) — Ilocos, Bicol, and the Visayas regions; FR (Frontier Regions) — Cagayan Valley and the Mindanao regions.

Sources: 1903, 1918 and 1939 Population and Economic Census.

Table 3.2 Broad Regional Growth Rates of Population and Economic Activity, Colonial Period (1900-39) (in percent)

| | 1903 – 18 | | | | | 1918 – 39 | | | | |
	NCR	MP	TAR	FR	Phil.	NCR	MP	TAR	FR	Phil.
Population										
Total	2.10	1.70	1.79	2.74	1.92	3.71	2.02	1.83	3.27	2.22
Urban	2.16	0.94	2.86	11.52	2.74	3.91	2.71	2.98	7.78	3.73
Rural	1.66	1.76	1.63	2.39	1.78	1.58	1.96	1.62	2.71	1.90
Economic Activity										
Total Employment	4.17	4.43	5.26	6.87	5.13	−3.08	−2.51	−1.81	1.98	−1.49
Total Establishments	6.84	6.24	6.47	6.60	6.43	−0.24	−0.16	−1.48	3.70	−0.12
Agricultural Employment	6.98	3.46	5.54	4.93	4.98	−0.50	−1.42	1.37	4.47	1.87
Agricultural Establishments	6.39	5.60	6.08	6.43	6.00	−3.05	−0.27	−1.48	3.14	−0.60
Industrial Employment	0.32	−0.97	−0.76	0.50	−0.68	−0.03	−5.33	−3.92	2.44	−3.30
Industrial Establishments	10.87	30.13	30.80	31.15	27.85	−0.39	−5.00	1.13	8.83	0.38
Service Employment	5.16	8.37	9.46	13.47	8.91	−4.86	−9.60	−8.63	−5.57	−7.99
Service Establishments	16.78	16.18	16.38	22.35	16.56	28.78	25.92	25.57	25.86	25.89

NCR — Manila and Rizal; MP (Metropolitan Periphery) — Central Luzon and Southern Tagalog; TAR (Traditional Agricultural Regions) — Ilocos, Bicol and the Visayas regions; FR (Frontier Regions) — Cagayan Valley and the Mindanao regions.

Sources: 1903, 1918 and 1939 Population and Economic Census.

United States and the Philippines on selected agricultural commodities (the Tariff Act of 1902, the Payne-Aldrich Law of 1909, and the Underwood-Simmons Act of 1913). The subsequent drop of agricultural output share in 1939 (Appendix Table 1) and the marked slowdown in the growth of agricultural employment and establishments from 1918 to 1939 (Table 3.2) revealed the vulnerability of export crop production. Although still larger than the industrial and service sectors, agriculture gave in to its inherent frailty as exemplified by the variability of demand and supply conditions brought about by the depression of the early 30s and the resulting un-favorable world prices of primary products, the low price elasticity of agricultural products, commodity specialization, and the presence of a U.S.-dominated market (see Macbean 1966).

Towards the end of the Colonial Period, industrial output share (large-ly contributed by manufacturing and mining activity) improved significantly while that of ancillary agricultural services fell, signalling the initial shift away from the traditional agricultural economy towards a slowly indus-trializing one (Appendix Table 1). The employment shift from household craft manufacturing to a relatively capital-intensive manufacturing sector (Appendix Table 3) and the diversification of industrial activity from wholly manufacturing in 1903 to an inclusion of mining, quarrying and utilities in 1939, as denoted by the localization indices (Table 3.3), were further in-dications that the economy had started to industrialize during the latter part of the period. The similarity of the localization indices for services (except transportation, communication and storage which Kuznets (1977) more aptly classified under the industrial sector) to those of agriculture hinted that during the colonial phase of development, services provided an ancil-lary role   to agriculture. Likewise, the progressively high growth rates of service establishments towards the latter half of the period (Table 3.2) could indicate an evolving service sector supporting industry.[3]

From the industrial location viewpoint, agriculture's ubiquity and the ancillary role of agro-based manufacturing, household craft and service vis-a-vis agriculture led to the concentration of economic activity in the agricultural regions (TAR and MP). In 1903, the localization index (Table 3.3) showed the tendency of industrial (household craft manufacturing) activity to be spatially disperesed. Also, since industries then were adjuncts to farm production, food-processing (such as canneries and sugar refineries), beverage, tobacco processing, and cloth-weaving industries flourished (Ap-

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[3]It was no longer limited to domestic and personal services but also captured ex-panded shares in commerce and trade, business, government, and recreational services, as well as transportation, storage and communication.

Table 3.3 Localization Indices

Rank	1903	1918	1939	1948	1961	1972
1	Service 0.18352	Manufacturing 0.11479	Mining & Quarrying 0.66704	Mining & Quarrying 0.57787	Construction 0.63582	Construction 0.64699
2	Agriculture 0.12246	Agriculture 0.08088	Transportation, Communication & Storage 0.39012	Transportation, Communication & Storage 0.54313	Fisheries 0.54899	Forestry & Logging 0.57156
3	Manufacturing 0.07566	Service 0.05591	Forestry & Logging 0.24713	Manufacturing 0.23502	Manufacturing 0.48170	Utilities 0.51126
4			Manufacturing 0.21333	Fisheries 0.21947	Forestry 0.47486	Manufacturing 0.40841
5			Utilities 0.19563	Services & Commerce 0.21933	Utilities 0.43424	Mining & Quarrying 0.38096
6			Fisheries 0.18110	Forestry & Logging 0.21816	Transportation, Communication & Storage 0.39006	Transportation, Communication & Storage 0.37145
7			Services & Commerce 0.15993	Utilities 0.17781	Mining & Quarrying 0.37127	Services & Commerce 0.26074
8			Agriculture 0.05701	Agriculture 0.06057	Services & Commerce 0.36187	Fisheries 0.15523
9					Agriculture 0.06930	Agriculture 0.05913

pendix Table 12).[4] Accordingly, industrial performance closely trailed agriculture's economic pace. The hastened growth in industrial establishments from 1903–18 and the drastic drop in 1918-39 revealed agro-based manufacturing's sensitivity to public policy and world economic conditions.[5] Moreover, the FR's emergence as the new agricultural region precipitated the declining prominence of TAR in agriculture.

Accompanying the trend in economic activity were the diminishing population shares of TAR and the slackening of total, urban and rural population growth rates (Table 3.2) apparently in response to household migration towards the frontier regions (Appendix Table 7).. Retardant factors in the TAR, such as the deteriorating terms of trade of the export crops, a relatively high population density (Appendix Table 11), the region's agricultural base and resource constraints plus the attractiveness of the frontier regions lessened the comparative advantage of the TAR. It thus seems that regional growth through primary product exports proved to be an insufficient base for sustaining the TAR's lead in population and economic activity.

The National Capital Region (NCR) evinced accelerating urban growth during the Colonial Period. External forces impinging upon its regional economy resulted in a widely-fluctuating growth behavior of its economic activity. During the buoyant phase of the export led growth (1903-18), the NCR experienced the highest growth in total establishments, agricultural employment and service establishments. However, NCR suffered most in terms of total employment[6] and agricultural establishments' growth towards the second half of the Colonial Period (1918-39). More interesting was NCR's discernible comparative advantage in the manufacturing-dominated industrial sector especially during 1918-39 as may be gleaned from selected economic characteristics (except output/fixed assets) in Table 3.4. That the agricultural regions (TAR and MP) outranked NCR in output/fixed

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[4]The agrarian basis of industries, often connected with the ownership of wholesale commerce and transportation services by some wealthy land-owning families, led to a strong tendency for business activities to be concentrated in the area where the enterprising family resided and enjoyed prestige. Expansion into other areas would follow but abstract concepts of purely economic criteria in the location of industries remained rather alien to the basic mentality of the emerging enterpreneur (Lauterbach 1962).

[5]To some extent, this was due to a change in the definition of industrial establishments. See Chapter 1 for further details.

[6]To some extent, this was due to a change in the reporting unit for employment (from households to establishments).

Table 3.4. Selected Characteristics of Economic Activity, by Broad Region, Colonial Period, 1900-39

Region/Activity	1 9 0 3						1 9 1 8					
	Average Size of Firms			Labor Productivity	Capital Productivity	Factor Intensity	Average Size of Firms			Labor Productivity	Capital Productivity	Factor Intensity
	N/F	Y/F*	FA/F*	Y/N*	Y/FA*	FA/N	N/F	Y/F*	FA/F*	Y/N*	Y/FA*	FA/N*
NCR												
Agriculture	1.23						1.34					
Manufacturing	64.28	₱25,369	₱ 21,339	₱1,132	₱ 1.19	₱ 9.52	₱14.34	₱33,537	₱63,122	₱3,973	₱1.34	₱2,631
Services	16007.38						3320.46					
MP												
Agriculture	1.71						1.26					
Manufacturing	265.75	88,794	36,804	2,182	2.42	904	4.42	13,234	5,017	2,041	2.64	774
Services	5963.08						2099.28					
TAR												
Agriculture	1.38						1.28					
Manufacturing	465.54	13,066	22,681	72	0.58	645	7.40	1,063	12,947	114	2.60	1,777
Services	4443.84						1772.38					
FR												
Agriculture	2.31											
Manufacturing	425.35	3,458	3,167	341	1.09	312	1.87	936	12,793	115	1.52	897
Services	1902.76						1080.83					
Philippines												
Agriculture	1.54						1.33					
Manufacturing	294.74	35,881	25,464	1,113	1.41	790	6.67	2,018	31,446	302	1.59	2,342
Services												

*Large establishments — refer to those establishments having a value of production of ₱1,000 or more.

N/F = Employment/Establishment; Y/FA = Output Establishment NCR = Manila and Rizal
FA/F = Fixed Assets/Establishment; Y/N = Output/Employment,
Y/FA = Output/Fixed Assets; FA/N = Fixed Assets/Employment

Table 3.4 (Cont'd.)

Region/Activity	Average Size of Firms			1 9 3 9 Labor Productivity Y/N	Capital Productivity Y/FA	Factor Intensity FA/N
	N/F	Y/F	FA/F	Y/N	Y/FA	FA/N
NCR						
Agriculture	2.26					
Manufacturing	15.41	P33,998		P2,206		
Services	7.80					
MP						
Agriculture	1.76					
Industrial	4.12	587		1,425		
Services	2.77					
TAR						
Agriculture	2.26					
Industrial	2.65	1,860		701		
Services	3.07					
FR						
Agriculture	2.41					
Industrial	2.43	864		356		
Services	3.45					
Philippines						
Agriculture	2.17					
Industrial	3.16	3,109		982		
Services	3.44					

N/F – Employment/Establishment; Y/F – output/Establishment; FA/F – Fixed Assets/Establishment; Y/N – Output/Employment; Y/FA – Output/Fixed Assets; FA/N – Fixed Assets/Employment.
NCR – Manila and Rizal; MP (Metropolitan Periphery) – NCR, Cetral Luzon and Southern Tagalog; TAR (Traditional Agricultural Regions) – Ilocos, Bicol and the Visayas regions; FR (Frontier Regions) – Cagayan Valley and the Mindanao regions.
Sources: 1903, 1918 and 1939 Census.

assets ratio indicated the household craft nature of their manufacturing activity and the build-up of capital-intensive manufacturing firms at NCR. Furthermore, during 1918-39, NCR's increased share in the manufacturing value of production (Appendix Table 13) together with the high values of the localization index (Table 3.3) and the index of locational change (Table 3.5 depicted an incipient tendency of industrial activity to agglomerate at NCR. Thus, even during the Colonial Period, NCR already had a nascent comparative advantage in manufacturing activity.

Meanwhile, the colonial government formulated resettlement policies[7] designed to expand existing production sites and to stimulate migration towards the frontier regions. As a result, the FR enjoyed increasing total and rural population growth and extremely high urban growth during the Colonial Period. Although FR ranked highest in regional economic growth, its demographic and economic performance proved insufficient, within the span of 40 years, to boost substantially its integration into the Philippine space economy. In 1939, FR, comprising 46 percent of total land area, accounted for only about 20 percent of total population, employment and establishments.

The specialization indices (Table 3.6) portrayed NCR's inclination towards industrial activity, FR's spatial transformation from being unsettled areas to incipient agricultural regions, and the agricultural regions' (TAR and MP) pursuit in diversified economic activity.

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[7]"The land settlement programs consist of: *homesteading* initiated through the Public Land Law in 1903 (administered by the Bureau of Lands and the forerunner of the Ministry of Natural Resources, and *government-assisted settlement of public lands* which began in 1913 (administered by various agencies, and most recently by the Ministry of Agrarian Reform).

The homesteading program, while transferring 5.3 million hectares to 1.4 million applicants since 1903, only involved considerably less public expenditures (since the settlers are self-financed and public expenses are usually limited to the provision of roads, normal services, and the administrative costs of processing and validating claims for land).

Meanwhile, the government-assisted settlement program sponsored 40 settlements of 710,000 hectares benefiting only 48,000 families since 1913. In addition, the settler's migration, land, housing, farm implements and inputs, health care and subsistence are financed by the government on a no-interest, long-term loan basis, even as the settlement agency ascertains that adequate infrastructure and government services are provided to the new settlers. About 70 percent of the settlement areas are in Mindanao, although there is a broad scatter of organized settlements throughout the Philippines."

Source: James (1977, 1978) cited in World Bank 1980b. Volume II, Annex 4-A, pp. 13304.

Table 3.5 Indices of Locational Change

Rank	1903-18	1918-39	1939-48	1948-61	1961-72
1	Service 0.17936	Manufacturing 0.24713	Mining & Quarrying 0.39721	Forestry & Logging 0.42173	Forestry & Logging 0.20230
2	Agriculture 0.08603	Service 0.17489	Fisheries 0.29868	Mining & Quarrying 0.40415	Fisheries 0.19148
3	Manufacturing 0.06036	Agriculture 0.10454	Manufacturing 0.25226	Utilities 0.38765	Utilities 0.16801
4			Transportation, Communication & Storage 0.20254	Manufacturing 0.26710	Mining & Quarrying 0.12945
5			Forestry & Logging 0.20042	Fisheries 0.20543	Commerce & Services 0.10866
6			Commerce & Services 0.13989	Commerce & Services 0.16259	Construction 0.10554
7			Utilities 0.11132	Transportation, Communication & Storage 0.16247	Manufacturing 0.09036
8			Agriculture 0.04010	Agriculture 0.08924	Agriculture 0.08805
					Transportation, Communication & Storage 0.08267

Table 3.6. Specialization Indices

Rank	1903	1918	1939	1948	1961	1972
1	Cagayan Valley 0.38535	NCR 0.29582	NCR 0.61374	NCR 0.70498	NCR 0.80004	NCR 0.76246
2	NCR 0.35292	Cagayan Valley 0.22406	Western Mindanao 0.19675	Central Mindanao 0.15594	Central Visayas 0.10054	Cagayan Valley 0.15431
3	Central Mindanao 0.34139	Southern Mindanao 0.16783	Central Mindanao 0.15315	Cagayan Valley 0.09881	Eastern Visayas 0.09127	Central Mindanao 0.11230
4	Ilocos 0.27982	Western Mindanao 0.08806	Cagayan Valley 0.14570	Ilocos 0.08611	Central Mindanao 0.07163	Eastern Visayas 0.09911
5	Southern Mindanao 0.18392	Eastern Visayas 0.08113	Southern Mindanao 0.13528	Western Visayas 0.07662	Cagayan Valley 0.07147	Western Mindanao 0.07705
6	Northern Mindanao 0.18204	Central Mindanao 0.07573	Western Visayas 0.09820	Central Luzon 0.06729	Western Mindanao 0.05923	Bicol 0.07280
7	Western Mindanao 0.15258	Central Visayas 0.06992	Bicol 0.06613	Western Mindanao 0.05893	Bicol 0.05758	Ilocos 0.06741
8	Bicol 0.13090	Central Luzon 0.06820	Central Luzon 0.06243	Eastern Visayas 0.05332	Ilocos 0.05459	Western Visayas 0.04263
9	Eastern Visayas 0.12244	Western Visayas 0.05695	Northern Mindanao 0.05791	Bicol 0.05261	Northern Mindanao 0.05163	Central Visayas 0.03828
10	Western Visayas 0.10556	Northern Mindanao 0.05542	Ilocos 0.05656	Southern Mindanao 0.04736	Western Visayas 0.03718	Northern Mindanao 0.02930
11	Central Luzon 0.07243	Southern Tagalog 0.03396	Central Visayas 0.04706	Northern Mindanao 0.04458	Southern Tagalog 0.03041	Southern Tagalog 0.02669
12	Central Visayas 0.05735	Bicol 0.03016	Eastern Visayas 0.04669	Central Visayas 0.04117	Central Luzon 0.02578	Central Luzon 0.00946
13	Southern Tagalog 0.03557	Ilocos 0.02074	Southern Tagalog 0.03881	Southern Tagalog 0.01938	Southern Mindanao 0.02421	Southern Mindanao 0.00624

The Import Substitution Period, 1948-67

Postwar reconstruction, a newly-attained political independence and the launching of import-substitution industrialization marked the beginning of this period. The bias for industrial development inadvertently resulted in the neglect of agricultural development. The shift in priorities was articulated in the various economic and development plans drawn by policymakers during the postwar years. However, economic-commercial ties with the United States remained unsevered as primary products consistently figured as the country's top export earners and were further reinforced by the heavy import requirements (raw materials, intermediate goods and technology) of the industrialization scheme. Against this background, some analytical devices may be used to document the structural and spatial transformation of the postwar economy.

Localization indices for 1948 suggest that mining and quarrying, transportation, communication and storage, manufacturing, fisheries, services and commerce, and forestry and logging, in that order, tended to cluster spatially relative to agriculture and utilities (Table 3.3).[8] Mining and quarrying, fisheries, and forestry are largely resource-oriented industries, thereby locating in resource-rich regions. Also, a ranking of the indices reveals the crucial role played by transportation, communication and storage, and commerce and services for the manufacturing sector especially in the early phase of industrialization.[9] The low localization index for utilities seems to describe the inadequate provision of power, electricity and water facilities to the various regions in 1948 while the extremely low value for agriculture indicates its relative ubiquity. In 1961, all the economic activities except agriculture yielded relatively high localization indices, particularly construction and utilities. The concentration of construction and utilities in the NCR was a response to the increasing density of firms, households and government activity in the nation's capital.[10]

Forestry and logging, mining and quarrying, and fisheries had relatively high values for the index of locational change for 1948-61 as gleaned from Table 3.5. This implies the shifting geography of resource-based economic

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[8]A 0.20 cut-off was arbitrarily set for analytical purposes.

[9]This economic sector provides the basic industrial infrastructure.

[10]NCR captured about 80 percent and 55 percent of construction output and utilities output, respectively, in 1961 See Annex Table 7, (Hermoso, 1982).

activities as resource-rich regions were exploited.[11] The high values for manufacturing and utilities might portray the concerted industrialization of NCR. And, the relatively low values for commerce and services and trans-portation, communication and storage could attest to their continuing support to industry. By contrast, the traditional agricultural activity evinced little locational change.

Table 3.7 reveals the comparative advantage of CIR (NCR and MP) in industrial pursuit. Its share in industrial activity mounted from about 40 percent in 1948 to about 70 percent in 1967. This trend was accompanied by the rapid growth of industrial and service activity at the NCR for the 1948-61 period and the subsequent extension of this growth phenomenon to the MP for the 1961-72 period (Table 3.8). NCR's relative lead in 1948 was further emphasized by some characteristics of industrial activity[12] pre-sented in Table 3.9. In 1961, MP outranked NCR in some industrial charac-teristics.[13] That MP ranked lowest in some characteristics of service acti-vity in 1961[14] could be indicative of NCR's wide sphere of influence as the country's service center.

The NCR's exuberant growth during 1948-61 seemed highly corre-lated with its large share in the cumulative paid-in capital of all business organizations from 1948 to 1961 (Appendix Table 14), and substantial allocation (together with Southern Tagalog, about 50 percent) of infra-structure expenditure for fiscal years 1959-61 (Appendix Table 15). Al-though NCR's buoyant growth in urban population and service activity was perpetuated through 1961-72, the second half of the Import Substi-tution Period (the so-called Transition Phase) witnessed the deceleration of NCR industrial growth and the remarkable upsurge of urban-industrial activity at the Metropolitan Periphery (Central Luzon and Southern Taga-log). These developments may be attributed to the spillover effects of indus-trialization occasioned by incipient diseconomies of agglomeration in the industrial core.

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[11]Based on comparative employment share for 1948 and 1961, the Frontier Region increased forestry and logging activity, the Traditional Agricultural Region (especially Ilocos and Central Visayas) intensified mining and quarrying while virtually all regions engaged in fishing activity. See Annex Table 2, Hermoso (1982).

[12]Such as average size of firms, output/employment, output/fixed assets and fixed assets/firm.

[13]Such as output/establishment, output/employment, output/fixed assets, and fixed assets/employment.

[14]Such as fixed assets/establishment and output/employment.

Table3.7. Broad Regional Distribution of Population and Economic Activity, Import Substitution Period (1948-67) (in percent)

	1948					1960/61					1967/70				
	NCR	MP	TAR	FR	Phil.	NCR	MP	TAR	FR	Phil.	NCR	MP	TAR	FR	Phil.
Population[a]															
Total	8.62	19.93	52.12	19.33	100.00	9.58	20.21	45.89	24.32	100.00	11.38	21.44	40.86	26.32	100.00
Urban	34.00	6.85	42.16	16.99	100.00	31.85	14.47	37.42	16.26	100.00	30.43	21.37	31.75	16.45	100.00
Rural	0.60	24.06	55.27	20.07	100.00	0.68	22.50	49.29	27.53	100.00	0.66	21.48	45.99	31.87	100.00
Economic Activity															
All sectors															
Employment	6.18	17.48	54.67	21.67	100.00	5.38	18.72	47.74	28.16	100.00					
Establishments	2.33	20.31	56.84	20.52	100.00	3.08	19.05	48.88	28.99	100.00					
Output						29.01	19.18	32.49	19.32	100.00					
Agricultural[b]															
Employment	0.84	17.84	58.11	23.21	100.00	0.63	19.29	50.24	29.84	100.00					
Establishments	0.60	20.38	58.06	20.96	100.00	0.51	19.02	50.39	30.08	100.00					
Output						0.66	24.29	43.76	31.29	100.00					
Industrial[c]															
Employment	27.21	17.62	42.29	12.88	100.00	50.87	13.96	23.75	11.42	100.00	49.04	13.04	22.08	15.84	100.00
Establishments	16.49	21.03	48.09	14.39	100.00	27.38	20.53	35.26	16.83	100.00	21.99	20.94	36.04	21.03	100.00
Output						51.96	19.23	22.85	5.96	100.00	52.00	17.61	18.13	12.26	100.00
Service[c]															
Employment	30.27	15.32	38.70	15.71	100.00	42.18	13.97	28.35	15.50	100.00	30.59	17.52	32.98	18.91	100.00
Establishments	20.02	19.31	43.98	16.69	100.00	30.65	18.97	32.61	17.77	100.00	14.79	23.94	39.62	21.65	100.00
Output						62.50	7.17	19.83	10.50	100.00	61.80	6.53	20.15	11.52	100.00

[a]Population data pertain to 1948, 1960 and 1970.

[b]Agricultural data pertain to 1948 and 1960.

[c]Industrial and service data pertain to 1948, 1961 and 1967.

NCR – Manila and Rizal; MP (Metropolitan Periphery) – Central Luzon and Southern Tagalog; TAR (Traditional Agricultural Region) – Ilocos, Bicol and the Visayas regions;
FR (Frontier Region) – Cagayan Valley and the Mindanao regions.
Sources: 1948, 1960 and 1970 Population Census; 1948, 1961 and 1967 Economic Census; 1948 and 1960 Agricultural Census.

Table 3.8. Broad Regional Growth Rates of Population and Economic Activity, Import Substitution Period (1948-67) (in percent)

	1948 – 61					1961 – 72				
	NCR	MP	TAR	FR	Phil.	NCR	MP	TAR	FR	Phil.
Population										
Total	4.02	3.18	1.91	5.15	3.06	4.76	3.61	1.85	3.81	3.01
Urban	4.04	11.75	3.55	4.24	4.64	4.91	9.48	3.70	5.50	5.38
Rural	3.68	1.90	1.47	5.38	2.50	1.60	1.44	1.22	3.38	1.91
Economic Activity										
Total Employment	6.25	8.02	6.27	9.70	7.43	5.05	3.71	1.43	5.59	4.17
Total Establishments	4.43	1.60	0.90	4.99	2.13	3.93	2.83	1.56	4.00	2.64
Total Output	–	·	–	–	–	6.13	1.68	2.19	3.07	3.56
Agricultural Employment	5.80	8.93	7.00	10.45	8.25	0.76	3.04	2.94	5.25	3.69
Agricultural Establishments	0.86	1.61	1.02	5.17	2.17	2.13	1.53	0.73	3.33	1.74
Agricultural Output	–	–	–	–	–	–4.23	–2.26	–2.04	0.29	–1.31
Industrial Employment	12.15	4.70	1.86	5.65	6.67	4.51	6.60	4.83	9.14	5.52
Industrial Establishments	6.50	2.07	–0.24	3.56	2.27	2.62	6.05	5.31	8.00	5.33
Industrial Output	–	–	–	–	–	7.71	6.15	7.53	12.66	7.75
Service Employment	3.36	– 0.09	–1.83	0.54	0.65	6.22	11.07	9.43	11.20	8.78
Service Establishments	5.06	1.40	–0.86	2.06	1.54	4.53	12.12	10.71	12.59	9.89
Service Output						4.04	5.34	7.14	6.67	5.11

NCR – Manila and Rizal; MP (Metropolitan Periphery) – Central Luzon and Southern Tagalog; TAR (Traditional Agricultural Regions) – Ilocos, Bicol, and the Visayas regions; FR (Frontier Regions) – Cagayan Valley and the Mindanao regions.

Sources: 1948, 1960 and 1970 Population Census; 1948, 1960 and 1971 Agricultural Census; and 1948, 1961 and 1972 Economic Census.

Table 3.9. Selected Characteristics of Economic Activity, by Broad Regions, Import Substitution Period (1948-67)

Region/Activity	1948[1]						Region/Activity	1960-61[2]					
	Average Size of Firms			Labor Productivity	Capital Productivity	Factor Intensity		Average Size of Firms			Labor Productivity	Capital Productivity	Factor Intensity
	N/F	Y/F	FA/F	Y/N	Y/FA[2]	FA/N		N/F	Y/F	FA/F[3]	Y/N	Y/FA[3]	FA/N[3]
NCR													
Primary	2.65	—	—	—	—			9.61					
Industrial	10.34	P205,095	P144,325	P19,836	P1.43	P13,959		70.98	P954,779	P846,383	P13,451	P1.13	P11,833
Services	5.84	—	29,852	—	—	5.114		50.46	664,452	271,297	13,168	2.20	8,292
MP													
Primary	1.66	—	—	—	—	—		4.35					
Industrial	5.25	63.533	60,240	12.106	1.10	11,475		36.16	1,380,198	822,782	24,576	1.68	14,650
Services	3.06	—	23.375	—	—	7.633		50.22	224,331	59,617	7,045	3.40	3,430
TAR													
Primary	1.90	—	—	—	—	—		4.45					
Industrial	5.51	62,101	39,206	11,266	1.66	7,113		68.34	1,120.082	880,492	16,377	1.07	12,180
Services	3.40	—	2,848	—	—	838		34.26	274,383	81,518	8,008	3.45	4,026
FR													
Primary	2.10	—	—	—	—	—		4.30					
Industrial	5.61	53,528	22,022	9,539	2.55	3,925		73.90	606,451	711,113	8,206	0.80	9,364
Services	3.63	—	2,445	—	—	673		29.30	223,597	76,792	7,631	3.79	3,980
Philippines													
Primary	1.89	—	—	—	—	—		4.38					
Industrial	6.27	84,755	58,494	13,523	1.49	9,333		68.63	1,019,162	847,940	14,850	1.14	12,084
Services	3.86	—	8,088	—	—	2,095		41.54	460,447	190,861	11,086	2.42	7,002

N/F – Employment/Establishment; Y/F – Output/Establishment; FA/F – Fixed Assets/Establishment; Y/N – Output/Employment; Y/FA – Output/Fixed Assets; FA/N – Fixed Assets/Employment.

NCR Manila and Rizal; MP (Metropolitan Periphery) – NCR, Central Luzon and Southern Tagalog; TAR (Traditional Agricultural Regions) – Ilocos, Bicol and the Visayas regions; FR (Frontier Regions) – Cagayan Valley and the Mindanao regions.

[1] For large establishments only, defined as those with 10 or more employed workers.

[2] Includes only Manufacturing and Mining and Quarrying.

[3] Includes only Commerce and Services.

Sources: 1948 and 1961 Economic Census; 1948 and 1960 Agricultural Census.

Transition Phase, 1961-67

After this exuberant stage (1949-56) associated with the sudden profitability of industrial investment, declining opportunities of consumer goods production due to the limited size of the protected domestic market began to suface. In addition, the heavy import dependency of the new industries keep pressure on the balance of payments and necessitated the further tightening of import controls in the latter oart of the 1950's.
The worsening trade deficit prompted the authorities to start rationalizing the exchange rate by instituting a multiple rate system that effectively devalued the domestic currency in import transactions. At the same time, import and foreign exchange controls began to be dismantled. In 1972 the peso was freely convertible at the market rate, formal devaluation from 2 to 3.9 pesos per U.S. dollar taking place in 1965.

Industrial growth was hampered apparently by these changes in trade policies, at least in the transition ... It picked up however, after 1965, in part because of increased government expenditure, and other expansionary policies in the second half of the 1960's.

The policy reforms in the early 60s did not alter very much the incentive structure favoring import-substituting industries that produced consumer goods at the finishing stages. The import restrictions and peso overvaluation of the 1950s were merely replaced by a highly protective system, instituted in 1957 but made redundant by the exchange and import controls. The "cascading" tariff structure served to maintain the qualitative bias of the predecontrol period against backward integration and export expansion" (Bautista and Power 1979, pp. 6-7).

The declining share and growth of the rural population and agricultural activity at the MP could be explained in part by the economic pressures exerted on the farm population such as the relatively high farm density of Central Luzon and Southern Tagalog (Appendix Table 16) and the deteriorating peace and order conditions in Central Luzon arising mainly from its land tenure system as well as the consequent movement from MP's rural areas to its urban cases. On the whole, CIR's (NCR and MP) role as the leading industrial region appeared self-sustaining because of its now diversified economic activities. While specialization indices for 1948 and 1961 clearly point to NCR's tendency to specialize in industrial activity, the low values for Central Luzon and Southern Tagalog reveal CIR's diversity in economic enterprises (Table 3.6). A noteworthy point is Central Luzon's advancement in agriculture in terms of intensive cultivation method and a rising trend in per hectare yield of rice since the 50s[15] This could have been partly caused by the favorable effects of urbanization and agglomeration economies at the NCR on its immediate environs.[16] Southern Tagalog's untapped economic potentials could have likewise lured nearby entrepre-

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[15]Ishikawa (1970) and ILO (1974).

[16]von Thunen (1826), Clawson (1973) and Luna, Hermoso and Pernia's Special Paper.

neurs.[17] Additional factors that favored the CIR were public policies (the so-called implicit polarization policies) already in effect at that time, prominent among which were the minimum wage, agricultural policies (rice policy, land reform, agricultural credit schemes), price supports, infrastructure expenditures, social services (education and health),[18] and urban land policies (public housing, housing finance, intra-urban location and land tenure, sites and services schemes for squatters — see Ocampo 1972).[19]

The rise of CIR as the leading industrial region occurred at the expense largely of TAR. Aggravated by the relative neglect of agricultural development, TAR suffered from dwindling shares and sluggish growth of both population and economic activity from 1948 to 1970. For 1948-61, TAR evinced diminishing shares of total employment and establishments although it still maintained its share of agricultural establishments and employment at more than one-half (Table 3.7). TAR's share of industrial establishments and employment also declined noticeably. The generally low values of the specialization indices for 1948 and 1961 imply that TAR continued to engage in diversified economic activities (Table 3.6). Likewise, the low index of locational change for agriculture (Table 3.5) suggests minimal structural transformation, i.e., TAR remained as the traditional agricultural regions retaining the institutional scenario of the earlier Colonial Period. During the transition phase, TAR's share in industrial employment and output slightly declined while that of industrial establishments and service activity increased. The latter reveals TAR's resilience in nurturing or accommodating distressed economic activity.[20]

The vast untapped natural resources in the FR, the presence of relatives (Gonzales and Pernia's Special Paper), together with government-sponsored

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[17]E.g., in 1967, the shares of Southern Tagalog in mining and quarrying, manufacturing and utilities' output increased (Annex Table 7, Hermoso 1982).

[18]Appendix Table 15 and ILO (1974).

[19]Polarization-augmenting (but undocumented) considerations include: rapid transit investments in the primate city that fends off incipient congestion costs, the absence of pollution fees and congestion taxes, large-scale water supply or electric power schemes to accomodate primate city demand without recouping the full cost through user changes, the growth permitted in public sector activities without attempts to decentralize administrative functions, discriminatory freight rates and utility charges, risk averse or collateral lending by financial institutions based in the primate city, the "open door" policies favoring multinationals with their strong preference for a core location, and food export taxes that may induce an exodus from small farms into the cities (Richardson 1980).

[20]This point is further elaborated in the section on the Regional Awareness Period.

resettlement schemes[21] seemed initially sufficient to induce in-migration and the location of resource-based industries at the FR. This resulted in improved shares of rural population and agricultural activity during 1948 and 1961. The structural transformation from being an unsettled frontier to a rural-agricultural region engaged in diversified traditional economic activities could be gleaned from its relatively low value of specialization indices (Table 3.6). FR outpaced the other regions in rural and agricultural growth while ranking only next to CIR (NCR and MP) in industrial and service growth. Active participation of business entrepreneurs in FR's rapid growth experience is indicated by a rise in its share of paid-in capital from 1949-61 (Appendix Table 14). Generally, FR had the lowest farm density (Appendix Table 16) and the lowest level of industrialization and urbanization in 1960, further attesting to its frontier status (see Gonzales and Pernia's Special Paper). However, during the transition phase, FR captured bigger shares (though still limited within the 15-20 percent range) and experienced high growth performance in industrial and service activity. Seemingly, the detrimental effects of the transition phase on industrial growth were not transmitted to the FR.

The Regional Awareness Period, 1970s

Concern over the locational preferences of households and firms for CIR, the slackening performance in manufacturing-led industrial growth since the late 50s, sectoral inefficiency, imbalances in regional growth and income distribution, ethnic fragmentation, and the deteriorating peace and order conditions in the depressed (traditional agricultural and frontier) regions prompted the government to incorporate a conscious spatial dimension to policy formulation. Although the regionalization scheme was first articulated in the 1963 Integrated Socio-Economic Plan, the continuing and more serious attempt surfaced in the regional dispersal thrust of the Industrial Incentives Act of 1967, gained further push with the Integrated Reorganization Plan (PD No. 1) in 1972 and became an on-going objective of subsequent development plans throughout the 70s.[22]

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[21]Expanded to include: resettlement of former Huks, resettlement of urban squatters to rural areas, industrial estates, new towns, relocation from disaster areas, military operation zones and stricken areas (Ocampo 1972).

[22]Salient regional dispersal policies include: the Export Incentives Act of 1970, the various agricultural policies dealing mainly with the financing provisions for agricultural production and the dissemination of technical information (prominent of which was the Masagana 99 program), the 50-kilometer radius ban (1973) intending to decongest Metro

CIR's (NCR and MP) industrial sector showed a slight drop in output share between 1967 and 1975, with establishments' and employment shares also declining somewhat from 1967 to 1972[23] but gradually increasing during the 1972-75 period. The service sector demonstrated a roughly similar trend. However, the CIR remained as the country's industrial region during the 1972-75 period, capturing over 60 percent of industrial employment, over 40 percent of industrial and service establishments, over two-thirds of industrial output, over half of service employment, and three-fourths of service output in 1975 (Table 3.10). While CIR's industrial employment growth crawled from 5 to 6 percent, service employment growth decelerated drastically from 10 to − 2 percent. Nonetheless, industrial and service output displayed a much improved growth performance in 1972-75 relative to the 1967-72 period (Table 3.11). CIR's attraction for firm location is apparent from its still predominant share in the paid-in capital of business organizations from 1970 to 1979 (Appendix Table 17).

TAR's share in industrial activity increased slightly during the 1972-75 period accompanied by high growth rates (around 5 percent) of urban population, industrial employment and industrial establishments, perhaps due to its rich source of labor supply for industrial activity. More interesting was TAR's relative lead in such economic indices as output/firm, output/worker and fixed assets/workers, as seen in Table 3.12. Indicative of TAR's perceived attractiveness by investors and migrants, this encouraging phenomenon could be explained in part by the creeping diseconomies at the CIR, the worsening peace and order conditions at the FR, the consequent reverse migration towards the TAR, and TAR's status as the erstwhile leading regions.[24]

In the FR, population growth slowed down between 1970 and 1975 with industrial employment and establishments' share declining quite markedly during the 1972-75 period. This could be attributed to the socio-political

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Manila, various integrated area development projects, financing schemes (e.g., DBP's lending program for countryside development), the promotion of small and medium scale industries, and the massive on-going infrastructure investments. For a comprehensive discussion of these regional dispersal schemes, see Reyes and Paderanga's Special Paper.

[23]Perhaps, this may be attributed to the unfavorable peace and order conditions at the CIR during the early 70s.

[24]Not only does TAR presumably possess a certain level (though perhaps obsolete and inadequate) of social and economic infrastructure, but most often, the TAR is the hometown of influential bureaucrats and entrepreneurs.

Table 3.10. Broad Regional Distribution of Population and Economic Activity, Regional Awareness Period (1967-75)
(in percent)

	1967					1970-72					1975				
	NCR	MP	TAR	FR	Phil.	NCR	MP	TAR	FR	Phil.	NCR	MP	TAR	FR	Phil.
Population [a]															
Total						11.38	21.44	40.86	26.32	100.00	12.44	21.78	39.45	26.33	100.00
Urban						30.43	21.37	31.75	16.45	100.00	30.17	22.43	31.30	16.10	100.00
Rural						0.66	21.48	45.99	31.87	100.00	0.56	21.34	44.91	33.19	100.00
Economic Activity															
All sectors															
Employment						5.91	17.84	43.56	32.69	100.00					
Establishments						3.54	19.43	43.50	33.53	100.00					
Output						37.97	15.66	28.03	18.34	100.00					
Agricultural [b]															
Employment						0.46	18.00	46.37	35.17	100.00					
Establishments						0.53	18.59	45.19	35.69	100.00					
Output						0.47	21.84	40.33	37.36	100.00					
Industrial [c]															
Employment	49.04	13.04	22.08	15.84	100.00	45.76	15.62	22.07	16.55	100.00	47.42	16.24	22.18	14.16	100.00
Establishments	21.99	20.94	36.04	21.03	100.00	20.55	22.12	35.17	22.16	100.00	19.17	23.84	35.75	21.24	100.00
Output	52.00	17.61	18.13	12.26	100.00	51.75	16.22	22.30	9.73	100.00	45.04	21.90	22.54	10.52	100.00
Service [c]															
Employment	30.59	17.52	32.98	18.91	100.00	32.43	17.57	30.28	19.72	100.00	33.08	19.07	27.61	20.24	100.00
Establishments	14.79	32.94	39.62	21.65	100.00	17.69	23.68	35.39	23.24	100.00	17.10	25.74	32.33	24.83	100.00
Output	61.80	6.53	20.15	11.52	100.00	55.86	7.35	24.47	12.32	100.00	68.25	7.35	15.93	8.47	100.80

[a] Population data pertain to 1970 and 1975.

[b] Agricultural data pertain to 1971.

[c] Industrial and service data pertain to 1967, 1972 and 1975.

NCR — Manila and Rizal; MP (Metropolitan Periphery) — Central Luzon and Southern Tagalog; TAR (Traditional Agricultural Region) — Ilocos, Bicol and the Visayas regions; FR (Frontier Region) — Cagayan Valley and the Mindanao regions.

Sources: 1970 and 1975 Population Census; 1971 Agricultural Census, 1967 and 1972 Economic Census; 1975 Census on Establishments.

Table 3.11. Broad Regional Growth Rates of Population and Economic Activity, Regional Awareness Period (1967-75) (in percent)

	1 9 6 7 - 7 2					1 9 7 0 - 7 5				
	NCR	CIR	TAR	FR	PHIL.	NCR	CIR	TAR	FR	PHIL.
Population										
Total						4.63	3.65	2.06	2.80	2.79
Urban						4.85	5.36	4.74	4.59	5.05
Rural						−1.82	1.21	0.94	2.26	1.43
Economic Activity										
Industrial Employment	3.53	4.74	4.96	5.90	4.98	6.32	6.43	5.24	−0.23	5.07
Industrial Establishments	6.35	7.68	7.28	8.94	7.81	2.00	4.67	4.93	2.92	4.38
Industrial Output	1.88	−2.25	2.38	−6.22	−1.78	10.64	15.29	16.30	18.93	15.88
Service Employment	10.41	9.97	7.27	10.04	9.12	−2.76	−2.03	−6.30	−2.57	−3.39
Service Establishments	16.67	10.17	10.05	14.18	9.31	−5.06	−2.86	−6.84	−1.85	−3.99
Service Output	−4.69	−4.25	1.09	−1.41	−2.75	24.79	23.94	1.16	2.97	16.73

NCR — Manila and Rizal; CIR (Central Industrial Region) — NCR, Central Luzon and Southern Tagalog; TAR (Traditional Agricultural Region) — Ilocos, Bicol and the Visayas regions; FR (Frontier Region) — Cagayan Valley and the Mindanao regions.

Table 3.12. Selected Characteristics of Economic Activity, by Broad Regions, Regional Awareness Period (1967-75)

Region/Activity	1971-72[1]						Region/Activity	1975[1]					
	Average Size of Firms			Labor Pro-ductivity	Capital Pro-ductivity	Factor Intensity		Average Size of Firms			Labor Pro-ductivity	Capital Pro-ductivity	Factor Intensity
	N/F	Y/F	FA/F	Y/N	Y/FA	FA/N		N/F	Y/F	FA/F	Y/N	Y/FA	FA/N
NCR													
Primary	16.50	—	—	—	—	--	—	72.00	P49,927				—
Industrial	112.29	P2,141,713	P2,467,204	P19,072	P0.87	P21,971		101.11	2,074,595	P1,066,829	P20,519	P1.94	P10,551
Services	60.89	567,189	1,944,229	9,315	0.29	31,929		20.99	458,238	255,952	21,826	1.79	12,191
CIR													
Primary	6.28	—	—	—	—	—		32.27	154,656				—
Industrial	106.37	2,146,070	2,608,194	20,176	0.82	24,521		92.64	2,249,284	1,347,526	24,279	1.67	14,546
Services	53.92	464,802	1,785,741	8,621	0.29	29,242		18.07	347,368	196,867	19,221	1.76	10,898
TAR													
Primary	8.36	—	—	—	—	—		33.46	134,788				—
Industrial	94.20	2,332,080	2,519,593	24,757	0.93	26,747		79.45	2,507,080	1,154,707	31,567	1.58	15,262
Services	34.50	386,962	301,900	11,217	1.28	8,751		13.57	151,279	59,991	11,853	2.52	4,422
FR													
Primary	6.01	—	—	—	—	—		117.41	1,030,020				—
Industrial	133.51	1,708,487	3,284,631	12,832	0.52	24,669		103.68	2,242,861	1,457,613	17,819	1.54	14,059
Services	28.61	205,838	198,198	7,195	1.04	6,929		11.87	86,708	30,220	7,305	2.32	3,153
Philippines													
Primary	6.82	—	—	—	—	—		59.40	353,703				—
Industrial	106.98	2,133,502	2,667,848	19,944	0.80	24,939		91.07	2,302,328	1,319,135	25,281	1.75	14,485
Services	45.44	407,032	1,063,053	8,957	0.38	23,394		15.86	252,830	135,095	15,941	1.87	8,518

[1]For large establishments only, defined as those having 10 or more employed workers.

N/F = Employment/Establishment, Y/F = Output/Establishment, FA/F = Fixed Assets/Establishment, Y/N = Output/Employment, Y/FA = Output/Fixed Assets, FA/N = Fixed Assets/Employment.

NCR = National Capital Region

Sources: 1971 Census on Agriculture and Fisheries, 1972 Economic Census and 1975 Census of Establishments.

and economic non-integration as well as to the vanishing economic potentials in these regions. Moreover, social overhead capital became increasingly inadequate. Thus, it becomes apparent that the spatial impact of resettlement policies on the growth of FR could not be sustained indefinitely. The integration of FR into the Philippine space economy warrants a concerted development of these regions.

CHAPTER 4

DETERMINANTS OF MANUFACTURING CONCENTRATION

The emergence of Manila and more broadly the Central Industrial Region (CIR) as the country's economic core is an issue that requires an understanding of factors affecting the industrial location decision of firms. Manufacturing industries have been singled out to account for the polarization phenomenon because of the following considerations. First, manufacturing claims a large proportion of industrial activity and as the most dynamic component of the industrial sector, it induces the ancillary growth of related economic activities. Second, manufacturing is relatively free to locate anywhere, i.e., it tends to be more responsive to economic policies. Third, to the extent that the existing spatial structure of industries is the cumulative manifestation of the firm's perception of an optimum economic location (based on regional comparative advantage, scale economies and amenity resources), we can posit that the primate city or the Central Industrial Region (for example) represents the most viable location of manufacturing industries relative to alternative locations.[1]

Within the developing country context, the spatial concentration of industrial activity is commonly attributed to the initial locational advantage of the core industrial region, the scarcity of investment resources, the unavailability of relevant information pertaining to remote regions thereby augmenting the uncertainty of the investment decision outside the core region, the lack of sufficient amenities to induce highly skilled entrepreneurs and technicians to locate outside the urban-industrial center, the necessity of personalized contacts in conducting business negotiations due to the volatile economic conditions of LDCs, the inadequate transportation network, and the capital region's status as the country's financial and administrative center, and as the most preferred area of destination for migrants (Alonso 1968a, 1968b, Richardson 1979, 1980). Specifically, Hay (1979) identifies

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[1]See Alchian (1950), Tiebout (1957), Perloff and others (1960) and Muth (1972).

and tests three commonly-offered explanations in describing industry's tendency to concentrate geographically, namely: the "regional hypothesis" which argues that the internal dynamism of certain regions stimulates industrial development, the region's comparative advantage arising from factor endowments implied by the Hecksher Ohlin theory. and those traditional location factors (such as distance costs, economies of scale and immobile resources). Hay's empirical findings suggest that the latter provides the most useful framework in the analysis of industrial location in developing countries.

This chapter sketches the spatial evolution and the existing distribution of manufacturing activity. It likewise attempts to identify the determinants of its spatial concentration, specifically in Manila and more broadly in the CIR, highlighting the effects of industrial and trade policies.

Historical Overview, 1900-75

During the Colonial Period (1903-39), the agricultural regions of TAR, Central Luzon and Southern Tagalog, while accounting for a substantial albeit declining share in manufacturing employment (from 90 to 70 percent), experienced negative growth rates[2] (see Tables 4.1 and 4.2). The firm's response to the agricultural milieu consisted in an enlarged share in manufacturing establishments at the agricultural regions and a buoyant growth in 1903-18 which somehow plunged to a low growth level in 1918-39[3] (Tables 4.3 and 4.4). Another manifestation of the prevailing economic climate then was the expanded share of resource-oriented industries such as food manufacturing, beverages, wood and cork products, and paper and products from 46 percent in 1903 to 62 percent in 1939 (Appendix Table 12). Altogether, the relative concentration of manufacturing establishments and employment at the agricultural regions resulted partly from the predominance of household industries and the essentially agro-based structure of manufacturing industries, interlaced with the primary product export strategy pursued by the colonial government (see Chapter 3).

Meanwhile, the sizeable share of the National Capital Region (NCR-Manila and Rizal) in manufacturing value of production and such economic

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[2]Attributable to a large extent to the change in the employment reporting unit from household (1903, 1918) to business establishment (1939).

[3]The inclusion of household industries in the 1918 (and 1939) definition of business establishment biased the 1903-18 figures. The poor growth performance for 1918-39 was a response to the unfavorable world market for agricultural products (Chapter 3).

Table 4.1 Regional Shares in Manufacturing Employment, 1903-75
(in percent)

Region	1903	1918	1939	1948	1961	1967	1972	1975
Central Industrial	29.54	29.63	31.35	46.60	67.75	64.20	62.00	64.53
NCR	6.48	7.53	16.19	29.40	53.66	51.25	46.00	46.84
Central Luzon	9.39	8.09	6.64	7.34	7.27	7.22	9.19	7.73
Southern Tagalog	13.67	14.01	8.52	9.86	6.82	5.73	6.81	9.96
Traditional Agricultural	67.14	66.41	55.72	41.47	20.49	18.68	19.93	20.72
Ilocos	15.12	13.28	14.74	6.99	3.75	2.89	3.91	3.69
Bicol	8.38	10.08	9.88	4.85	2.34	2.15	2.77	3.62
Western Visayas	19.27	19.50	7.86	10.51	7.20	6.96	7.40	6.45
Central Visayas	14.29	16.19	10.65	11.89	5.61	5.28	4.52	5.76
Eastern Visayas	10.08	7.36	12.59	7.23	1.59	1.40	1.33	1.20
Frontier	3.32	3.96	12.93	11.93	11.76	17.12	18.07	14.75
Cagayan Valley	0.80	0.62	1.03	2.17	1.52	2.11	2.12	2.61
Western Mindanao	0.26	0.40	8.76	1.67	1.63	1.50	2.19	1.40
Northern Mindanao	2.13	2.44	2.04	4.93	3.44	4.06	3.48	3.49
Southern Mindanao	0.11	0.34	0.45	1.71	2.40	5.80	7.18	4.73
Central Mindanao	0.02	0.16	0.65	1.45	2.77	3.65	3.10	2.52
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Philippines	(959,670)	(865,698)	(398,500)	(170,956)	(358,799)	(518,862)	(643,414)	(719,014)

Note: Figures in parentheses represent total manufacturing employment.
   NCR (National Capital Region) includes Manila and Rizal.
   There was a change in the reporting unit for employment from household (1903-18) to business establishment (1939-75). In 1939,
   a business establishment included unlicensed household industries (those with an annual production of ₱100 or more). The per-
   tinent Census data on employment from 1948 thereafter refer to those duly licensed business establishments.
Sources: Economic Census (1903, 1918, 1939, 1948, 1961, 1967 and 1972) and 1975 Census of Establishments.

Table. 4.2   Regional Employment Growth in Manufacturing, 1903-75
(in percent)

Region	1903-18	1918-39	1939-48	1948-61	1961-67	1967-72	1972-75
Central Industrial	−0.67	−3.39	−4.40	9.34	5.39	3.67	5.16
NCR	0.32	-0.03	−2.47	11.34	5.53	2.16	4.40
Central Luzon	−1.67	−4.41	−7.19	6.02	6.22	9.57	−2.05
Southern Tagalog	−0.52	−5.95	−6.76	3.03	3.29	8.06	17.82
Traditional Agricultural	−0.76	−3.92	−10.79	0.29	4.71	5.76	5.12
Ilocos	−1.54	−2.08	−14.72	0.95	1.86	10.89	1.75
Bicol	0.54	−2.09	−14.42	0.11	4.78	9.89	13.35
Western Visayas	−0.61	−7.97	−5.41	2.95	5.72	5.70	−0.87
Central Visayas	0.14	−5.75	−7.10	−0.08	5.30	1.19	12.50
Eastern Visayas	−2.74	−1.16	−13.07	−5.98	4.10	3.22	0.99
Frontier	0.50	2.44	−8.85	5.98	13.21	5.54	−3.01
Cagayan Valley	−2.35	−1.20	−1.02	3.11	12.33	4.49	11.32
Western Mindanao	2.18	12.30	−22.14	5.90	4.89	12.62	10.58
Northern Mindanao	2.13	−2.85	0.37	3.11	9.28	2.26	3.87
Southern Mindanao	7.29	−2.42	5.03	0.76	23.23	8.94	−9.75
Central Mindanao	15.00	3.27	−0.43	11.71	11.35	1.03	−3.12
Philippines	−0.68	−3.30	−8.11	6.11	6.34	4.40	3.77

NCR (National Capital Region) includes Manila and Rizal.

Sources: Economic Census (1903, 1918, 1939, 1948, 1961, 1967, 1972) and 1975 Census of Establishments

Table 4.3   Regional Shares in Manufacturing Establishments, 1961-75 (in percent)

Region	1903	1918	1939	1948	1961	1967	1972	1975
Central Industrial	55.28	36.88	14.07	37.53	48.26	43.12	42.75	42.76
NCR	29.70	3.51	3.01	16.58	28.03	22.13	20.55	18.87
Central Luzon	14.65	8.90	4.39	8.76	8.94	10.08	10.66	10.46
Southern Tagalog	10.93	24.47	6.67	12.19	11.29	10.91	11.54	13.43
Traditional Agricultural	42.51	59.87	69.58	48.07	34.78	35.53	35.21	35.81
Ilocos	5.01	10.44	24.86	9.88	9.39	8.65	10.55	10.68
Bicol	5.53	7.68	11.68	5.73	5.86	5.42	6.62	7.37
Western Visayas	23.56	16.76	4.29	11.88	7.21	10.52	9.86	9.17
Central Visayas	7.31	12.93	12.40	10.92	7.82	7.58	5.18	5.58
Eastern Visayas	1.10	12.06	16.35	9.66	4.50	3.36	3.00	3.01
Frontier	2.21	3.25	16.35	14.40	16.96	21.35	22.04	21.43
Cagayan Valley	0.46	1.27	0.78	3.47	3.34	3.36	4.45	4.71
Western Mindanao	1.17	0.34	12.86	3.00	2.27	5.39	2.85	2.80
Northern Mindanao	0.58	1.41	2.03	3.97	3.33	3.49	4.43	4.38
Southern Mindanao	–	0.15	0.30	1.91	3.68	5.58	6.69	6.07
Central Mindanao	–	0.08	0.38	2.05	4.34	3.53	3.62	3.47
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Philippines	(3,256)	(129,407)	(139,407)	(29,463)	(37,369)	(46,229)	(67,528)	(77,291)

Note: Figures in parentheses denote total number of manufacturing establishments.

NCR (National Capital Region) includes Manila and Rizal.

Manufacturing establishment in 1903 refers to those producing manufactured goods worth ₱1,000 or more annually. 1918 and 1939 manufacturing establishment includes in addition those household industries with an annual production value of ₱100 or more. From 1948 thereafter, Census data on manufacturing establishment is limited to duly-registered business establishments.

Sources: Economic Census (1903, 1918, 1939, 1948, 1961, 1967 and 1972) and 1975 Census of Establishments.

Table 4.4   Regional Establishment Growth in Manufacturing, 1903-75
(in percent)

Region	1903-18	1918-39	1939-48	1948-61	1961-67	1967-72	1972-75
Central Industrial	24.44	−4.33	−5.57	3.99	1.68	7.69	4.61
NCR	10.87	−0.39	1.54	6.29	-0.39	6.28	1.67
Central Luzon	23.67	−3.08	−8.28	2.08	5.70	9.10	3.95
Southern Tagalog	34.90	−5.93	−9.08	1.30	3.02	9.10	10.02
Traditional Agricultural	30.80	1.13	−17.50	−0.69	3.98	7.68	5.20
Ilocos	34.26	4.83	−21.94	1.51	2.19	12.26	5.02
Bicol	30.68	2.51	−20.28	2.10	2.28	12.27	8.41
Western Visayas	24.98	−6.22	−5.21	−2.08	10.36	6.48	2.09
Central Visayas	32.80	0.15	15.47	−0.76	3.08	−0.06	7.29
Eastern Visayas	49.93	1.90	−18.79	4.12	−1.32	5.46	4.79
Frontier	31.15	8.83	−15.48	3.27	7.66	8.56	3.62
Cagayan Valley	36.76	−1.99	−0.65	1.60	3.72	12.26	6.66
Western Mindanao	17.66	20.42	−26.00	−0.32	19.68	−5.00	3.89
Northern Mindanao	35.61	2.26	−8.47	0.52	4.39	13.11	4.24
Southern Mindanao		3.90	2.97	7.40	11.05	11.87	1.26
Central Mindanao		8.71	1.45	8.20	0.09	8.46	3.17
Philippines	27.85	0.38	−14.39	1.92	3.61	7.87	4.60

NCR (National Capital Region) includes Manila and Rizal.

Source: Economic Census (1903, 1918, 1939, 1948, 1961, 1967, 1972 and 1975).

indices as largeness in firm size (whether expressed as employment/firm, output/firm or fixed assets/firm), labor productivity and capital intensity revealed NCR's nascent comparative advantage in manufacturing pursuit toward the second half of the Colonial Period, 1918-39 (See Table 3.4).The emergence of NCR as the country's industrial core gained full momentum during the buoyant phase of the Import Substitution Period (1948-61) when its ·share in manufacturing employment soared from 29 percent in 1948 to 54 percent in 1961, and employment growth rate was 11 percent. NCR's share in manufacturing establishments likewise mounted from 17 percent in 1948 to 28 percent in 1961 at the rate of 6 percent. Marking the transition phase of the Import Substitution Period (1961-67) was the slight decline in NCR's share in manufacturing output, employment and establishments which trend was generally perpetuated through 1975. Although the Metropolitan Periphery (MP-Central Luzon and Southern Tagalog) during the postwar years ranked next to NCR in manufacturing activity, the subsequent widening of the manufacturing core to embrace MP became evident from 1972-75 when its manufacturing output growth peaked (see Tables 4.1 to 4.5).

Spatial Distribution of Manufacturing Activity, 1975 [4]

Manufacturing industries at the 3-digit classification level produced more than half of their output in Manila, except for such resource-based industries as food manufacturing, leather and products, wood and products, paper and products, non-metal products and iron and steel[5] (Table 4.6). Sugar refineries of Western Visayas captured 44 percent of the food manufacturing output with the broader Traditional Agricultural Region claiming roughly 60 percent of the food industry. The Frontier Region supplied 64 percent of the wood industry output while estimates indicated a 51 percent contribution of Central Mindanao to the iron and steel industry. To the CIR accrued 59 percent and 82 percent of the output of the non-metal and paper industries, respectively. The leather industry wholly situated at CIR (Appendix Table 18).

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[4]The ensuing discussion refers to large manufacturing establishments (those with 10 or more employed workers) due to unavailability of published data on small manufacturing establishments at the time of writing.

[5]Food manufacturing, wood and products, petroleum refineries and non-metal products likewise demonstrated a dispersed pattern in manufacturing employment and

Table 4.5   Regional Shares and Growth of Manufacturing Output, 1961-75
(in percent)

Region	Share				Intercensal Growth Rate		
	1961	1967	1972	1975	1961-67	1967-72	1972-75
Central Industrial	74.26	71.28	72.32	74.28	16.06	−3.68	14.85
NCR	55.19	54.00	55.95	47.24	16.43	−3.27	7.59
Central Luzon	10.25	6.06	10.89	13.29	7.04	8.01	21.63
Southern Tagalog	8.82	11.22	5.48	13.75	21.64	−16.79	54.68
Traditional Agricultural	19.83	15.43	16.16	17.42	12.08	−3.31	16.72
Ilocos	1.57	1.49	1.55	1.23	15.89	−3.19	5.24
Bicol	0.79	1.29	1.08	0.73	27.00	− 7.28	−0.15
Western Visayas	11.95	8.43	8.38	9.16	10.26	−4.08	17.26
Central Visayas	4.92	3.34	4.33	5.37	9.55	11.61	22.31
Eastern Visayas	0.60	0.88	0.82	0.93	24.41	−5.32	19.09
Frontier	5.91	13.29	11.52	8.30	33.74	−6.67	2.09
Cagayan Valley	0.63	0.99	0.65	0.63	26.17	−11.83	12.79
Western Mindanao	0.79	0.45	1.19	0.57	6.13	16.90	−10.66
Northern Mindanao	1.86	3.82	2.12	2.59	31.75	−14.66	21.76
Southern Mindanao	1.28	4.11	5.31	2.20	41.87	1.11	−15.10
Central Mindanao	1.35	3.92	2.25	2.31	39.58	−14.05	14.75
Philippines	100.00	100.00	100.00	100.00	16.86	−3.96	13.84
	(₱4,362)	(₱11,108)	(₱9,076)	(₱13,388)			

Figures in parentheses are census value added estimates expressed in million of pesos at
1972 constant prices.
NCR (National Capital Region) includes Manila and Rizal.
Sources: Economic Census (1961, 1967 and 1971) and 1975 Census of Establishments.

Table 4.6 Share of Manila and CIR in Manufacturing Activity, 1975

PSIC Code No.	Industry	Establishments			Persons Employed			Census Value Added		
		Philip-pines	Percent Manila	CIR	Philip-pines	Percent Manila	CIR	Philip-pines[a]	Percent Manila	CIR
3	Manufacturing	6,391	51.60	69.33	511.737	58.07	72.77	21,029,696	48.26	74.90
311	Food	1,318	28.98	49.62	82,243	25.69	42.62	4,175,695	13.81	28.76
312	Other food products	176	37.50	63.64	18,199	36.72	76.48	581,258	66.50	92.57
313	Beverages	91	29.67	43.96	27,868	30.70	50.17	2,886,236	75.61	79.09
314	Tobacco	37	64.86	72.97	20,341	85.87	88.82	1,361,301	96.73	98.42
321	Textiles	431	54.52	78.42	72,487	71.91	94.77	1,343,361	67.27	97.53
322	Wearing Apparel	576	46.88	74.13	32,912	78.49	95.32	231,148	77.15	96.94
323	Leather and products	52	63.46	100.00	2,259	43.69	100.00	26,464	30.91	100.00
324	Footwear	163	69.94	95.71	3,800	69.53	97.21	19,371	76.10	96.46
331	Wood and products	483	26.71	57.76	43.576	11.66	20.16	702,447	14.95	22.49
332	Furniture and fixtures	322	51.86	74.84	10,929	57.87	73.34	82,529	62.85	76.86
341	Paper and products	103	77.67	86.41	10,751	59.95	74.28	499,947	41.27	81.92
342	Printing and publishing	350	70.29	74.29	12.451	82.98	85.48	160,593	88.83	90.84
351	Industrial chemicals	88	61.36	72.73	7,776	54.14	70.45	517,844	50.50	83.04
352	Other chemical products	178	80.34	88.76	20,136	87.48	91.79	914,390	84.53	95.93
353	Petroleum refineries	5		100.00	1,629		100.00	3,215,382		100.00
354	Petroleum, coal products	6	50.00	66.67	148	67.57	76.35	13,547	77.88	87.72
355	Rubber products	88	67.05	78.41	9,506	81.39	84.89	309,221	92.43	94.26
356	Plastic products, n.e.c.	169	88.17	94.08	14,749	92.96	98.10	276,746	94.10	98.89
361	Pottery, china, earthenware	21	61.90	61.90	2,345	53.69	53.69	76,455	80.38	80.38
362	Glass and products	27	81.48	81.48	6,032	77.11	77.11	121,304	81.04	81.04
369	Non-metal products	195	34.87	65.13	13,502	41.89	72.56	544,997	23.19	59.01
371	Iron and steel	75	85.33	85.33	8,713	82.66	82.66	571,247	43.22	43.22
372	Non-ferrous metal	22	95.45	95.45	1,266	92.81	92.81	76,419	97.82	97.82
381	Metal products	363	79.61	82.64	22,326	90.24	91.81	521,346	93.46	94.12
382	Machinery	337	61.42	69.14	16,036	71.84	78.54	375,922	83.94	90.05
383	Electrical machinery	141	90.78	95.74	21,682	91.54	94.70	542,921	86.17	90.17
384	Transport equipment	281	71.53	82.92	19,690	71.21	76.17	795,618	69.59	90.06
385	Professional goods	15	80.00	100.00	1,341	85.23	100.00	13,969	90.72	100.00
390	Other manufacturing	278	33.09	41.00	7,044	50.51	59.77	72,018	53.84	58.60

Note: The data refer to large manufacturing establsihments defined as those having 10 or more employed workers. Manila includes the 4 cities and 13 municipalities comprising Metropolitan Manila. CIR (Central Industrial Region) embraces Manila, Central Luzon and Southern Tagalog.

[a] Amount in thousand pesos at current prices.

Source: 1975 Census of Establishments.

The prevalence of a resource-based industrial structure in the regions outside Manila was supported by regional data: food industry figured prominently in the manufacturing activity of Western Visayas, Eastern Visayas, Southern Mindanao, Bicol and Central Visayas; the wood industry dominated Cagayan Valley and Western Mindanao; Central Mindanao benefited much from the iron and steel industry; non-metallic industries abounded in Ilocos; and petroleum refineries claimed a substantial share in the manufacturing output of Central Luzon and Southern Tagalog (Appendix 19).

Table 4.6 and Appendix Table 20 show that CIR provided 73 percent of manufacturing employment and siphoned 74 percent of the aggregate manufacturing wage bill.[6] Western Visayas, Central Visayas, Southern Mindanao and Northern Mindanao provided 19 percent of manufacturing employment. Altogether, the CIR plus the four regions accounted for 92 percent of manufacturing employment with the four being identified as industrializing regions (World Bank 1980a). Some 52 percent of manufacturing establishments situated in Manila, expanding to 70 percent for the CIR as a whole. CIR likewise enjoyed the back-up of abundant capital equipment and liberal subsidy programs (Appendix Table 20). On the other hand, Cagayan Valley, Central Mindanao, Western Mindanao, and Eastern Visayas combined attracted only 5 percent of manufacturing establishments. This dearth in business enterprises could be attributed to the unfavorable peace and order conditions and the resulting high premium on risk and uncertainty in those troubled regions.

An Empirical Model of Manufacturing Concentration[7]

A striking feature of the distribution of manufacturing activity is its spatial concentration, particularly in Manila and more bodily in the CIR (Manila, Central Luzon and Southern Tagalog). In 1975, Manila was the site of 58 percent of manufacturing employment, 52 percent of manufacturing establishments, and 48 percent of manufacturing output. More

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establishments. However, manufacturing firms and employment in the leathercraft and printing industries as well as iron foundries still clustered in Manila.

[6]Manila, capturing 58 percent of manufactuiring employment paid 61 percent of the aggregate manufacturing wage bill (Appendix Table 20).

[7]This framework benefited much from discussions with Professor Richard F. Muth of Stanford University.

remarkable is CIR's share in manufacturing activity: 75 percent of output, 73 percent of employment and 69 percent of establishments. Furthermore, three industry groups at the three-digit classification level are wholly concentrated in CIR, namely, leather and products, petroleum refineries and professional goods. Out of the 29 manufacturing industries, 17 have more than 90 percent of their output accruing to CIR. They include other food products, tobacco-processing, textiles, wearing apparel, leather and products, footwear, printing and publishing, other chemical products, petroleum refineries, rubber products, plastic products, non-ferrous metals, metal products, machinery, electrical machinery, transport equipment and professional goods.

Weberian industrial location theory suggests that the location of economic activity is determined primarily by resources, markets, labor supplies and agglomerative economies. The latter represents reductions in transportation costs achieved by the spatial concentration of economic activity. Underlying this theory is the notion of transport cost minimization. In the real world, the locational preferences of firms is not wholly attributable to those economic factors cited in the Weberian framework. To a certain extent, firms inadvertently respond to some economic policies which, although not designed to effect a particular spatial configuration in the economy, nevertheless reinforced the operation of those market forces favoring a specific location for manufacturing activity – the so-called implicit spatial policies. Hence, a model that explains the spatial concentration of manufacturing activity in terms of Weberian economic factors and policy variables is called for.

Dependent Variable

The concentration of manufacturing activity in Manila and CIR, denoted by p, is measured as the fraction of (a) total large establishments, (b) total employment and (c) total value added that is accounted for by Manila and CIR. Because p is bounded by 0 and 1, a more suitable specification is $p^* = p/(1-p)$ so that the upward constraint disappears.

Explanatory Variables

Input Variables

1.   Fraction of material inputs from primary industries. Firms having a high ratio of primary inputs relative to total intermediate inputs (the so-

called resource-based industries) are expected to locate in resource-rich regions in order to reduce the transport costs of primary inputs. Hence, this variable is presumed to favor the regional dispersal of manufacturing activity.

2.   Fraction of material inputs coming from Manila firms. This represents the backward industrial linkages in manufacturing activity, giving rise to the agglomerative tendency of manufacturing firms.

3.   Fraction of imported material. This represents the import-substituting consumer goods bias of Philippine manufacturing and the resulting relative cheapening of imported raw materials, intermediate goods and capital goods considered "essential" to the domestic production of these industries. Since Manila is the country's administrative and financial center and the locus of the country's principal port, we can expect those industries having high import dependence to be located in Manila.

Output Variables

1.   Fraction of output to Manila final demand. Market orientation refers to an industry's tendency to locate at a major population center and/ or a relatively high proportion of its output sold to final demand. It results from a firm's attempt to reduce the cost of transporting the output that it sells to final consumers by locating near the market where the sale is made. Since Manila is the nation's premier city and noting that, except for food processing, industries concentrated in Manila and CIR tend to have a high proportion of output sold to final demand, we would expect this variable to favor manufacturing concentration in Manila.

2.   Fraction of output exported. The increased profitability of export production, as manifested in the much-improved performance of nontraditional exports in the 70s, has been attributed to the *de facto* peso devaluation of February 1970, the world commodity price boom in the early 70s, the unlimited size of the world market, the Export Incentives Act of 1970 and other policy measures directly aimed at stimulating industrial exports (Bautista and Power 1979). Furthermore, we can assume that the change in policy climate prompted existing and new firms to switch from the production of manufactured goods for the domestic market to export-oriented production because of the following considerations: (i) manufacturing activities are more responsive to policies, and (ii) the documented excess capacity in Philippine manufacturing (Bautista 1972) made the increased production of manufactured goods demanded by the world market virtually costless in terms of additional capital outlay. With Manila's locational advantage and

the above considerations, we would expect this variable to raise Manila's concentration of manufacturing activity.

Labor Force Variable

Average wage rate for industry workers. That Manila has the highest ratio of skilled to semi-skilled and unskilled workers in 1975 (Table 1.1) suggests the prepoderance of skilled workers in Manila. This is attributable to labor market amenities defined to include the presence of more varied skills, superior training, a large pool of labor supply and better organized placement services, and the capital-intensive bias of Philippine manufacturing displacing semi-skilled and unskilled workers. Assuming that wage differentials reflect relative differeces in skills among workers, a possible proxy variable for skill intensity is the wage rate, which presumably would take on a lower value on the average for establishments that employ more unskilled workers (Hife 1977).. Hence, the presence of skilled workers in Manila reinforces manufacturing concentration.

Policy Variables

1. Effective rate of protection. This represents the proportionate increase in domestic value added per unit of output over free trade value added per unit of output as a result of tariff protection.[8] Tan (1979) shows that the structure of protection in the postwar period induced the expansion of import-substituting manufacturing industries. Since these protected industries rely heavily on imported raw materials and capital goods and avail largely of tax and credit privileges (ready obtainable in the financial and administrative center), they would thus tend to locate in Manila.

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[8]Let V_j = world market value added per unit of j; V_j' = domestic value added per unit j; $\Sigma\, a_{ij}$ = total intermediate inputs used in the production of one unit of j; T_j = tariff levied on one unit of j; and T_i = tariff levied on one unit of i where i = input, j = output.

$$(1)\quad V_j = 1 - \Sigma\, a_{ij}$$

$$(2)\quad V_j' = 1 + T_j - \Sigma\, a_{ij}\,(1 + T_i)$$

$$(3)\quad T_j = \frac{V_j' - V_i}{V_j} \text{ is the effective protection rate}$$

2.   Capital intensity and average size of firms. The capital-intensive bias of manufacturing industries has been related to the trade policies adopted in the following manner: (i) the use of imported technology requiring high capital intensity in the import-substituting consumer goods industries, (ii) the artificial under-pricing of imported capital, and (iii) consequently, the failure of intermediate technology using indigenous materials to develop. Similarly, the prevalence of large firms and the discrimination against small and medium-scale industries have been attributed to the various industrial policies. Hence, we can expect these variables to favor Manila manufacturing concentration.

Manila Concentration[9]

The requirement of manufacturing firms for imported raw materials, or the fraction of imported input (fM), appears highly significant in explaining industrial concentration. Import content of manufacturing industries reflects the locational advantages enjoyed by Manila (such as ease of access to imported machineries and raw materials and to government offices that issue import permits and foreign exchange allocations) which became critical during the Import Substitution Period (1945 − 67) and continued to play an important role in the subsequent phase. By contrast, primary input requirement (fPI and LNfPI) seems to operate strongly against Manila concentration or alternatively stated, to favor the spatial dispersal of manufacturing activity. This indicates that resource-based industries tend to locate in resource - rich regions outside Manila.

Export orientation of manufacturing firms (fX), an output variable, significantly explains the locational preference for Manila of manufacturing activity. This is partly due to Manila's status as the country's principal port and to the export promotion policy of the 70s which started the trend towards manufactured exports. The insignificance of the market orientation variable (fFD—NCR) may be due to some inherent data limitation.[10]

Likewise, the abundance of skilled workers in Manila (AWRNCR and LNWRNCR) significantly contributes to manufacturing concentration in

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[9]Discussion is based on Table 4.7

[10]A more correct specification of the market orientation variable warrants a detailed market study for each manufacturing industry. The prohibitive cost forced us to settle for an apparently inadequate proxy variable.

Data paucity likewise precludes the appropriate specification of such variables as backward linkage and forward linkage of manufacturing industries.

Manila. The presence of labor market economies, the relatively high urban wage rates attracting the skilled workers of the other regions, and the strong preference of entrepreneurs and technicians to settle in the premier city make Manila a rich source of skilled labor. This constitutes an added attraction of Manila vis-a-vis manufacturing industries, including the capital intensive ones.

The regression results also indicate the importance of effective protection rate (WTEPR) and the size of firms (LN/F-NCR and LFA/NCR) in determining manufacturing concentration. These factors appear to be directly related to the Import Substitution Period (Bautista, Power and Associates 1979).[11] Industries thus located in Manila in response to the favorable policy climate of that period.

CIR Concentration[12]

Basically, CIR manufacturing concentration is positively influenced by the import content of manufactured products and technological characteristics of manufacturing firms as firm size (FA/F CIR) and capital intensity (K/L-CIR). As noted earlier, these variables have been related to industrial and trade policies in the postwar period.

CIR concentration, on the other hand, tends to be weakened by a factor that reinforces Manila concentration, viz. the presence of skilled workers in Manila (AWRNCR). This can be interpreted as a response to a market force. The insignificance of WTEPR in explaining CIR concentration seems consistent with the above finding that protected industries locate in Manila.

Other factors not captured in the analysis but are often cited in explaining the spillover and the widening of the industrial region are such variables as rising land and congestion costs, higher business taxes, deterioration in the quality of life and other disamenities in the urban core. This phenomenon represents the dissipation of net agglomeration economies at the core. Weber (1929) contends that agglomeration inevitably occasions an increased demand for land due to the higher marginal utility of land in the core region and the resulting higher valuation of this marginal utility by speculators.

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[11]That capital intensity turned out an insignificant factor in explaining Manila concentration may suggest the obsolescence of capital equipment in Manila as investments in capital equipment are channelled to the Metropolitan Periphery (Central Luzon and Southern Tagalog) manufacturing firms (Appendix Table 24).

[12]Discussion is based on Table 4.8.

This is translated into a rise in land values. To avert an escalation in production costs, producers would tend to decentralize the production process. It is then that the deglomerative tendency sets in.

Table 4.7. Regression Results for Manila Concentration

R² , F-statistics	Dependent Variable	Explanatory Variables							Constant
Specification 1 R² – 0.5214 F – 6.0836	CRCVANCR	fPI −29.7647 (− 2.7465)***	fM 1;9286 (2.9278)***	fFD −NCR 1.4345 (0.4079)	fX 51.6786 (3.9862)***	AWRNCR 6.0920 (2.0518)*	WT EPR 0.1837 (4.4858)***		− 8.1144
Specification 2 R² – 0.4055 F – 4.1834	CRCVANCR	fPI −28.6724 (− 2.3746)**	fM 1.9780 (2.6545)**	fFD −NCR 1.6345 (0.4134)	fX 57.0026 (3.6877)***	AWRNCR 3.7279 (1.1135)	N/F−NCR 0.0411 (3.4516)***		− 9.2623
Specification 3a R² – 0.5586 F – 6.9064	CRCVANCR	fPI −24.0184 (− 3.1241)***	fM 43.1031 (3.3243)***	fX 59.8208 (4.7136)***	AWRNCR 0.8959 (1.6426)	WT EPR (0.2111) (5.0363)***	FA/F−NCR −0.0004 (−0.8655)		−10.6836
Specification 3b R² – 0.8936 F –40.1974	LNCVANCR − 0.1627	LNfPI 5.8434 (− 2.3102)**	fM 3.2482 (2.1761)**	fX 0.7847 (1.2757)	LNWRNCR 0.0208 (2.7235)**	WT EPR 0.2171 (2.5763)**	LFA/F−NCR − 4.2968 (0.7588)		
Specification 3b R² – 0.8936 F –40.1974	LNCVANCR	LNfPI − 0.1627 (− 2.3102)**	fM 5.8434 (2.1761)**	fX 3.2482 (1.2757)	LNWRNCR 0.7847 (2.7235)**	WT EPR 0.0208 (2.5763)**	LFA/F−NCR 0.2171 (0.7588)		− 4.2968
Specification 4 R² – 0.2714 F – 2.6078	LNEMPNCR	AWRNCR 3.8497 (3.1793)***	WT EPR 0.02377 (1.2252)	K/L−NCR 0.0485 (1.1961)	F/N−NCR 133.6637 (2.0974)**				

Note : Figures in parentheses are t-values. *, **, *** denote significance at 10%, 5% and 1%, respectively.

Notations:
CRCVANCR – concentration ratio of Manila manufacturing value added; LNCVANCR – natural log of CRCVANCR; LNEMPNCR – natural log of the concentration ratio of Manila manufacturing employment; fPI – fraction of primary input; LNfPI – natural log of fPI; fM – fraction of imported input ; fFD−NCR – fraction of output to Manila final demand; fX – fraction of exported output? AWRNCR – Manila average rate; LNWRNCR – natural log of the ratio of AWRNCR to Philippine average wage rate excluding Manila; WT EPR – effective protection rate; FA/F−NCR – fixed assets/establishment for Manila; LFA/F−NCR – natural log of FA/F−NCR; N/F−NCR–employment/establishment of Manila; F/N−NCR – reciprocal of N/F−NCR; K/L−NCR – capital-labor ratio of Manila.

Table 4.8 Regression Results for CIR Concentration

R^2, F-statistics	Dependent Variable	Explanatory Variables						Constant
Specification 1 $R^2 - 0.1947$ F $- 2.1281$	CRCVACIR	fPI −29456976 (−0.7422)	fM 1955042 (0.6398)	fFD−CIR −3536150 (−0.4300)	AWRCIR −3905280 (−1.4198)	WT EPR −94427 (−0.5736)	FA/FCIR 896 (2.7168)**	30032416
Specification 2 $R^2 - 0.1947$ F $- 2.1025$	LNCVACIR	fPI −9.0184 (−1.2292)	fM 0.7819 (1.7629)*	fPD−CIR −0.9333 (−0.6428)	fX −2.9748 (−0.3027)	AWRNCR −0.9419 (−2.5830)**	N/F−CIR 0.0044 (0.5865)	8.9371
Specification 3 $R^2 - 0.2457$ F $- 1.1946$	CRESTCIR	fPI −28637584 (−0.3664)	fM 1847583 (0.5522)	fX 31649808 (−0.5329)	AWRCIR −183928 (−0.6413)	WT EPR −28994 (−0.1638)	K/L CIR 182510 (1.7129)*	21051568

Note: Figures in parenthesis are t-values. *, **, *** denote significance at 10%, 5% and 1%, respectively

Notations:
CRCVACIR – concentration ratio of CIR manufacturing value added; LNCVACIR – natural log of CRCVACIR; CRESTCIR – concentration ratio of CIR manufacturing establishment; fPI – fraction of primary input; fM – fraction of imported input; fFD−CIR – fraction of output to CIR final demand; fX – fraction of exported output; AWRCIR – CIR average wage rate; AWRNCR – Manila average wage rate; WT EPR – effective protection rate; FA/F−CIR – fixed assets/establishment for CIR; N/F−CIR – employment/establishment for CIR; K/L−CIR – CIR capital-labor ratio.

CHAPTER 5

SUMMARY AND CONCLUSION

The structural transformation of the Philippines from an agricultural to an industrializing economy and the concomitant shifts in the country's spatial pattern may be viewed as responses to changing policy regimes in addition to market forces. In the early agricultural phase of economic development, inertial historical forces, the relative abundance of good agricultural land and the pursuit of a primary product export-led growth spurred the development of the agricultural regions and agro-based population centers. Manila's prominence during the Colonial Period stemmed mainly from its being the country's major entrepot. While Manila tended to be parasitic on the small cities located in its immediate environs, urban centers located farther away appeared to fare better. Towards the end of the Colonial Period, the incipient industrialization of the economy was noticeable.

The alteration in policy environment during the postwar years consisted in the pursuit of rapid industrialization via import substitution, resulting in the relative neglect of agricultural development. This seems to largely account for the decline of the agricultural regions. Other contributory factors included the deteriorating terms of the export crops, a weakened agricultural base, high population density and resource constraints. The import substitution policy reinforced Manila's historical advantage as the country's premier city, consequently making it the center of industrialization. Manila thus emerged as the country's initial urban-industrial core attracting both the population and economic resources of the other regions. At this stage, Manila propelled 'the development of nearby urban centers apparently benefiting from agglomeration economies and spillover effects. The diffusion of the polarization phenomenon to the contiguous regions of Central Luzon and Southern Tagalog resulted in the formation of the broader Center Industrial Region.

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By 1975, the clustering of manufacturing industries in Manila had become pronounced. Exceptions were such resource-based industries as food manufacturing, leather and products, wood and products, paper and products, petroleum refineries, non-metal products and iron and steel. There was a noticeable resource-based industrial structure in the regions outside Manila. The concentration of manufacturing activity in Manila appeared to be well accounted for by materials orientation (backward industrial linkage and import content of firms), demand factors (forward industrial linkage and export orientation), labor supply (the presence of skilled workers in Manila) bias). By contrast, raw materials orientation (high primary input requirement) tends to favor location outside the center. However, this dispersal tendency seems to have been outweighed by the stronger forces associated with the import-substitution phase of the 50s through the mid-60s.

On the whole, the results show that Weberian location factors (materials orientation, market orientation and labor orientation) and some policy aspects adequately explain the spatial concentration of manufacturing activity. Important, too, was Manila's historical advantage in manufacturing activity. The subsequent widening of the initial manufacturing core into the broader Central Industrial Region may be attributed to the technological characteristics of manufacturing (industrial linkages, firm size and capital intensity). Such spread effects, however, tended to be weakened by the labor market economies in Manila and the export orientation of manufacturing firms.

Finally, the Frontier Region's demographic and economic performance suggests the short-lived impact of resettlement policies. That these regions through the years have failed to become fully integrated into the national economy despite their relatively ample resources points to such prerequisites for development as socio-political stability, social overhead capital and a more balanced agro-industrial growth strategy.

Appendix Note 1

LIST OF PROVINCES AND CITIES UNDER THE NEW REGIONAL CLASSIFICATION   (As of 22 September 1976)

	PROVINCE	Cities
REGION I ILOCOS	1. Abra 2. Benguet 3. Ilocos Norte 4. Ilocos Sur 5. La Union 6. Mt. Province 7. Pangasinan	1. Baguio City 2. Dagupan City 3. Laoag City 4. San Carlos City
REGION II CAGAYAN VALLEY	1. Batanes 2. Cagayan 3. Ifugao 4. Isabela 5. Kalinga-Apayao 6. Nueva-Vizcaya 7. Quirino	
REGION III CENTRAL LUZON	1. Bataan 2. Bulacan 3. Nueva Ecija 4. Pampanga 5. Tarlac 6. Zambales	1. Angeles City 2. Cabanatuan City 3. Olongapo City 4. Palayan City 5. San Jose City

Appendix Note 1 (cont'd.)

	MUNICIPALITIES	Cities
METRO MANILA AREA	1. Las Piñas	1. Quezon City
	2. Makati	2. Caloocan City
	3. Malabon	3. Manila
	4. Mandaluyong	4. Pasay City
	5. Marikina	
	6. Muntinglupa	
	7. Navotas	
	8. Parañaque	
	9. Pasig	
	10. Pateros	
	11. San Juan del Monte	
	12. Taguig	
	13. Valenzuela	

	PROVINCES	Cities
REGION IV-A	1. Batangas	1. Batangas City
SOUTHERN TAGALOG	2. Cavite	2. Cavite City
	3. Laguna	3. Lipa City
	4. Marinduque	4. Lucena City
	5. Occidental Mindoro	5. Puerto Princesa
	6. Oriental Mindoro	6. San Pablo City
	7. Palawan	7. Tagaytay City
	8. Quezon	8. Trece Martires
	9. Rizal	
	10. Romblon	
	11. Aurora (Sub-Province)	
REGION V	1. Albay	1. Iriga City
BICOL	2. Camarines Norte	2. Legaspi City
	3. Camarines Sur	3. Naga City
	4. Catanduanes	
	5. Masbate	
	6. Sorsogon	

Appendix Note 1 (cont'd.)

	PROVINCES	Cities
REGION VI **WESTERN VISAYAS**	1. Aklan 2. Antique 3. Guimaras (Sub- Province) 4. Iloilo 5. Negros Occidental 6. Capiz	1. Bacolod City 2. Bago 3. Cadiz 4. Iloilo 5. La Carlota 6. Roxas 7. San Carlos 8. Silay
REGION VII **CENTRAL VISAYAS**	1. Bohol 2. Cebu 3. Negros Oriental 4. Siquijor	1. Bais City 2. Canlaon 3. Cebu 4. Danao 5. Dumaguete 6. Lapu-lapu 7. Mandaue 8. Tagbilaran 9. Toledo
REGION VIII **EASTERN VISAYAS**	1. Eastern Samar 2. Northern Samar 3. Western Samar 4. Leyte 5. Southern Leyte 6. Biliran (Sub- Province)	1. Calbayog City 2. Ormoc 3. Tacloban
REGION IX **WESTERN MINDANAO**	1. Basilan 1. Sulu 3. Tawi-tawi 4. Zamboanga del Sur 5. Zamboanga del Norte	1. Pagadian City 2. Zamboanga 3. Dipolog 4. Dapitan

Appendix Note 1 (cont'd.)

	PROVINCES	Cities
REGION X NORTHERN MINDANAO	1. Agusan del Norte 2. Agusan del Sur 3. Bukidnon 4. Camiguin 5. Misamis Occidental 6. Misamis Oriental 7. Surigao del Norte	1. Butuan City 2. Cagayan de Oro 3. Gingoog 4. Oroquieta 5. Ozamis 6. Surigao 7. Tangub
REGION XI SOUTHERN MINDANAO	1. Davao del Norte 2. Davao del Sur 3. Davao Oriental 4. South Cotabato 5. Surigao del Sur	1. Davao City 2. General Santos
REGION XII CENTRAL MINDANAO	1. Lanao del Norte 2. Lanao del Sur 3. Maguindanao 4. North Cotabato 5. Sultan Kudarat	1. Cotabato City 2. Iligan 3. Marawi

Source: Presidential Commission on Reorganization PD 1 as amended by PD 742 and 879.

Appendix Note 2

The Various Definitions of Urban Areas in the Philippines*

1939 and 1948 Urban Definitions

1939 census took the entire population of some large cities (Cebu and Iloilo) as urban. Also, all administrative centers or poblaciones were considered urban irrespective of population sizes.

1948 census "urban population" included all persons living only in the poblaciones or central districts of chartered cities and provincial capitals plus the population living in all poblaciones in all municipalities and municipal districts.[1]

Limitations

1. Many of the poblaciones were small. During 1948, over half had fewer than 2,500 inhabitants.

2. Census definition included the entire population living in poblaciones, many of which were nearly as rural in character as the barrios.

3. There were some cities with wide administrative boundaries but embraced a large population living in essentially rural conditions, such as Davao City (2,211.3 sq. km.), Puerto Princesa (2,106.9 sq. km.), and Basilan City (1,327.2 sq. km.).

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*Taken from Mijares and Nazaret (1973).

[1] In every municipality or municipal district one barrio (poblacion) is the recognized seat of the local government and usually is a commercial center as well. *Poblacion* means not only a political-administrative territorial unit but also a "town" in which the town hall, church, schools, plaza, etc., are located. In addition, the central districts of chartered cities and provincial capitals are identified as poblaciones.

1956 Urban Definition

Philippine Sample Survey of Households (PSSH) of the Bureau of Census and Statistics (BCS) defined urban areas to include entire areas of chartered cities and poblaciones of the municipalities, including the provincial capitals and Metro Manila (Manila, Quezon City, Pasay City, Caloocan City, San Juan, Mandaluyong, Makati, Parañaque).

1963 Urban Definition

BCS criteria of urban places included:

1.   In their entirety, all municipal jurisdiction which, whether designated as chartered cities, provincial capitals or not, have a population density of at least 1,000 persons per square kilometer. (Include Quezon City, Baguio City, Cebu City, notwithstanding the minimum density rule.)

2.   For all other cities and municipalities with a population density of at least 500 persons per square kilometer, only the poblacion (regardless of population size) plus any barrio having at least 2,500 inhabitants and any barrio contiguous to the poblacion with at least 1,000 inhabitants.

3.   For all other cities and municipalities with a population of at least 20,000 persons, only the poblacion (regardless of population size) and all barrios having at least 2,500 inhabitants, contiguous to the poblacion, and

4.   All other poblaciones having a population of at least 2,500 persons.

Note that these criteria used population density and minimum size as factors in delineating urban areas.

1970 Urban Definition

Cognizant of the specific economic and social functions[2] performed by

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[2]The economic functions performed by city districts of poblaciones include the following: (a) centers of employment, (b) collecting and marketing points for the products of the surrounding areas, and (c) distribuitng centers for goods from the outside. As social centers, they (a) act as centers for the provision of educational, health, entertainment and cultural services and (b) serve as meeting places and points of assembly of the population.

urban areas- and the limitations of the population density and minimum-size criteria, the BCS modified the 1963 urban definition to include:

1. In their entirely, all cities and municipalities which have a population density of at least 1,000 persons per square km.

2. Poblaciones or central districts of municipalities and cities which have a population density of at least 500 persons per square km.

3. Poblaciones or central districts (not included in 1 and 2) regardless of population size which have the following:

a. street pattern (network of street in either a parallel or right angle orientation)

b. at least six establishments (commercial, manufacturing, recreational and/or personal services), and

c. at least three of the following:

    i. a town hall, church or chapel with religious service at least once a month

    ii. a public plaza, park or cemetery

    iii. a market place or building where trading activities are carried on at least once a week

    iv. a public building like a school, hospital, puericulture and health center or library.

4. Barrios having at least 1,000 inhabitants which meet the conditions set forth in (3) above and in which the occupation of the inhabitants is predominantly non-farming/fishing.

Remark

The density rule, minimum size and the administrative center status were used in the 1939, 1948, 1956 and 1963 definitions, while in the 1970 definition the density rule is combined with some urban characteristics.

Methodological Appendix

Localization Index: A Measure of the Sectoral Pattern of Economic Activity

The null hypothesis proposed by this index is expressed as:

$$\frac{e_i^k}{e_*^k} = \frac{e_i^*}{e_*^*}$$

where   e = number of persons employed
        * = summation sign
        i = region
        k = economic sector

Equation (1) states that the regional distribution of employment in sector is $\underline{k}$ the same as that region's employment contribution to all economic sectors. If the null hypothesis is true, then the LHS minus the RHS of (1) is zero. Hence, we can derive the coefficient of localization C_k for sector $\underline{k}$ as:

$$C_k = \frac{1}{2} \Sigma_i \left| \frac{e_i^k}{e_*^k} - \frac{e_i^*}{e_*^*} \right|$$

The localization index shows that if the whole of sector $\underline{k}$ locates only in region $\underline{i}$, then C_k approaches unity. Conversely, a low C_k value implies that ecônomic activity $\underline{k}$ tends to be spatially dispersed.

Coefficient of Specialization: A Measure of the Spatial Pattern of Economic Activity

The null hypothesis inherent in this index is described as:

$$\frac{e_i^k}{e_i^*} = \frac{e_*^k}{e_*^*}$$

Equation (3) states that the sectoral distribution of employment in region $\underline{i}$ is same as the sectoral distribution of employment for the whole economy. As in C_k, we can derive the coefficient of specialization C_i from (3).

$$C_i = \frac{1}{2} \Sigma_k \left| \frac{e_i^k}{e_i^*} - \frac{e_*^k}{e_*^*} \right|$$

This index demonstrates that if region i specializes in an economic activity $\underline{k}$, then C_i tends to unity. If a low value for C_i is obtained, then region $\underline{i}$ tends to engage in diversified economic activities.

Note that C_k and C_i are complementary measures of the spatial distribution of economic activity. Whereas C_k denotes which economic activity tends to be spatially concentrated or dispersed, C_i shows which region tends to specialize or diversity in economic pursuit.

Index of Locational Change: A Comparative Static Index

This index attempts to measure the degree to which the spatial distribution of an economic activity $\underline{k}$ has changed during a certain time period. The index of locational change $\underline{D}$ k is

This index attempts to measure the degree to which the spatial distribution of an economic activity $\underline{k}$ has changed during a certain time period. The index of locational change D_k is defined as follows:

$$D_k = \frac{1}{2} \Sigma_i \left| {}_t \frac{e_i^k}{e_*^k} - {}_{t+T} \frac{e_i^k}{e_*^k} \right|$$

where   t = initial time period
       t+T = subsequent time period after T years

Coefficient of Variation

Let $| i - j |$ = differential in economic characteristics between regions i and j

m $\quad$ = standard deviation of inter-regional differentials belonging to class M.

$\bar{x}_M$ $\quad$ = mean of inter-regional differentials belonging to class M.

M_1 $\quad$ = class belonging to broad intraregional differentials

$\quad$ = NCR vs. Southern Tagalog, . . ., Ilocos vs. Bicol, . . ., Cagayan Valley vs. Western Mindanao, . . .

M_2 $\quad$ = class belonging to broad interregional differentials
$\quad$ = CIR vs. TAR; CR vs. FR; TAR vs. FR

CV_M $\quad$ = coefficient of variation of class M

Note: The coefficient of variation is an indicator of regional homogeneity. It tests whether a class of regions possesses a high degree of internal uniformity. More importantly, it is independent of the unit of measurement (pp. 170-1, Nijkamp and Pelinck 1975).

Methodological Appendix

Table 1. Coefficient of Variation of Broad Intraregional Differentials, 1975 (in percent)

	CIR	TAR	FR
Severe			
Acceptable/Unacceptable			
Dwelling: Rural	48.13	68.77*	119.97***
Outmigration	44.49	55.31	119.56***
Agriculture CVA: Large	54.56	59.58	107.24***
Poverty Incidence: Urban	46.40	107.07***	64.32*
Moderately High			
Paid-in capital	35.86	94.51**	87.77**
DBP Loans — Agriculture	60.47	88.55**	62.04*
Skilled/Semi and Unskilled: Rural	35.42	81.69**	6.41
Lakes and Swamps Area	70.71*	80.58**	59.01
Moderately Low			
Road Inventory — Good	35.37	55.81	79.15*
Average GRDP	57.50	66.89*	78.12*
Poverty Incidence: Rural	36.45	54.31	75.83*
Mineral Resource Inventory	53.28	53.24	75.56*
Irrigated Land	70.71*	73.35*	59.49
Skilled/Semi and Unskilled: Urban	52.05	72.96*	51.90
Infrastructure Expenditures: '71-73	70.71*	53.90	68.81*
Forest Area	70.71*	65.09*	64.60*
Industrial CVA	70.46*	60.27*	61.97*
Population Density	37.93	52.24	69.16*
Service CVA	69.11*	68.38*	66.66*
DBP Loans — Service	68.83*	56.88	36.02
Gainful/Non-gainful Employment:			
Service	68.42*	49.53	57.33
Road Inventory — Bad	56.91	67.17	52.09
Motor Vehicles	51.29	59.69	66.90*
Road Inventory — Fair	66.78*	66.43*	56.18
In-migration	44.03	57.77	66.12*
Urban Population	65.89*	57.13	55.43
Persons Engaged in Agriculture	37.17	56.15	65.38*
Regional Population	35.37	9.85	63.52*
Rural farm density	41.87	60.15*	53.42

*** — over 100.00   ** — 80.00 — 99.99   * — 60.00 — 79.99
CIR (Central Industrial Region) — Manila, Central Luzon and Southern Tagalog; TAR (Traditional Agricultural Region) — Ilocos, Bicol and the Visayas; FR (Frontier Region) — Cagayan Valley and Mindanao.

Methodological Appendix

Table 2. Coefficient of Variation of Broad Interregional Differentials, 1975 (in percent)

	CIR vs. TAR	CIR vs. FR	FR vs. TAR
Severe			
Agriculture CVA: Large	76.13*	155.92***	149.91***
Service CVA	131.36***	129.30***	77.06*
DBP Loans: Service	82.29**	128.58***	129.72***
Acceptable/Unacceptable			
Dwelling-Urban	103.81***	106.62***	74.91*
Paid-in Capital	70.85*	70.23*	105.62***
Moderately High			
Outmigration	95.32**	88.57**	63.81*
Mineral Resource Inventory	70.10*	94.74**	92.17**
DBP Loans — Industrial	93.58**	93.82**	67.75*
DBP Loans — Agricultural	36.21	49.43	92.12**
Motor Vehicles	90.90**	81.01**	71.02*
Industrial CVA	90.59**	79.56*	60.16*
Average GRDP	90.46**	81.32**	86.95**
Inmigration	68.43*	76.62*	87.14
Poverty Incidence: Urban	87.06**	71.29*	67.55
Population Density	86.36**	65.69*	39.55
Skilled/Semi and Unskilled:			
Rural	46.43	46.89	86.11**
Gainful/Non-gainful Employment:			
Rural	82.94**	64.19*	75.66*
Rural farm density	81.26**	76.23*	78.31*
Skilled/Semi and Unskilled:			
Urban	46.43	46.89	86.11**
Lakes and Swams Area	80.50**	67.93*	64.51*
Moderately Low			
Forest Area	79.51*	50.02	56.69
Road Inventory — Fair	62.70*	68.83*	77.92*
Gainful/Non-gainful Employment:			
Urban	55.28	61.47*	77.57*
Infrastructure Expenditure:			
71-73	11.43	12.34	74.51*
Road Inventory — Bad	65.90*	64.48*	72.21*
Road Inventory — Good	68.68*	69.35*	71.87*
Persons Engaged in Agriculture	67.40*	70.76*	54.32
Farmland Area	60.05	58.97	70.03*
Poverty Incidence: Rural	66.60*	66.13*	52.46

*** — over 100.000   ** — 80.00 — 99.99   * — 60.00 — 79.99
CIR (Central Industrial Region) — Manila, Central Luzon and Southern Tagalog; TAR (Traditional Agricultural Region) — Ilocos, Bicol and the Visayas; FR (Frontier Region) — Cagayan Valley and Mindanao.

Notations for the Regression Equation

Dependent Variables

PRCVANCR — proportion of Manila manufacturing value added to total manufacturing value added

PRCVACIR — proportion of CIR manufacturing value added to total manufacturing value added

CRCVANCR — concentration ratio of Manila manufacturing value added defined as $p/(1-p)$ where p = PRCVANCR

LNCVANCR — natural logarithm of CRCVANCR

CRCVACIR — concentration ratio of CIR manufacturing value added defined as $p/(1-p)$ where p = PRCVACIR

LNCVACIR — natural logarithm of CRCVACIR

PREMPNCR — proportion of Manila manufacturing employment to total manufacturing employment

PREMPCIR — proportion of CIR manufacturing employment to total manufacturing employment

CREMPNCR — concentration ratio of Manila manufacturing employment defined as $p/(1-p)$ where p = PREMPNCR

CREMPNCIR — concentration ratio of CIR manufacturing employment defined as $p/(1-p)$ where p = PREMPCIR

PRESTNCR — proportion of Manila manufacturing establishments to total manufacturing establishments

PRESTCIR — proportion of CIR manufacturing establishments to total manufacturing establishments

CRESTNCR — concentration ratio of Manila manufacturing establishments defined as $p/(1-p)$ where p = PRESTNCR

CREST CIR — concentration ratio of CIR manufacturing establishments defined as P/(1-p) where P = PREST CIR

Explanatory Variables

WT EPR — weighted effective protection rate

fM — import dependence of a manufacturing industry. or fraction of imported materials

fX — fraction of exported output

fPI — fraction of material inputs from primary industries

LNfPI — natural logarithm of fPI

fFD-NCR — fraction of output to Manila final demand

fFD-CIR — fraction of output to CIR final demand

AWR-NCR — Manila average wage rate or ratio of AWR-NCR to the Philippine average wage rate excluding Manila.

LWR-NCR — natural logarithm of the AWR-NCR to the Philippine average wage rate excluding Manila

AWR-CIR — CIR average wage rate

K/L-NCR — Manila's capital-labor ratio

K/L-CIR — CIR capital-labor ratio

N/F-NCR — employment/establishments for Manila

LN/F-NCR — natural logarithm of N/F-NCR

N/F-CIR — employment/establishments for CIR

FA/F-NCR — fixed assets/establishment for Manila

LFA/F-NCR   —   natural logarithm of FA/F-NCR

FA/F-CIR   —   fixed assets/establishment for CIR

Computational Methods

1.   WT EPR: Tan (1979) presents EPR estimates using the 1974 Input-Output Table at the 4-digit classification level. The weighting procedure consists of multiplying these estimates with the 1975 manufacturing census value added from the published 5-digit level to the 4-digit level. The weighted values for the EPRs at the 3-digit level were then obtained by adding the 4-digit weighted values appropriately.

Define:

k =   1, 2 . . ., manufacturing industries classified at the 4-digit level

j =   1, 2, . . ., manufacturing industries classified at the 3-digit level

$(k)_j$ = j; the aggregation of the 4-digit manufacturing industries belong to a specific 3-digit manufacturing industry j.

The weighting procedure consists of 2 steps:

$$EPR_k \text{ x } \frac{VA_k}{(\Sigma \text{ } VA_k)_j} = WT \text{ } EPR_k \qquad (1)$$

$$(\Sigma \text{ } WT \text{ } EPR_k)_j = WT \text{ } EPR_j \qquad (2)$$

where: EPR_k =   1974 EPR estimate of $\underline{k}$

VA_k =   1975 census value added of $\underline{k}$

$$(\Sigma VA_k)_j \;=\; \text{total census value added of all}$$
$$\underline{k}\text{'s belonging to } \underline{j}$$

$$WT\ EPR_k \;=\; \text{weighted EPR of } \underline{k}$$

$$(\Sigma WT\ EPR_k)_j \;=\; \text{sum of the weighted EPRs of}$$
$$\text{all } \underline{k}\text{'s belong to } \underline{j}$$

$$WT\ EPR \;=\; \text{weighted EPR of } \underline{j}$$

2. a. Import Dependence: fM

Define:

j = produced good

i = material input (total p + q + r) with
p inputs originating from agriculture,
forestry, and fishing; q inputs coming from
mining industries; and r inputs supplied by
manufacturing industries

M/P = proportion of imports to total production

C_{ij} = proportion of input i used in he production
of a unit of j

M_j = import content of material inputs used in
industry j

T_j = total material inputs (p + q + r) used in
industry j

Then:

$$M_j = i{=}p{+}q{+}r \; \S \; [\,(M/P)_i \times C_{ij}\,]$$
$$fM_j = \frac{M_j}{T_j}$$

b. Fraction of imported material input: fM*

Derived from the 1969 input-output table.

3.   Fraction of exported output, fx

$$fx_j \quad = \quad \frac{\text{Export of j}}{\text{Total output of j}}$$

4.   Fraction of material inputs from primary industries, fPI

$$fPI_j \quad = \quad \sum_{i=p+q} \quad c_{ij}$$

5a.   Fraction of output to Manila final demand: fFD-NCR

$$fFd{-}NCR_j \quad = \quad \left[\frac{C + I + G}{\text{Total Output}} \right]_j \quad x \quad \left[\frac{\text{NCR Consumption}}{\text{Total Consumption}} \right]_j$$

where   C + I + G = final demand

> Consumption j = obtained from the National Transport System Study's consumption data for manufactured good j

5b.   Fraction of output to CIR final demand; fFD-CIR

$$fFD\text{-}CIR_j = \frac{C + I + G}{\text{Total Output j}} \quad x \quad \frac{\text{CIR Consumption}}{\text{Total Consumption}} \quad j$$

6.   Average Wage Rate: $\dfrac{\text{Wages and Salaries}}{\text{No. of Persons Employed}}$

7.   Average Size of Firms:

    a. $\dfrac{\text{Census Value Added}}{\text{No. of Establishments}}$

    b. $\dfrac{\text{No. of Persons Employed}}{\text{No. of Establishments}}$

    c. $\dfrac{\text{Book Value of Fixed Assets}}{\text{No. of Establishments}}$

8.   Factor Intensity: $\dfrac{\text{Book Value of Fixed Assets}}{\text{No. of Persons Employed}}$

9. Factor Productivity:

Capital productivity: $\dfrac{\text{Census Value Added}}{\text{Book Value of Fixed Assets}}$

Labor productivity: $\dfrac{\text{Census Value added}}{\text{No. of Persons Employed}}$

Table 1. Sectoral Distribution of Output, 1903-75 (in percent)

	1903	1918	1939	1948	1961	1967	1972	1975
Agriculture	54.96	60.41	46.60			21.05	20.23	20.06
Forestry/Logging						4.38	3.59	1.85
Fisheries						4.17	4.78	4.68
AGRICULTURAL	54.96	60.41	46.60	38.60	34.70	29.60	28.60	26.59
Mining & Quarrying	0.04	0.62	8.01	0.72	1.27	1.51	2.40	2.09
Manufacturing	13.00	12.29	21.20	9.62	17.21	22.33	23.88	24.27
Construction				13.48	4.27	4.48	4.00	5.96
Utilities	0.33	0.67	1.62	0.80	0.59	0.63	0.83	0.91
INDUSTRIAL	13.37	13.58	30.83	24.62	23.34	28.95	31.11	33.23
Transport, Communication & Storage	0.29	1.35	5.89	2.52	3.50	3.82	4.31	4.79
Service/Commerce	31.38	24.66	16.68	34.26	38.46	37.63	35.98	35.39
SERVICE	31.67	26.01	22.57	36.78	41.96	41.45	40.29	40.18
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
TOTAL	(243.8[a])	(487.5[a])	(703.9[a])	(12,933[b])	(28,490[b])	(44,093[c])	(56,075[c])	(68,122[c])

Note: Figures in parentheses are expressed in millions of pesos.

[a]Gross Value Added at constant 1939 prices.

[d]Net Domestic Product at constant 1972 prices.

[c]Gross Value Added at constant 1972 prices.

Sources: Hooley (1966), Tables 1 and 3; National Economic and Development Authority (1978).

Table 2. Regional Share of Establishments by Broad Economic Activity 1903-1975 (in percent)

Region	1 9 0 3				1 9 1 8			
	Total	Agriculture	Industrial	Service	Total	Agriculture	Industrial	Service
Central Industrial	25.06	24.94	55.28	27.44	24.53	23.72	36.88	26.52
NCR	1.60	1.48	29.70	4.88	1.69	1.57	3.51	5.02
Central Luzon	10.11	10.10	14.65	10.98	9.16	9.18	8.90	10.17
Southern Tagalog	13.35	13.36	10.93	11.58	13.68	12.97	24.47	11.33
Traditional Agricultural	66.37	66.46	42.51	59.75	66.70	67.15	59.87	58.42
Ilocos	23.61	23.68	5.01	13.41	27.42	28.56	10.44	13.35
Bicol	7.76	7.76	5.53	7.93	8.29	8.33	7.68	8.15
Western Visayas	9.83	9.78	23.56	14.02	8.77	8.23	16.76	13.04
Central Visayas	17.56	17.60	7.31	15.24	14.72	14.84	12.93	14.39
Eastern Visayas	7.61	7.64	1.10	9.15	7.50	7.19	12.06	9.49
Frontier	8.57	8.60	2.21	12.81	8.77	9.13	3.25	15.06
Cagayan Valley	3.88	3.90	0.46	4.27	4.28	4.48	1.27	4.35
Western Mindanao	0.49	0.48	1.17	1.83	0.55	0.56	0.34	3.06
Northern Mindanao	4.04	4.06	0.58	3.05	3.46	3.59	1.41	3.49
Southern Mindanao	0.16	0.16		1.83	0.33	0.34	0.15	2.02
Central Mindanao	0.00	0.00		1.83	0.15	0.16	0.08	2.14
Philippines	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	(818,873)	(815,453)	(3,256)	(164)	(2,086,635)	(1,955,276)	(129,726)	(1,633)

Table 2 (Con't.)

Region	1 9 3 9				1 9 4 8			
	Total	Agriculture	Industrial	Service	Total	Agriculture	Industrial	Service
Central Industrial	24.31	24.64	14.11	29.51	22.64	20.98	37.52	39.33
NCR	1.65	0.95	3.01	7.90	2.33	0.60	16.49	20.02
Central Luzon	10.44	11.17	4.41	7.83	8.74	8.76	8.78	8.46
Southern Tagalog	12.22	12.52	6.69	13.78	11.57	11.62	12.25	10.85
Traditional Agricultural	57.09	56.24	69.56	55.50	56.84	58.06	48.09	43.98
Ilocos	13.82	13.38	24.86	9.05	13.08	13.61	9.93	7.37
Bicol	9.01	8.56	11.71	11.42	8.77	8.86	5.82	8.21
Western Visayas	9.57	10.13	4.30	8.13	10.97	11.11	11.84	9.11
Central Visayas	13.87	13.97	12.37	14.18	14.10	14.32	10.88	12.14
Eastern Visayas	10.82	10.20	16.32	12.72	9.92	10.16	9.62	7.15
Frontier	18.60	19.12	16.33	14.99	20.52	20.96	14.39	16.69
Cagayan Valley	4.32	4.72	0.78	3.05	5.09	5.29	3.47	3.03
Western Mindanao	4.65	4.13	12.82	3.24	3.15	3.13	2.98	3.53
Northern Mindanao	5.53	5.82	2.05	5.33	5.67	5.74	3.99	5.14
Southern Mindanao	1.45	1.53	0.30	1.63	2.17	2.15	1.90	2.51
Central Mindanao	2.65	2.92	0.38	1.74	4.44	4.65	2.05	2.48
Philippines	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	(2,036,388)	(1,733,231)	(139,845)	(163,312)	(1,839,077)	(1,669,772)	(29,749)	(139,556)

Table 2 (Con't.)

Region	1960/61				1967		1971/72				1975	
	Total	Agriculture	Industrial	Service	Industrial	Service	Total	Agriculture	Industrial	Service	Industrial	Service
Central Industrial	22.13	19.53	47.91	49.62	42.92	38.73	22.97	19.12	42.67	41.37	43.01	42.84
NCR	3.08	0.51	27.38	30.65	21.99	14.79	3.54	0.53	20.55	17.69	19.17	17.10
Central Luzon	7.98	7.93	8.93	8.31	9.95	12.01	7.98	7.30	10.52	11.37	10.41	12.61
Southern Tagalog	11.07	11.09	11.60	10.66	10.98	11.93	11.45	11.29	11.60	12.31	13.43	13.13
Traditional Agricultural	48.88	50.39	35.26	32.61	36.05	39.62	43.50	45.19	35.17	35.39	35.75	32.33
Ilocos	11.09	11.34	9.50	8.34	8.87	7.64	8.96	9.11	10.50	7.90	10.70	8.21
Bicol	8.85	9.08	5.90	6.51	5.41	6.17	9.07	9.52	6.59	6.93	7.27	7.09
Western Visayas	9.53	9.80	7.35	6.46	10.80	8.70	8.15	8.03	9.80	8.60	9.09	6.25
Central Visayas	10.67	10.90	7.97	8.45	7.50	9.02	9.28	9.69	5.27	7.58	5.68	6.33
Eastern Visayas	8.74	9.27	4.54	2.85	3.47	8.09	8.04	8.84	3.01	4.38	3.01	4.45
Frontier	28.99	30.08	16.83	17.77	21.03	21.65	33.53	35.69	22.16	23.24	21.24	24.83
Cagayan Valley	5.54	5.76	3.32	3.19	3.29	3.40	6.50	7.09	4.35	3.56	4.62	4.66
Western Mindanao	5.04	5.26	2.24	2.85	5.25	4.11	6.15	6.67	2.86	3.75	2.77	4.04
Northern Mindanao	5.54	5.71	3.38	3.90	3.50	4.97	6.70	6.99	4.44	5.43	4.39	5.81
Southern Mindanao	5.07	5.15	3.62	4.39	5.57	4.54	7.13	7.20	6.74	6.81	6.02	6.47
Central Mindanao	7.80	8.20	4.27	3.44	3.42	4.63	7.05	7.74	3.77	3.69	3.44	3.85
Philippines	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	(2,392,963)	(2,184,579)	(39,387)	(169,003)	(47,891)	(263,632)	(3,186,538)	(2,640,124)	(69,745)	(476,669)	(79,316)	(421,866)

Note: Figures in parentheses denote the number of establishments.

NCR (National Capital Region) includes Manila and Rizal. Agricultural establishment refers to the numbers of farms. Non-agricultural establishments for 1918 and 1939 include household industries while from 1948 thereafter, non-agricultural establishment pertains to an economic unit which engages under a single ownership or control in one or predominantly one kind of economic activity at a fixed single physical location with assets in its premises during its operation.

Sources: Agricultural Census (1903, 1918, 1939, 1948, 1960 and 1971),
Economic Census (1903, 1918, 1939, 1948, 1961, 1967, 1972), 1975 Census of Lstablishments (Manufacturing) and unpublished NCSO data on non-agricultural activity, 1975.

Table 3. Regional Employment Share by Broad Economic Activity,
1903-1975 (in percent)

Region	1 9 0 3				1 9 1 8			
	Total	Agriculture	Industrial	Commerce	Total	Agriculture	Industrial	Commerce
Central Industrial	32.09	27.34	29.54	42.31	28.80	22.57	29.63	34.03
NCR	6.75	1.19	6.48	15.54	5.89	1.58	7.53	9.18
Central Luzon	12.19	12.26	9.39	15.34	10.84	9.93	8.09	12.45
Southern Tagalog	13.15	13.89	13.67	11.43	12.07	11.06	14.01	12.40
Traditional Agricultural	60.21	59.74	67.14	52.85	61.35	64.62	66.41	57.00
Ilocos	12.84	15.44	15.12	6.22	13.35	14.04	13.28	12.77
Bicol	8.50	5.89	8.38	12.60	8.76	8.11	10.08	8.95
Western Visayas	15.88	11.82	19.27	18.10	13.70	12.50	19.50	13.06
Central Visayas	13.81	15.36	14.29	10.89	15.41	17.81	16.19	13.07
Eastern Visayas	9.18	11.23	10.08	5.04	10.13	12.16	7.36	9.15
Frontier	7.70	12.92	3.32	4.84	9.85	12.81	3.96	8.97
Cagayan Valley	3.91	7.57	0.80	1.98	3.56	5.52	0.62	2.68
Western Mindanao	0.50	0.66	0.26	0.54	1.15	1.21	0.40	1.32
Northern Mindanao	2.99	4.30	2.13	1.98	3.96	4.50	2.44	3.93
Southern Mindanao	0.26	0.37	0.11	0.26	0.82	1.16	0.34	0.66
Central Mindanao	0.04	0.02	0.02	0.08	0.36	0.42	0.16	0.38
Philippines	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	(3,037,880)	(1,254,063)	(959,670)	(824,147)	(6,432,855)	(2,601,299)	(865,698)	(2,965,858)

Table 3 (Con't.)

Region	1 9 3 9				1 9 4 8				1960/61			
	Total	Agriculture	Industrial	Service	Total	Agriculture	Industrial	Service	Total	Agriculture	Industrial	Service
Central Industrial	22.84	20.23	29.11	35.37	23.66	18.68	44.83	45.59	24.11	19.92	64.83	56.15
NCR	4.25	0.99	14.65	17.93	6.18	0.84	27.21	30.27	5.38	0.63	50.87	42.18
Central Luzon	8.37	8.90	6.42	6.30	7.91	8.07	7.92	6.97	8.22	8.42	7.25	6.10
Southern Tagalog	10.22	10.34	8.04	11.14	9.57	9.77	9.70	8.35	10.51	10.87	6.71	7.87
Traditional Agricultural	57.47	58.55	58.35	49.57	54.67	58.11	42.29	38.70	47.74	50.24	23.75	28.35
Ilocos	12.62	12.91	17.08	7.14	10.94	11.81	9.17	6.43	10.68	11.22	6.13	6.10
Bicol	8.81	8.21	12.93	9.61	8.43	8.74	4.93	7.83	8.88	9.43	2.76	5.27
Western Visayas	12.71	13.97	7.25	8.61	13.10	14.33	9.88	6.99	9.76	10.14	6.98	6.25
Central Visayas	13.00	13.31	9.68	13.56	12.70	13.24	11.53	9.93	10.29	10.62	6.24	8.26
Eastern Visayas	10.33	10.15	11.41	10.65	9.50	9.99	6.78	7.52	8.13	8.83	1.64	2.47
Frontier	19.69	21.22	12.54	15.06	21.67	23.21	12.88	15.71	28.15	29.84	11.42	15.50
Cagayan Valley	4.25	4.82	0.95	3.05	4.31	4.71	2.04	2.73	5.06	5.44	1.42	2.16
Western Mindanao	4.81	4.71	7.91	3.01	3.87	4.14	1.57	3.10	4.95	5.27	1.61	2.65
Northern Mindanao	5.04	5.32	2.67	5.00	5.74	5.88	6.28	4.77	6.22	6.55	3.31	3.54
Southern Mindanao	2.21	2.48	0.41	2.14	2.60	2.54	1.62	3.30	4.12	4.21	2.28	4.15
Central Mindanao	3.38	3.89	0.60	1.86	5.15	5.94	1.37	1.81	7.80	8.37	2.80	3.00
Philippines	100.00 (4,768,423)	100.00 (3,764,849)	100.00 (442,485)	100.00 (561,089)	100.00 (3,888,930)	100.00 (3,163,706)	100.00 (186,444)	100.00 (538,780)	100.00 (9,526,723)	100.00 (8,524,698)	100.00 (417,872)	100.00 (584,153)

Table 3 (Con't.)

Region	1967		1971/72				1975	
	Industrial	Service	Total	Agriculture	Industrial	Service	Industrial	Service
Central Industrial	62.07	48.11	23.75	18.46	61.38	50.00	63.66	52.15
NCR	49.04	30.59	5.91	0.46	45.76	32.43	47.42	33.08
Central Luzon	7.06	8.77	8.79	8.77	8.81	8.90	7.17	9.75
Southern Tagalog	5.97	8.75	9.05	9.23	6.81	8.67	9.07	9.32
Traditional Agricultural	22.09	32.98	43.56	46.37	22.07	30.28	22.18	27.62
Ilocos	5.11	6.31	9.42	10.04	5.64	5.99	5.58	6.05
Bicol	2.50	5.10	9.37	10.15	3.01	5.86	3.26	5.14
Western Visayas	6.94	7.74	9.71	10.18	6.89	7.15	5.81	6.59
Central Visayas	6.23	8.53	6.83	6.83	5.23	7.63	6.18	6.45
Eastern Visayas	1.31	5.30	8.23	9.17	1.30	3.65	1.35	3.39
Frontier	15.84	18.91	32.69	35.17	16.55	19.72	14.16	20.23
Cagayan Valley	2.01	2.30	8.53	9.61	1.86	2.74	2.28	2.81
Western Mindanao	1.36	3.37	4.90	5.32	1.99	2.80	1.42	3.31
Northern Mindanao	3.86	4.68	5.22	5.40	3.15	4.73	3.81	5.13
Southern Mindanao	5.30	4.81	6.84	6.91	6.67	6.30	4.31	5.70
Central Mindanao	3.31	3.75	7.20	7.93	2.88	3.15	2.34	3.28
Philippines	100.00 (591,732)	100.00 (953,115)	100.00 (14,927,644)	100.00 (12,698,488)	100.00 (754,364)	100.00 (1,474,792)	100.00 (874,933)	100.00 (1,329,858)

Note: Figures in parentheses denote the number of employed workers. NCR (National Capital Region) includes Manila and Rizal.
From 1939 thereafter, business establishments instead of households became the reporting unit. Hence, the drop in number of employed workers.

Sources: Agricultural Census (1903, 1918, 1939, 1948, 1960 and 1971), Economic Census (1903, 1918, 1939, 1948, 1961, 1967 and 1972), 1975 Census of Establishments (Manufacturing) and unpublished NCSO data on Non-Agricultural Activity, 1975.

APPENDIX
Table 4. Regional Share of Total, Urban and Rural Population, 1903-80
(in percent)

Region	1903			1918			1939			1948		
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
Central Industrial	27.09	45.68	24.20	26.48	39.62	24.11	27.35	38.84	24.39	28.55	40.85	24.66
NCR	4.86	32.05	0.64	5.00	29.31	0.62	6.68	30.37	0.59	8.62	34.00	0.60
Central Luzon	10.78	0.69	12.35	10.16	0.97	11.81	9.89	3.13	11.62	9.64	2.58	11.87
Southern Tagalog	11.45	12.94	11.21	11.32	9.34	11.68	10.78	5.34	12.18	10.29	4.27	12.19
Traditional Agricultural	59.63	52.42	60.75	58.43	53.42	59.34	54.15	46.19	56.20	52.12	42.16	55.27
Ilocos	13.70	9.40	14.37	13.34	7.59	14.38	10.80	4.75	12.36	10.11	4.13	11.99
Bicol	8.43	7.59	8.56	8.14	6.86	8.37	8.42	5.69	9.12	8.66	6.18	9.45
Western Visayas	14.19	16.48	13.84	13.06	18.72	12.04	13.58	18.26	12.38	13.16	16.66	12.05
Central Visayas	14.73	10.77	15.34	14.41	10.59	15.10	12.21	10.15	12.74	11.02	8.79	11.73
Eastern Visayas	8.58	8.18	8.64	9.48	9.66	9.45	9.14	7.34	9.60	9.17	6.40	10.05
Frontier	13.28	1.90	15.05	15.09	6.96	16.55	18.50	14.97	19.41	19.33	16.99	20.07
Cagayan Valley	4.50		5.20	4.36		5.15	4.47		5.62	4.03		5.30
Western Mindanao	2.47		2.85	3.11	1.02	3.48	3.77	6.40	3.10	3.97	5.51	3.48
Northern Mindanao	2.97	1.07	3.26	3.48	1.78	3.78	4.41	1.63	5.13	4.79	1.18	5.94
Southern Mindanao	1.81	0.83	1.97	2.00	2.23	1.96	2.82	4.55	2.37	3.00	5.88	2.09
Central Mindanao	1.53		1.77	2.14	1.93	2.18	3.03	2.39	3.19	3.54	4.42	3.26
Philippines	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	(7,635)	(1,026)	(6,609)	(10,314)	(1,573)	(8,741)	(16,000)	(3,272)	(12,728)	(19,234)	(4,615)	(14,619)

Note: An urban place refers to a chartered city or municipality which exceeds some mini-
mum population size and the average population density. The minimum population
sizes are: 5,000 (for 1903 and 1918), 17,000 (for 1939), and 40,000 (for 1948-75).
Figure in parentheses refer to thousand population

Table 4 (Cont.)

Region	1960			1970			1975			1980[a]		
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
Central Industrial	29.79	46.32	23.18	32.82	51.80	22.14	34.22	52.60	21.90	35.13	52.09	21.28
NCR	9.58	31.85	0.68	11.38	30.43	0.66	12.44	30.17	0.56	13.52	29.21	0.70
Central Luzon	9.48	7.91	10.10	10.13	11.77	9.20	10.37	12.60	8.87	10.00	12.19	8.22
Southern Tagalog	10.73	6.56	12.40	11.31	9.60	12.28	11.41	9.83	12.47	11.61	10.69	12.36
Traditional Agricultural	45.89	37.42	49.29	40.86	31.75	45.99	39.45	31.30	44.91	37.87	29.92	44.36
Ilocos	8.96	6.04	10.13	8.15	5.53	9.63	7.77	5.49	9.30	7.40	4.67	9.62
Bicol	8.72	7.08	9.38	8.09	7.20	8.59	7.59	6.43	8.37	7.23	6.59	7.76
Western Visayas	11.36	14.64	10.06	9.86	8.67	10.53	9.86	10.07	9.71	9.46	9.10	9.75
Central Visayas	9.31	6.95	10.26	8.27	7.57	8.66	8.05	6.74	8.93	7.91	7.08	8.59
Eastern Visayas	7.54	2.71	9.46	6.49	2.78	8.58	6.18	2.57	8.60	5.87	2.48	8.64
Frontier	24.32	16.26	27.53	26.32	16.45	31.87	26.33	16.10	33.19	27.00	17.99	34.36
Cagayan Valley	4.44	0.56	5.99	4.61	1.11	6.58	4.59	1.21	6.86	4.63	1.57	7.14
Western Mindanao	4.99	4.25	5.28	5.10	2.61	6.49	4.87	2.13	6.70	5.11	2.75	7.03
Northern Mindanao	4.79	3.17	5.44	5.32	3.34	6.44	5.50	3.85	6.61	5.73	3.76	7.34
Southern Mindanao	4.99	5.67	4.72	6.00	5.26	6.41	6.45	5.43	7.13	6.91	6.16	7.53
Central Mindanao	5.11	2.61	6.10	5.29	4.13	5.95	4.92	3.48	5.89	4.62	3.75	5.32
Philippines	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	(27,088)	(7,731)	(19,356)	(36,684)	(13,211)	(23,474)	(42,071)	(16,878)	(25,192)	(47,914)	(21,544)	(26,370)

[a] 1980 Preliminary Report, Census of Population.

Sources: Population Census (1903, 1918, 1939, 1948, 1960, 1970 and 1975).

Table 5. Regional Growth Rates of Total, Urban and Rural Population, 1903-80
(in percent)

Region	1903-18			1918-39			1939-48		
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
Central Industrial	1.77	1.82	1.76	2.38	3.63	1.95	2.36	4.13	1.99
NCR and Rizal	2.10	2.16	1.66	3.71	3.91	1.98	4.61	4. 0	1.72
Central Luzon	1.53	4.95	1.50	2.08	9.97	1.81	1.64	1.98	1.65
Southern Tagalog	1.85	0.64	2.04	1.97	0.87	2.11	1.42	1.25	1.44
Traditional Agricultural	1.79	2.86	1.63	1.83	2.98	1.62	1.91	2.62	1.26
Ilocos	1.75	1.35	1.79	1.15	1.33	1.13	1.21	2.12	1.12
Bicol	1.69	2.08	1.64	2.39	2.76	2.33	2.21	4.48	1.80
Western Visayas	1.39	3.57	0.89	2.42	3.60	2.04	1.57	2.62	1.15
Central Visayas	1.78	2.63	1.68	1.38	3.52	1.04	0.84	2.06	0.57
Eastern Visayas	2.56	3.82	2.35	2.03	2.31	1.98	1.94	2.14	1.90
Frontier	2.74	11.52	2.39	3.27	7.78	2.71	2.37	4.94	1.78
Cagayan Valley	1.72	—	1.72	2.35	—	2.35	0.82	—	0.82
Western Mindanao	3.40	—	3.06	3.22	13.73	1.30	2.44	2.01	2.66
Northern Mindanao	2.95	6.13	2.74	3.44	3.25	3.46	2.77	0.21	2.96
Southern Mindanao	2.55	9.33	1.76	3.98	7.49	2.87	2.58	6.35	0.15
Central Mindanao	4.09	—	3.12	4.01	4.85	3.86	3.56	10.30	1.67
Philippines	1.92	2.74	1.78	2.22	3.73	1.90	1.91	3.59	1.43

Table 5 (Cont.)

Region	1948-60			1960-70			1970-75			1975-80[a]		
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
Central Industrial	3.44	5.80	1.94	3.99	6.54	1.45	3.65	5.36	1.21	3.18	4.80	0.34
NCR and Rizal	4.02	4.04	3.68	4.76	4.91	1.60	4.63	4.85	−1.82	4.35	4.32	5.41
Central Luzon	2.90	15.46	1.06	3.68	9.56	0.97	3.27	6.48	0.69	1.91	4.31	−0.60
Southern Tagalog	3.44	8.67	2.65	3.54	9.37	1.81	2.96	5.53	1.74	2.99	6.79	0.74
Traditional Agricultural	1.91	3.55	1.47	1.85	3.70	1.22	2.06	4.74	0.94	1.80	4.06	0.67
Ilocos	1.97	8.20	0.99	2.06	4.46	1.40	1.80	4.88	0.73	1.62	1.69	1.60
Bicol	3.12	5.89	2.43	2.25	5.56	1.03	1.49	2.70	0.90	1.66	5.52	−0.59
Western Visayas	1.74	3.46	0.88	1.59	0.13	2.37	2.77	8.23	−0.21	1.79	2.89	1.00
Central Visayas	1.54	2.50	1.30	1.82	6.27	0.23	2.24	2.62	2.05	2.27	6.04	0.13
Eastern Visayas	1.29	−2.98	1.96	1.52	5.67	0.93	1.77	3.38	1.47	1.59	4.26	1.02
Frontier	5.15	4.24	5.38	3.81	5.50	3.38	2.80	4.59	2.26	3.15	7.35	1.62
Cagayan Valley	3.93	—	3.60	3.40	12.76	2.85	2.72	6.88	2.28	2.81	10.52	1.72
Western Mindanao	5.15	2.29	6.33	3.23	0.44	4.00	1.85	0.88	2.06	3.62	10.47	1.90
Northern Mindanao	3.05	14.16	1.71	4.08	5.93	3.61	3.46	8.07	1.95	3.48	4.55	3.06
Southern Mindanao	7.77	4.31	10.09	4.88	4.61	5.00	4.30	5.70	3.62	4.05	7.65	2.00
Central Mindanao	6.43	−0.08	8.30	3.37	10.22	1.64	1.30	1.48	1.23	1.33	6.60	−1.10
Philippines	3.06	4.64	2.50	3.01	5.38	1.91	2.79	5.04	1.43	2.64	5.00	0.92

[a] 1980 Preliminary Report, Census of Population.

Note: An urban place refers to a chartered city or municipality which exceeds some minimum population size and the average population density. The minimum population size are: 5,000 (for 1903 and 1918), 17,000 (for 1939), and 40,000 (for 1948-75). An additional economic criterion (that the urban area must have at least 6 establishments whether commecial manufacturing, recreational or personal services) is incorporated during 1970 and 1975.

Sources: Population Census (1903, 1918, 1939, 1948, 1960, 1970 and 1975).

APPENDIX

Table 6. Top 30 Urban Places, 1903-75

Rank	1903	1918	1939	1948
1	[c]Metro Manila	[c]Metro Manila	[c]Metro Manila	[c]Metro Manila
2	Metro Cebu	Metro Cebu	[c]Metro Cebu	[c]Metro Cebu
3	Iloilo	Iloilo	[c]Zamboanga	[c]Davao
4	Bauan	Legaspi	[c]Iloilo	[c]Basilan
5	Lipa	Lipa	[c]Davao	[c]Iloilo
6	Laoag	Calbayog	Ormoc	[c]Zamboanga
7	Batangas	[b]San Carlos	[b]San Carlos	[c]Bacolod
8	[a]San Carlos	Batangas	Escalante	[b]San Carlos
9	Calbayog	Laoag	[c]Bacolod	Guihulngan
10	Bago	Ormoc	Tarlac	[c]Calbayog
11	Legaspi	Baybay	Datu Piang	[c]Ormoc
12	Baybay	[a]San Carlos	Bago	Sagay
13	San Pablo	San Pablo	Sagay	Tarlac
14	Januay	Guihulngan	Guihulngan	Butuan
15	Dagupan	Datu Piang	Cagayan de Oro	[a]San Carlos
16	Iriga	Escalante	Calbayog	Batangas
17	Naga	Cagayan de Oro	[a]San Carlos	Escalante
18	Libmanan	Bauan	Cabanatuan	Bago
19	Cadiz	Bago	San Pablo	Dinaig
20	Ormoc	Januay	Pagadian	[c]Naga
21	Bacolod	Iriga	Batangas	Sta. Cruz
22	Malasaqui	Malasaqui	Tuburan	Cabanatuan
23	Talisay	Dagupan	Lipa	[c]Cagayan de Oro
24	Guihulngan	Cadiz	Baybay	Calatrava
25	La Carlota	Zamboanga	Cadiz	Tuburan
26	Escalante	La Carlota	Laoag	Koronadal
27	Tacloban	Bacolod	Legaspi	Cataingan
28	Cagayan de Oro	Sagay	Talisay	Pagadian
29	Abuyog	Abuyog	Abuyog	Baybay
30	Zamboanga	Dipolog	Januay	[c]San Pablo

Urban place refers to a chartered city or municipality which exceeds some minimum population size and the average population density. The minimum sizes are 5,000 (for 1903 and 1918), 17,000 (for 1939), and 40,000 (for 1948, 1960, 1970 and 19750). An additional economic criterion (that the urban area must have at least 6 establishments whether commercial, manufacturing, recreational or personal services) is incorporated during 1970 and 1975.

Table 6 (con't.)

Rank	1960	1970	1975
1	^cMetro Manila	^cMetro Manila	^cMetro Manila
2	^cMetro Cebu	^cMetro Cebu	^cMetro Cebu
3	^cDavao	^cDavao	^cDavao
4	^cBasilan	^cIloilo	^cZamboanga
5	^cIloilo	^cZamboanga	^cIloilo
6	^cZamboanga	^cBacolod	^cBacolod
7	^bSan Carlos	Tarlac	^cCagayan de Oro
8	^cBacolod	^cAngeles	Tarlac
9	Tarlac	^cButuan	^cAngeles
10	Guihulngan	^cCagayan de Oro	^cOlongapo
11	Cadiz	^cCadiz	^cButuan
12	Gen. Santos	cBatangas	^cCadiz
13	Batangas	^cOlongapo	^cBatangas
14.	^cButuan	^cSan Pablo	^cIligan
15	Angeles	^cIligan	^cSan Pablo
16	Iriga	^cCabanatuan	^cCabanatuan
17	^aSan Carlos	^cLipa	^cLipa
18	Butuan	^{b,c}San Carlos	^cSilay
19	Sagay	San Fernando	San Fernando
20	^cSan Pablo	^cOrmoc	^cBaguio
21	^cCabanatuan	^cBaguio	Calamba
22	^cCagayan de Oro	^{a,c}San Carlos	Sagay
23	Nabua	^cLegaspi	cLucena
24	Calatrava	^cDagupan	^{b,c}San Carlos
25	^cLipa	Calamba	^{a,c} San Carlos
26	Toledo	^cNaga	^cDagupan
27	cDagupan	Sagay	^cOrmoc
28	^cOrmoc	^cIriga	^cBago
29	^cLegaspi	^cLucena	^cLegaspi
30	Silay	^cTacloban	Malolos.

[a]Pangasinan

[b]Negros Occidental

[c]Chartered city as of census date.
Sources: Population Census (1903, 1918, 1938, 1948, 1960, 1970 and 1975).

APPENDIX

Table 7. Distribution of Households Migrating to Mindanao and Other Places Under the Auspices of the Department of Labor, By Region of Origin: 1918-39

Region of Origin	Total Migrants	To Mindanao		To Other Places	
		Number	% of Total Migrants	Number	% of Total Migrants
Central Industrial	10,820	9,529	88.07	1,291	11.93
NCR	2.07%	906	93.79	60	6.21
Central Luzon	20.01	8,475	90.72	867	9.28
Southern Tagalog	1.10	148	28.91	364	71.09
Traditional Agricultural	32,500	30,706	94.48	1,794	5.52
Ilocos	20.83%	7,957	81.85	1,764	18.15
Bicol	0.14	65	100.00		—
Western Visayas	17.05	7,931	99.62	30	0.38
Central Visayas	31.48	14,697	100.00		—
Eastern Visayas	0.12	56	100.00		—
Frontier	192	192	100.00		0.00
Cagayan Valley					
Western Mindanao	0.34%	158	100.00		—
Northern Mindanao	0.07	34	100.00		—
Southern Mindanao					
Central Mindanao					
Philippines	46,683 93.21%[a]	43,598	93.39	3,085	6.61

[a]Some 6.79 percent are unaccounted for.
Other places refer to the provinces of Albay, Cagayan, Camarines Norte, Camarines Sur, Isabela, Mindoro, Negros Occidental, Nueva Viscaya, Palawan and Tayabas.

NCR (National Capital Region) refers to Manila and Rizal.

Source: Yearbook of Philippine Statistics, 1940.

APPENDIX

Table 8. Number of Urban Places, by Regions, 1903-1980

Region	1903	1918	1939	1948	1960	1970	1975	1980
Central Industrial	6	6	7	7	21	47	60	77
NCR	1	1	1	1	1	1	1	1
Central Luzon	1	1	2	2	11	24	31	36
Southern Tagalog	4	4	4	4	9	22	28	40
Traditional Agricultural	23	26	29	30	42	58	73	88
Ilocos	4	4	4	4	9	12	15	15
Bicol	4	5	6	6	10	17	19	25
Western Visayas	8	10	11	12	16	13	22	25
Central Visayas	2	2	3	3	3	10	10	15
Eastern Visayas	5	5	5	5	4	6	7	8
Frontier	2	5	9	12	17	29	34	43
Cagayan Valley	0	0	0	0	1	3	4	6
Western Mindanao	0	1	3	3	3	4	3	5
Northern Mindanao	1	1	1	1	4	5	8	8
Southern Mindanao	1	2	3	4	5	7	9	11
Central Mindanao	0	1	2	4	4	10	10	13
Philippines	31	37	45	49	80	134	167	208

Note: An urban place refers to a chartered city or municipality which exceeds some minimum population size and the average population density. The minimum population sizes are: 5,000 (for 1903 and 1918), 17,000 (for 1939), and 40,000 (for 1948-75): An additional economic criterion (that urban area must have at least 6 establishments whether commercial, manufacturing recreational or personal services) is incorporated during 1970 and 1975.

NCR (National Capital Region) includes Manila and Rizal.

Sources: Population Census (1903, 1918, 1939, 1960, 1970 and 1975).

APPENDIX

Table 9. Broad Regional Share of Urban Population, by Size Category, 1903 – 75

	1903	1918	1939	1948	1960*	1970	1975
Over 1,000,000	–	–	–	34.00	31.85	30.43	30.17
NCR	–	–	–	34.00	31.85	30.43	30.17
500,000-999,999	–	–	30.37	–	–	4.18	3.77
NCR	–	–	30.37			–	
TAR	–	–	–	–	–	4.18	3.77
100,000-499-999	32.05	37.92	14.69	17.30	16.66	15.66	16.42
NCR	32.05	29.31					–
MP	–	–	–	–	–	4.48	5.46
TAR	–	8.61	10.67	10.26	10.03	3.94	4.05
FR	–	–	40.2	7.04	6.63	7.24	6.91
40,000-99,999	14.47	19.42	38.74	48.70	51.49	49.73	49.64
MP	–	5.58	7.33	8,01	14.48	16.89	16.96
TAR	14.47	13.84	23.76	30.74	27.38	23.63	23.49
FR	–	–	7.65	9.95	9.63	9.21	9.19
10,000-39,999	51.08	41.43	16.20				–
MP	12.94	4.73	1.13				–
TAR	37.07	29.74	11.76				–
FR	1.07	6.96	3.31				–
Less than 10,000	2.40	1.23					–
MP	0.69						–
TAR	0.87	1.23					–
FR	0.84						–
Philippines	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	(1,026)	(1,573)	(3,272)	(4,615)	(7,731)	(13,211)	(16,878)

Figures in parentheses denote thousand population.

NCR (National Capital Region) – Manila and Rizal, MP (Metropolitan Periphery) – Central Luzon and Southern Tagalog, TAR (Traditional Agricultural Region) – Ilocos, Bicol and Visayas; FR (Frontier Region) – Cagayan Valley and Mindanao.

Urban place refers to a chartered city or municipality which exceeds some minimum population size and the average population density. The minimum sizes are 5,000 (for 1903 and 1918), 17,000 (for 1939), and 40,000 (for 1948, 1960, 1970 and 1975). An additional economic criterion is incorporated during 1970 and 1975, viz., that the urban area must have at least 6 establishments whether commercial, manufacturing, recreational or personal services).

Sources: Population Census (1903, 1918, 1939, 1948, 1960, 1970 and 1975).

APPENDIX

Table 10. Regional Share of Export Crop Production, 1903 –39
(in percent)

	1903				1918				1939			
	Abaca	Sugar Cane	Coconuts	Tobacco	Abaca	Sugar Cane	Coconuts	Tobacco	Abaca	Sugar Cane	Coconuts	Tobacco
Central Industrial	6.56	19.71	73.30	3.02	5.41	44.35	41.04	3.57	0.49	29.30	34.35	4.78
NCR	–	1.19	–	*	*	–	–	0.05	*	*	–	0.05
Central Luzon	–	14.10	0.03	1.43	*	42.12	0.26	3.22	*	22.12	0.03	3.37
Southern Tagalog	6.56	4.42	73.27	1.59	5.41	2.23	40.78	0.30	0.49	7.18	34.32	1.36
Traditional Agricultural	83.20	79.72	17.98	47.60	81.33	55.00	44.17	51.33	37.94	70.68	39.33	38.23
Ilocos	–	15.96	*	31.47	–	–	1.62	37.84	*	0.63	0.76	17.32
Bicol	47.26	2.91	1.14	0.17	49.09	–	9.67	0.35	22.90	–	16.23	2.75
Western Visayas	1.12	52.28	1.05	3.74	3.97	55.00	3.57	4.36	0.63	57.48	0.86	5.47
Central Visayas	6.91	7.91	8.59	11.15	2.64	–	18.73	7.41	1.24	11.35	8.62	9.98
Eastern Visayas	27.91	0.66	7.20	1.07	25.63	–	10.58	1.37	13.17	1.22	12.86	2.71
Frontier	10.23	0.55	8.71	49.38	13.63	0.65	14.78	45.09	61.55	*	26.28	56.96
Cagayan Valley	–	0.20	*	49.24	–	0.60	0.11	44.65	*	*	0.01	53.49
Western Mindanao	3.94	0.24	0.54	–	3.81	–	0.75	0.06	4.76	–	6.74	1.22
Northern Mindanao	5.82	0.11	6.64	0.12	4.78	–	13.63	0.29	8.07	–	15.01	0.99
Southern Mindanao	0.47	–	0.04	0.02	4.62	–	0.17	0.05	47.28	–	2.96	0.39
Central Mindanao	–	–	1.49	–	0.42	0.05	0.12	0.04	1.44	–	1.56	0.87
Philippines	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	65,197	180,645	42,924	17,005	279,748	6,131	210,259	60,259	144,131	1,004,053	494,342	32,115

* – Amount negligible up to 4 decimal places.

Note: The totals are expressed in thousand kilograms.
Details may not add up to totals due to rounding.

Source: Economic Census (1903, 1918 and 1939).

Table 11. Regional Population Density, 1903-75 (persons/sq. km.)

Region	1903	1918	1939	1948	1960	1970	1975
Central Industrial	31.44	41.51	66.50	83.45	122.65	182.99	218.78
NCR	190.68	265.08	549.28	851.95	1,334.25	2,146.89	2,690.93
Central Luzon	45.17	57.48	86.76	101.71	140.80	203.72	239.20
Southern Tagalog	19.16	25.60	37.82	43.39	63.73	90.97	103.25
Traditional Agricultural	47.52	62.91	90.44	104.64	129.76	156.46	173.23
Ilocos	48.49	63.81	80.14	90.14	112.55	138.65	151.58
Bicol	36.52	47.64	76.37	94.51	134.00	168.26	181.13
Western Visayas	53.58	66.62	107.48	125.13	152.22	178.92	205.55
Central Visayas	75.21	99.39	130.71	141.79	168.73	202.84	226.55
Eastern Visayas	30.57	45.61	68.22	82.31	95.23	111.12	121.30
Frontier	7.33	11.24	21.39	26.87	47.59	69.76	80.06
Cagayan Valley	9.43	12.36	19.66	21.29	33.02	46.46	53.10
Western Mindanao	10.10	17.13	32.28	40.82	72.29	100.03	109.60
Northern Mindanao	8.00	12.67	24.94	32.55	45.80	68.93	81.69
Southern Mindanao	4.37	6.51	14.22	18.23	42.68	69.44	85.65
Central Mindanao	5.02	9.47	20.79	29.22	59.39	83.35	88.88
Philippines	25.45	34.38	53.33	64.11	90.29	122.28	140.24

NCR (National Capital Region) includes Manila and Rizal.

Sources: Population Census (1903, 1918, 1939, 1948, 1960, 1970 and 1975).

Table 12. Distribution of Manufacturing Gross Value Added by Industry Groups, 1903-75 (in percent)

Industry	1903	1918	1938	1948	1956	1960	1967	1972	1975
Food Manufacturing	25.7	50.9	52.1	30.8	27.0	27.0	29.72	27.06	25.67
Beverages	12.7	5.3	4.7	25.1	10.7	8.6	4.49	5.41	4.89
Tobacco Products	24.2	9.6	7.2	4.7	6.1	5.6	6.94	7.10	9.32
Textile Products	0.5	0.5	0.8	2.6	3.7	4.6	6.07	5.96	5.58
Footwear & Other Wearing Apparel	5.9	3.5	7.8	6.6	5.1	3.0	4.49	3.22	3.57
Wood & Cork Products	8.0	5.4	5.3	9.7	5.0	4.0	5.46	4.35	2.85
Furniture & Fixtures	2.3	1.3	1.9	1.8	1.3	0.9	0.73	0.64	0.45
Paper & Paper Products	0.0	0.0	0.0	0.0	1.7	2.3	2.70	2.58	2.94
Printing & Printed Products	4.9	1.7	3.6	3.7	3.1	3.2	2.18	1.98	2.70
Leather Products	0.7	0.3	0.1	0.0	0.2	0.3	0.40	0.16	0.18
Rubber Products	0.0	0.0	0.0	0.6	0.9	3.2	1.35	1.64	1.59
Chemicals & Chemical Products	1.9	10.9	6.9	2.9	9.9	10.0	6.96	13.53	13.09
Products of Coal & Petroleum	a	a	b	b	b	b	7.56	7.83	7.44
Non-Metallic Mineral Products	3.9	0.7	3.3	2.1	4.7	3.7	4.56	3.32	3.61
Basic Metal & Metallic Products	0.9	0.8	0.7	1.9	4.7	8.0	5.88	6.05	5.96
Machinery	3.6	0.8	0.2	0.5	2.1	4.2	4.20	4.03	3.83
Transportation Equipment	a	1.3	0.4	1.0	2.2	2.2	5.09	3.85	5.09
Miscellaneous	4.2	5.9	3.9	5.7	11.2	8.2	1.22	1.29	1.24
Total Manufacturing	100.0[c]	100.0[c]	100.0[c]	100.0[c]	100.0[c]	100.0[c]	100.0	100.00	100.00

a = negligible   b = included in miscellaneous manufacturers   c = the sum of the figures do not total 100.00 due to rounding.

Sources: Umana (1966), Appendix Table 1 for 1903-60 data.
             Philippine Statistical Yearbook, 1978 for 1967-75 data.

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Table 13. Regional Share of Manufacturing Value of Production, 1903-48
(in percent)

Region	1903	1918	1939	1948
Central Industrial	84.31	66.96	63.55	57.23
NCR	21.00	58.25	39.64	41.75
Central Luzon	4.97	3.58	15.78	7.48
Southern Tagalog	58.34	5.13	8.13	8.00
Traditional Agricultural	15.48	31.53	31.51	34.14
Ilocos	1.39	2.28	2.84	3.44
Bicol	0.93	4.16	1.62	3.38
Western Visayas	11.37	4.33	21.50	13.26
Central Visayas	1.51	6.93	4.47	12.37
Eastern Visayas	0.28	13.83	1.08	1.69
Frontier	0.21	1.51	4.94	8.63
Cagayan Valley	0.05	0.35	1.41	1.63
Western Mindanao	0.11	0.35	0.89	0.68
Northern Mindanao	0.05	0.30	0.96	2.53
Southern Mindanao	—	0.18	0.40	2.63
Central Mindanao	—	0.33	1.28	1.16
Philippines	100.00	100.00	100.00	100.00
	(116,829)	(261,840)	(357,305)	(2,398,080)

Figures in parentheses denote value of production in thousands of pesos at current prices.

NCR (National Capital Region) includes Manila and Rizal.

Source: Economic Census (1903, 1918, 1939 and 1948).

APPENDIX

Table 14. Paid-in Capital of All Business Organizations, by Broad Geographical Regions, 1946-69
(in percent)

	Manila	Luzon	Visayas	Mindanao	Philippines	TOTAL (in ₱1,000)
1946	80.93	8.96	6.32	3.79	100.00	20,581
1947	84.89	7.60	3.42	4.09	100.00	25,396
1948	74.22	7.06	14.58	4.14	100.00	17,522
1949	77.44	8.67	11.18	2.71	100.00	17,268
1950	89.07	2.84	6.52	1.57	100.00	44,042
1951	78.73	11.38	6.23	3.66	100.00	25,691
1952	84.86	10.36	2.99	1.79	100.00	22,381
1953	56.88	27.00	9.30	6.82	100.00	174,895
1954	57.48	24.52	10.85	7.15	100.00	154,167
1955	57.04	25.38	10.08	7.50	100.00	110,762
1956	62.02	18.56	9.56	9.86	100.00	135,496
1957	60.56	20.23	8.97	10.24	100.00	138,610
1958	66.03	18.72	10.14	5.11	100.00	142,607
1959	71.96	13.86	8.35	5.83	100.00	175,984
1960	67.49	16.35	8.90	7.26	100.00	184,855
1961	67.22	16.72	10.16	5.90	100.00	236,727
1962	70.19	14.33	7.14	8.34	100.00	282,266
1963	68.07	16.30	7.94	7.69	100.00	373,524
1964	68.01	17.18	7.73	7.08	100.00	340,500
1965	61.67	23.34	7.85	7.14	100.00	327,267
1966	60.08	24.39	8.41	7.12	100.00	388,009
1967	60.94	21.11	10.13	7.82	100.00	419,182
1968	62.63	22.82	7.93	6.61	100.00	470,815
1969	64.20	21.31	6.92	7.57	100.00	3,011,587

Note: From 1946-54 Manila includes Quezon City and Rizal, from 1955-69, Manila includes Quezon City, Pasay, Caloocan, San Juan, Makati and Mandaluyong. Furthermore, only the paid-in capital of corporations is available from 1946-52.

Sources: Bureau of Commerce, Securities and Exchange Commission, and Statistical Bulletin of the Central Bank of the Philippines, 1951-69.

APPENDIX   Table 15.   Regional Allocation of Infrastructure Expenditure, FY 1959-61
1971-73 (in percent)

Region	All Infrastructure		Portworks		Waterworks		Irrigation		Flood Control and Drainage		Building, Schools and Hospitals		Highways
	1959-61	1971-73	1959-61	1971-73	1959-61	1971-73	1959-61	1971-73	1959-61	1971-73	1959-61	1971-73	1971-73
Central Industrial	56.6	56.1	70.4	64.5	54.3	92.2	25.9	63.6	61.3	67.1	70.1	60.5	26.0
NCR and Southern Tagalog	49.6	28.3	70.2	63.4	48.9	89.3	10.6	5.6	18.1	29.5	68.9	49.6	16.7
Central Luzon	7.0	27.8	0.2	1.1	5.4	2.9	15.3	58.0	43.2	37.6	1.2	10.9	9.3
Traditional Agricultural	24.0	24.9	18.4	20.6	26.1	4.1	50.5	8.4	23.3	20.9	4.1	34.7	44.0
Ilocos	4.8	4.2	2.9	2.9	7.6	1.0	6.5	1.2	3.9	6.2	0.2	5.7	5.5
Bicol	4.3	7.2	3.7	4.5	1.5	1.9	19.7	1.2	11.0	4.7	–	3.9	13.6
Western Visayas	7.1	1.8	3.0	1.8	4.9	0.4	17.8	2.0	4.7	3.7	3.5	7.1	0.3
Central Visayas	1.9	2.9	4.2	2.4	2.0	0.2	0.0	0.0	3.3	1.5	–	3.6	7.7
Eastern Visayas	5.9	8.8	4.6	9.0	10.1	0.6	6.5	4.0	0.4	4.8	0.4	14.4	16.9
Frontier	19.4	19.0	11.2	14.9	19.6	3.7	23.5	28.0	15.4	12.0	25.8	4.8	30.0
Cagayan Valley	4.4	6.3	1.1	0.1	2.5	0.9	13.8	4.2	3.5	1.7	0.8	2.7	18.3
Western Mindanao	1.6	2.2	3.1	2.9	1.3	0.3	1.7	3.2	–	2.7	–	0.4	0.9
Northern Mindanao	2.3	8.9	3.9	7.8	3.6	2.0	0.1	11.8	1.8	3.3	0.1	0.8·	8.8
Southern and Central Mindanao	11.1	1.6	3.1	4.1	12.2	0.5	7.9	8.8	10.1	4.3	24.9	0.9	2.0
Philippines	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	(40,104)	(224,870)	(11,142)	(22,814)	(12,255)	(24,734)	(8,828)	(87,080)	(1,602)	(8,087)	(7,056)	(17,409)	(66,802)

Figures in parentheses are expenditures expressed in thousand pesos.

Source: Table 7, Javier (1976).

APPENDIX

Table 16.   Regional Farm Density, 1960 and 1971

Region	1960	Rank	1971	Rank
Central Industrial				
Central Luzon	1.95	3	2.15	3
Southern Tagalog	1.65	4	1.66	10
Traditional Agricultural				
Ilocos	3.01	1	3.57	1
Bicol	1.43	8	1.70	8
Western Visayas	1.55	7	1.86	6
Central Visayas	2.68	2	2.82	2
Eastern Visayas	1.68	5	1.88	5
Frontier				
Cagayan Valley	1.65	6	2.06	4
Western Mindanao	1.27	9	1.68	9
Northern Mindanao	1.26	10	1.60	11
Southern Mindanao	1.19	11	1.46	12
Central Mindanao	1.16	12	1.85	7

Note: Farm density is expressed as farm population per hectare.

Source: Agricultural Census (1960 and 1971).

Table 17. Paid in Capital of AU Business Organizations by Region
1970-1979 (in percent)

Region	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Central Industrial	73.00	73.00	73.00	73.00	73.18	73.00	73.00	84.85	76.17	85.03
NCR	43.90	43.90	43.90	43.90	44.08	43.90	43.90	72.28	66.81	72.50
Central Luzon	23.10	23.10	23.10	23.10	23.10	23.10	23.10	10.83	5.25	7.12
Southern Tagalog	6.00	6.00	6.00	6.00	6.00	6.00	6.00	1.74	4.11	5.14
Traditional Agricultural	15.00	15.00	15.00	15.00	14.94	15.00	15.00	8.44	8.57	10.30
Ilocos	2.00	2.00	2.00	2.00	1.94	2.00	2.00	0.60	2.11	3.24
Bicol	1.80	1.80	1.80	1.80	1.80	1.80	1.80	0.95	1.52	1.58
Western Visayas	2.20	2.20	2.20	2.20	2.20	2.20	2.20	1.40	2.07	2.09
Central Visayas	8.20	8.20	8.20	8.20	8.20	8.20	8.20	5.15	2.22	2.09
Eastern Visayas	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.34	0.65	1.30
Frontier	12.00	12.00	12.00	12.00	12.00	12.00	12.00	6.71	15.76	5.32
Cagayan Valley	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.54	0.99	1.17
Western Mindanao	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.20	0.61	0.47
Northern Mindanao	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.94	1.83	1.41
Southern Mindanao	1.70	1.70	1.70	1.70	1.70	1.70	1.70	0.68	1.55	1.45
Central Mindanao	7.00	7.00	7.00	7.00	7.00	7.00	7.00	3.35	10.28	0.82
Philippines	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	(437,967)	(573,040)	(604,273)	(983,559)	(1,673,653[a])	(1,635,483)	(1,712,949)	(2,177,571)	(3,208,943)	(2,249,972[a])

[a]Details do not add up to total due to rounding.

Note: Figures in parentheses are expressed in thousand pesos.

Sources: Statistical Bulletin of the Central Bank of the Philippines, 1970-79.

Table 18. Regional Share of Resource-Based Manufacturing Output, 1975 (in percent)

Region	Food Manufacturing	Leather and Products	Wood and Products	Paper and Products	Petroleum Refineries	Non-metal Products	Iron and Steel
Central Industrial	28.76	100.00	22.72	81.90	100.00	59.01	45.71
Manila	13.81	30.91	30.91	15.10	41.27		23.19
Central Luzon	5.46	68.86	3.76	8.85	56.47	14.63	2.49
Southern Tagalog	9.49	0.23	3.86	31.80	43.53	21.19	
Traditional Agricultural	59.39	0.00	13.39	4.58	0.00	24.10[a]	0.13
Ilocos	0.35		2.01			19.25	D
Bicol	1.08		1.13	D		D	
Western Visayas	43.89		8.49			0.70	0.13
Central Visayas	9.83		1.07	4.58		4.15	D
Eastern Visayas	4.24		0.69			D	
Frontier	11.85	0.00	63.89	10.18[a]	0.00	17.84[a]	51.33[b]
Cagayan Valley	0.37		11.04	----		0.01	
Western Mindanao	0.16		8.08			D	0.23
Northern Mindanao	5.73		16.36	9.55		13.02	
Southern Mindanao	4.85		20.30	0.62		1.80	
Central Mindanao	0.74		8.11	D		2.01	51.10[b]
Philippines	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	(4,175.695)	(26,464)	(702,447)	(499,947)	(3,215,382)	(544,997)	(571,247)
	(4,175.695)	(26,464)	(702,447)	(499,947)	(3,215,382)	(544,997)	(571,247)

Figures in parenthesis are census value added estimates expressed in thousand pesos at current prices.

Note: The data pertain to large manufacturing establishments defined as those having 10 or more employed workers.

D — Undisclosed figures as stipulated by the confidentiality clause.

a — Exclude undisclosed figures.

b — Estimates based on published data.

Source: 1975 Census of Establishments, Volume on Manufacturing.

Table 19. Share of Resource-Based Industries in Regional Manufacturing Output
(in percent)

Region	Food Manufacturing	Leather and Products	Wood and Products	Paper and Products	Petroleum Refineries	Non-Metal Products	Iron and Steel	Resource-Based Industries
Central Industrial								
Manila	5.68	0.08	1.03	2.03		1.25	2.43	12.50
Central Luzon	8.22	0.66	0.94	1.59	65.52	2.88		79.81
Southern Tagalog	14.01	a	0.95	5.62	49.47	4.08	0.96	75.09
Traditional Agricultural								
Ilocos	6.85		6.70			50.32	D	63.97c
Bicol	41.06		7.13	D		D		48.19c
Western Visayas	92.93		2.99			0.19	0.04	96.15
Central Visayas	35.99		0.65			1.98	0.20	40.83
Eastern Visayas	92.40		2.50			D		94.90c
Frontier								
Cagayan Valley	14.58		70.89			0.07		85.54
Western Mindanao	28.32		57.83			D	2.26	88.41c
Northern Mindanao	45.62		21.68	9.12		13.53		89.95
Southern Mindanao	46.11		32.13	0.71		2.23		81.18
Central Mindanao	6.32		11.56	D		2.25	59.87b	80.00
Philippines	19.86 (4,175,695)	0.12 (26,464)	3.34 (702,447)	2.38 (499,947)	15.29 (3,215,382)	2.59 (544,997)	2.72 (571,247)	46.30 (9,736,179)

Figures in parentheses are census value added estimates expressed in thousand pesos at current prices.

Note: The data pertain to large establishments defined as those having 10 or more employed workers.

　　D — Undisclosed figures as stipulated by the confidentiality clause.
　　a — Insignificant up to the 4 decimal place
　　b — Estimates based on published data.
　　c — Excludes undisclosed figures

Source: 1975 Census of Establishments (Volume on Manufacturing)

Region	Census Value Added	Persons Employed	Establishments	Book Value of Fixed Assets, Dec. 31	Salaries and Wages	Subsidies
Central Industrial	74.91	72.77	69.33	70.67	74.20	88.45
Manila	48.26	58.07	51.60	39.28	60.70	54.22
Central Luzon	13.46	6.41	8.51	13.72	5.70	1.13
Southern Tagalog	13.19	8.29	9.22	17.67	7.80	33.10
Traditional Agricultural	17.22	14.98	20.44	17.93	15.18	1.61
Ilocos	0.99	1.72	2.79	2.10	1.33	
Bicol	0.52	1.15	3.00	2.45	0.60	0.19
Western Visayas	9.38	5.96	4.59	7.56	7.94	0.85
Central Visayas	5.42	5.62	9.17	5.10	4.76	0.57
Eastern Visayas	0.91	0.53	0.89	0.72	0.55	
Frontier	7.87	12.25	10.33	11.40	10.62	9.94
Cagayan Valley	0.51	2.15	1.61	0.36	0.88	0.80
Western Mindanao	0.46	0.86	1.17	0.53	0.76	
Northern Mindanao	2.49	3.02	2.58	3.84	2.97	0.38
Southern Mindanao	2.09	4.06	3.54	4.37	4.17	0.02
Central Mindanao	2.32	2.16	1.33	2.30	1.84	8.74
Philippines	100.00	100.00	100.00	100.00	100.00	100.00
	(21,029,696)[a]	(511,737)[b]	(6,391)[e]	(14,628,515)[a]	(2,842,752)[a]	(65,722)[a]

Note: The data pertain to large manufacturing establishments defined as those having 10 or more employed workers.

[a]Expressed in thousand pesos at current prices.

[b]Denote total number of employed persons.

[c]Represent total number of establishments.

Source: 1975 Census of Establishments, Volume on Manufacturing.

PART III

SPECIAL PAPERS

GOVERNMENT POLICIES
AND SPATIAL DEVELOPMENT

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The development of the country is influenced to a considerable extent by the cumulative effects of past and present government policies. Policies in turn are formulated in response to problems and opportunities posed by economic conditions. Different economic regimes have been apparent in the Philippines which indicate changing objectives and strategies for national development.

Since the turn of the century, four major policy periods are recognizable, namely: (a) the American colonial period when policies reflected the aims of a colonial power vis-a-vis a subject colony; (b) the control and import substitution period from 1948 to 1960, when the newly-independent country sought to transform the colonial structure of its economy; (c) the decontrol and devaluation period from 1960 to 1968; and (d) the regional awareness period from 1969 to the present.[1] This paper attempts to provide a rationale for the identification of periods as well as explores the relationships between the changing policy thrusts and the spatial pattern of development that evolved.

The Colonial Period: 1900-39

The special relationship between the Philippines and the United States during this period is manifested in the policies which tended to encourage the production of primary commodities for export to the United States. The principal exports were agricultural products of which abaca was the most

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[1] Starting 1980, a newer dimension has been superimposed on the policies indicating regional awareness and trade liberalization. However, it is premature to discuss the effects of these new policies.

important during the early part (Table 1). On the other hand, processed products were imported from the United States. From 1911 to 1935, the chief imports were iron and steel products (Table 2). Preferential tariffs and quotas during the period typified this special relationship. It started with a 25 percent preferential tariff rate on Philippine products given in the Tariff Act of 1902.[2] This was followed by the Payne-Aldrich Law of 1909[3] which established reciprocal free trade between the United States and the Philippines with certain quantitative limits on the volume of sugar and tobacco products that may be exported. Exports of rice, however, were not given any preferential treatment; nor were Philippine exports which contained more than 20 percent of imported materials.[4] The free trade arrangement was continued under the Underwood-Simmons Tariff Act of October 3, 1913 which removed the limitations on sugar, tobacco and rice. Between 1913 and 1934, there were other rate changes affecting other Philippine products such as coconuts, shell buttons, manila fiber cordage and cotton embroideries mandated by the Tariff Act of 1922 and Tariff Act of 1930. The Philippine Independence Act[5] (otherwise known as the Tydings-Mc-Duffie Law) which provided for a 10-year transition period before independence would be granted to the Philippines, was approved on March 24, 1934. The free trade relationship between the United States and the Philippines was continued but quotas were again established for Philippine sugar, coconut oil and cordage.

The implementation of the Tariff Act of 1902 increased the share of Philippine exports to the United States from 27 percent in 1899 to 40 percent in 1903 (Table 3). The resulting increase in exports benefitted specific products: rice from Central Luzon, sugar from Central Luzon, Southern Tagalog and Visayas; hemp from Bicol; coconuts from Visayas regions and Southern Tagalog; and tobacco from Ilocos and Cagayan Valley (cf. Hermoso's Special Study). Other acts passed further strengthened the impetus of

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[2]H.R. 5833, entitled "An Act Temporarily to Provide Revenue for Philippine Islands and for other Purposes," prescribed that all articles and products of the Philippines admitted into the ports of the United States shall be levied only 75 percent of the normal rates of duty in *The Statutes at Large of USA*. Congressional Record, 37th Congress, Session I, Chapter 140. (Washington: Government Printing Office, 1902) pp. 54-55.

[3]H.R. 9135.

[4] *The Statutes at Large of the USA*. Congressional Record, 61st Congress, Session I, Chapter 8. (Washington: Government Printing Office, 1909) pp. 130-181.

[5]Ibid. Chapter 84, pp. 456-464.

Table 1.   Value and Share of Leading Exports
            to the United States 1900-1909

	(in thousand of US$)	Share (in percent)
Abaca	87,724	88.96
Sugar cane	8,127	8.24
Tobacco	196	0.20
Copra	660	0.67
All other products	1,909	1.94
TOTAL EXPORTS	98,616	100.00

Source of basic data: U.S. Tariff Commission. *US-Philippine Tariff and Trade Relations* (Washington, D.C., 1931) pp. 76-77.

this development. During this period, the primary product export orientation of the Philippine economy spurred its economic development. In 1902, the gross value added for agriculture was 55 percent, while the non-agricultural sector accounted for only 45 percent. The agricultural share increased further to 60 percent in 1918 followed by a subsequent decline in 1938. Meanwhile, the share of the non-agricultural sector gross value added increased from 40 percent in 1918 to 53 percent in 1938 (Table 4). The latter development may however be attributed to the increase of gross value added in the manufacturing sector (Table 5) which consisted mainly of food manufactures, tobacco and wood products (Table 6).

The next major policy change came with the passage of the Philippine Independence Act. During the transition period, the free trade relationship was gradually dismantled and duty-free quotas were reinstalled for sugar, coconut oil and cordage. The preferential treatment of sugar persisted long

Table 2.   Value and Share of Principal Philippine Imports from the
United States by Commodity Groups For Selected Years
1911-35

Commodity Group	1911-14[1]	1924-28[1]	1929[1]	1934[2]	1935[2]
Cotton goods	−5,539	−14,245	−15,849	7,822,554	6,767,471
	−(39.90)	−(29.30)	−(23.85)	(14.39)	(12.45)
Iron and steel products	3,278	7,046	10,332	8,887,434	8,516,040
	(23.61)	(14.49)	(15.55)	(16.34)	(15.66)
Mineral oil	1,099	2,450	3,559	5,500,688	6,486,532
	(7.92)	(5.04)	(5.36)	(10.12)	(11.93)
Tobacco products	−198	−2,092	−3,151	2,857,329	3,696,087
	−(1.42)	−(4.30)	−(4.74)	(5.25)	(6.80)
Automobiles and parts	711	5,049	7,546	3,880,779	3,584,046
	(5.12)	(10.39)	(11.36)	(7.14)	(6.59)
Dairy products	171	2,610	3,035	2,083,209	1,625,290
	(1.23)	(5.37)	(4.57)	(3.83)	(2.99)
Wheat flour	1,113	4,185	4,348	1,816,910	1,222,345
	(8.02)	(8.61)	(6.54)	(3.34)	(2.25)
Chemicals, drugs and dyes and medicines	386	1,489	1,744	1,695,221	1,724,789
	(2.78)	(3.06)	(2.62)	(3.12)	(3.17)
Silk, rayon and manufactures	108	1,595	2,034	1.176,220	970,566
	(0.78)	(3.28)	(3.06)	(2.16)	(1.79)
Electrical machinery, apparatus and appliances	53	1,777	3,140	1,877,939	1,857,808
	(0.38)	(3.66)	(4.73)	(3.45)	(3.42)
Paper, unprinted	446	1,316	1,876	1,543,766	1,395,877
	(3.21)	(2.71)	(2.82)	(2.84)	(2.57)
Fertilizers	5	1,472	2,131	746,421	1,146,399
	(0.04)	(3.03)	(3.21)	(1.37)	(2.11)
India rubber & manufactures	264	594	1,035	1,601,083	1,464,752
	(1.90)	(1.22)	(1.56)	(2.94)	(2.69)
Vegetables	201	549	719	720,873	767,822
	(1.45)	(1.13)	(1.08)	(1.33)	(1.41)
Meat products	−606	−541	−636	686,911	940,432
	−(4.37)	−(1.11)	−(.96)	(1.26)	(1.73)
Fish and fish products	367	1,822	1,898	840,609	704,552
	(2.64)	(3.75)	(2.86)	(1.54)	(1.30)
Fruits and nuts	163	894	1,233	888,594	990.956
	(1.17)	(1.84)	(1.86)	(1.63)	(1.82)
Leather and manufactures	1,053	1,414	1,723	1,133,027	1,011,594
	(7.59)	(2.91)	(2.59)	(2.08)	(1.86)
All other products	4,463	14,354	20,092	8,616,111	9,426,142
	(32.15)	(29.53)	(30.24)	(15.84)	(17.34)
TOTAL	13,881	48,616	66,445	54,375,678	54,366,500
	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)

Note: 1911-14 and 1924-28 figures denote annual average.
Value in US$.
Figures in parentheses are percentage shares.

Sources: [1] US-Tariff Commission. *US-Philippine Tariff and Trade Relations*, 1931, pp. 109-110.
[2] US-Tariff Commission. *US-Philippine Trade*, 1937, p. 29.

Table 3. Share of U.S. in Foreign Trade of the Philippines 1899-1909

Year	Total Imports (in pesos)	Total Exports (in pesos)	Imports (in percent)	Exports (in percent)
1899	38,385,972	29,693,164	7.05	26.51
1900	49,727,558	45,980,746	8.66	12.88
1901	60,324,942	49,006,706	11.72	18.55
1902	66,684,332	57,343,808	12.46	40.03
1903	67,622,768	64,793,492	11.35	40.35
1904	59,155,462	58,299,000	17.24	39.98
1905	60,101,100	66,909,548	18.60	44.36
1906	52,807,536	65,285,784	16.96	36.36
1907	60,907,620	66,195,734	16.64	31.21
1908	58,372,240	65,202,144	17.48	32.06
1909	62,168,838	69,848,674	20.73	42.17

Source of basic data: *Philippine Statistical Yearbook* (Manila: Bureau of Printing, 1947) p. 341.

Table 4. Gross Value Added in Agriculture & Non-Agriculture
        For Selected Years 1902-1938
        (value in ₱M, in 1939 prices)

Year	Agriculture		Non-Agriculture		Total	
	Value	Percent	Value	Percent	Value	Percent
1902	134.0	55.0	109.8	45.0	243.8	100.00
1918	294.5	60.4	193.0	39.6	487.5	100.00
1928	313.5	53.7	270.2	46.3	583.7	100.00
1938	328.0	46.6	375.9	53.4	703.9	100.00

Source: Hooley, Richard. "Long-Term Economic Growth in the Philippines, 1902-1961,"
        in *Proccedings on the Conference on Growth of Output in Philippines.*
        Los Baños, Laguna, December 9-10, 1966, pp. 4-14.

Table 5. Gross Value Added in Non-Agriculture, Major Industry Groups
        For Selected Years, 1902 — 1938
        (value in ₱M in 1939 prices)

Industry Group	1902		1918		1938	
	Amount	Percent	Amount	Percent	Amount	Percent
Commerce	76.5	69.7	120.3	62.3	117.4	31.2
Manufacturing	31.7	28.9	59.9	31.0	149.2	39.7
Electric Power	0.8	0.7	3.3	1.7	11.4	3.0
Mining & Forestry	0.1	0.1	3.3	1.7	56.4	15.0
Shipping	0.2	0.2	3.9	2.0	13.6	3.6
Railroad	0.5	0.4	2.7	1.4	8.2	2.2
Other Transportation	a	a	a	a	14.9	4.0
Communication	a	a	a	a	4.8	1.3
TOTAL	109.8	100.00	193.3	100.00	375.9	100.00

[a] Less than 0.1 percent.

Source: Hooley, Richard. op. cit.

Table 6. Value Added of Manufacturing Industry Groups
For Selected Years 1902-1938
(Value in ₱M, in 1938 prices)

Industry Group	1902 Amount	1902 Percent	1918 Amount	1918 Percent	1938 Amount	1938 Percent
Food Manufactures	4.67	25.76	45.51	50.96	95.43	52.16
Tobacco Products	4.40	24.27	8.62	9.65	13.17	7.20
Wood & Cork Products Except Furniture	1.45	8.00	4.85	5.43	9.82	5.37
Total Agriculture-based Manufacturing	10.52	58.03	58.98	66.04	118.42	64.73
Others	7.61	41.97	30.33	33.96	64.53	35.27
Total Manufacturing Value Added	18.13	100.00	89.31	100.00	182.95	100.00

Source: Umaña, Salvador. "Growth of Output in Philippine Manufacturing, 1902-1960", in *Conference on Growth of Output in the Philippines.* (Los Baños, Laguna: International Rice Research Institute, 1966) pp. 3-25.

after independence and resulted in greater economic activity in the sugar-producing regions of Western Visayas, Central Luzon and Southern Tagalog. The othe dollar-producing places in the country were: the Bicol Region for hemp; Southern Tagalog for coconuts; Central Luzon for rice; and Ilocos and Cagayan Valley for tobacco.

Spatial Distribution of Economic Establishments and Employed Workers

Economic establishments consisting of manufacturing, commerce and agricultural firms in the country were concentrated in some regions (a

feature which contributed to the unequal spatial impact of policies). For manufacturing, the National Capital Region (NCR) had the highest number of establishments, being the center of business and trade, closely followed by Western Visayas and Central Luzon during the early colonial period. In 1939, however, the Ilocos Region had the greatest number of economic establishments followed by Central Visayas and Southern Tagalog. Except for NCR, these regions produced export crops such as tobacco, sugar and coconuts. Southern and Eastern Mindanao consistently ranked lowest among the 13 regions from 1903-39.

Commercial establishments were also found to concentrate at certain regions, such as Central Visayas, Western Visayas and Ilocos. The volume of commercial activities brought about by the primary exports of products of sugar and tobacco may be associated with the density in the number of commercial establishments. Again, the Mindanao regions had the least share in the number of establishments.

The employment sector of the country followed the same uneven spatial distribution. The greatest concentrations of the labor force were in the National Capital Region, Southern Tagalog and Ilocos Region, where more manufacturing, commerce and agricultural activities were being carried on (Hermoso's Special Study, Appendix). Eastern Mindanao showed the most rapid growth performance for number of establishments from 1903 to 1939 (35 percent). This was followed by Southern Mindanao, which had a rate of growth of 12 percent from 1903 to 1918, and Western Mindanao which experienced a growth rate of 11 percent per census year from 1918 to 1939. The growth of Eastern Mindanao may be associated with the expansion in the number of farms, while the growth of Western Mindanao and Southern Mindanao resulted from the expansion of the service sector (Hermoso's Special Study, Appendix).

The Import Substitution Period: 1946-60

The package of policies which prevailed throughout most of the early post-World War II period arose as a response to the two objectives deemed very important in 1946: the reconstruction of productive capacity which had been severely damaged during the war and accelerated growth through rapid industrialization. As the period progressed, the latter became the more avowed goal. The policy mix pursued during this period set the macroeconomic and spatial development pattern of subsequent years.

The Immediate Post-War Period: Exchange and Import Controls, Tax Incentives and The Tariff System

World War II severely disrupted economic operations in the country and virtually razed all the country's industrial establishments. Rapid industrialization also exerted a severe strain on the country's balance of payments with the value of imports continuously increasing and its primary product exports experiencing lower and fluctuating values (Table 7). In response, the government instituted at various occasions three major sets of policies: exchange and import controls, tax incentives, and tariff policies.

Exchange and Import Controls

Although exchange and import controls came a bit later than tax incentives, the effects of the former were more pervasive. And while exchange controls were in place, tax and credit incentives were superfluous (Valdepeñas, 1970). The initial application of import controls came with the imposition of 30 percent and 15 percent sales taxes on luxury and semi-luxury items, respectively, in 1948[6] as an attempt to slow down the growth of imports. In addition, an Import Control Board was set up to regulate the importation of non-essential and luxury articles through quotas.[7] However, these two instruments appeared to be ineffective. Imports kept on increasing.

The consequent foreign exchange difficulty triggered the formation of the Central Bank of the Philippines in 1949.[8] Among other things, the Monetary Board through the Bank was empowered to formulate policies and guidelines for the management of the foreign exchange of the country. One of the earliest Acts of the Central Bank was the imposition of foreign currency controls. All export earnings had to be surrendered to the bank and all foreign currency needs had to be procured from the bank. The official rate of exchange between the peso and the dollar was also pegged at P2 to $1. The Import Control Commission was set up later to aid in the control of imports.[9] This Commission was authorized to issue import licenses (which controlled the issuance of dollar allocations). Import licenses

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[6]Republic Act No. 217, June 1, 1948.

[7]Republic Act No. 330, July 15, 1948.

[8]Republic Act No. 265, June 15, 1948.

[9]Import Control Act. RA 650, June 15, 1951.

Table 7. Foreign Trade of the Philippines, 1945-60
          (F.O.B. Value in Million U.S. $)

Year	Total Trade	Value of Exports	Value of Imports	Balance of Trade
1945	29.69	.67	28.93	−28.26
1946	360.05	64.19	295.86	−231.67
1947	776.90	265.55	511.35	−245.80
1948	887.41	319.21	568.20	−248.99
1949	824.54	255.85	568.69	−312.84
1950	688.88	332.70	356.18	−23.48
1951	895.26	415.74	479.52	−63.78
1952	778.52	352.41	426.11	−73.70
1953	847.95	400.61	447.34	−46.73
1954	863.73	412.09	451.64	−39.55
1955	955.60	419.26	536.34	−117.08
1956	982.29	472.68	509.61	−36.93
1957	1052.05	430.66	621.39	−190.73
1958	1013.09	459.81	553.28	−93.47
1959	1026.50	505.54	520.96	−15.42
1960	1159.96	535.44	624.52	−89.08

Source: *Foreign Trade Statistics of the Philippines,* (Manila: NEDA 1976), p.1.

were granted according to the following priorities: first, machinery, equipment and raw materials for essential industries; second, capital equipment and raw materials for other producers, if not manufactured domestically in adequate quantities. Upon the expiration of the Import Control Law on June 30, 1953, the Monetary Board continued controls through its power over the dispostion of foreign exchange. It issued procedures for the granting of dollar quotas for imports.[10] This system of allocation affected the pattern of importation. The importation of manufactured goods decreased in proportion to total imports over the period while machinery and transport equipment increased (Table 8). However, the demands of reconstructing and industrializing an economy still exerted pressure on the country's balance of payments which was negative throughout the period.

Tax Incentives

Chronologically, taxes were the first instruments used by the newly-independent country. On September 30, 1946, the government passed Republic Act No. 35 which sought to encourage industrialization and to support infant industries. The law extended full exemption from all internal revenue taxes for four years to "new and necessary" industries whether capitalized by Filipinos or aliens.

Republic Act No. 35 was not very effective, however, partly due to its failure to define clearly the terms "new" and "necessary" industries. As a result, a new Act was passed in 1953 to explicitly define the terms[11] and extend the period of exemption to 1958. After that, the rate of exemption would diminish over a period of four years, ending in 1962. (Firms already enjoying exemptions under R.A. No. 35 were granted automatic exemptions under this Act but the aggregate period of exemption must not exceed 10 years.)

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[10]It also attempted to increase Filipino participation in the import trade by providing that only Filipino merchants could qualify as importers.

[11]"New industry" meant an industry not existing or operating or generating on a commercial scale before January 1, 1956. "Necessary industry" was one that would contribute to the attainment of a stable and balanced national economy. Imported material used must not exceed 60 percent of the manufacturing cost plus reasonable selling and administrative expense.

Table 8. Percentage Distribution of Philippine Imports, 1949-60

Year	Food	Beverages Tobacco	Crude Materials	Mineral Fuels	Chemicals	Animal Veg. Oil	Mfq. Goods	Misc. Mfq. Goods	Machinery Transport Equipment	Misc. Commo-dities	Total
1949	25.26	3.43	0.61	6.00	5.97	0.39	37.60	7.86	12.84	0.04	100.00
1952	18.24	4.71	1.16	9.92	7.72	0.24	37.26	5.47	15.24	0.02	100.00
1953	16.96	3.44	1.33	10.81	8.46	0.38	36.93	4.96	16.68	0.05	100.00
1954	16.53	2.30	1.22	11.31	7.96	0.38	36.27	5.70	18.20	0.12	100.00
1955	18.69	2.89	1.57	9.83	8.01	0.29	34.93	4.37	19.05	0.37	100.00
1956	17.42	1.35	2.33	10.35	7.66	0.43	32.23	3.24	24.85	0.13	100.00
1957	17.61	0.28	2.91	9.44	9.32	0.38	33.46	3.28	23.07	0.24	100.00
1958	21.08	0.57	4.04	10.92	9.18	0.45	27.71	3.08	22.64	0.33	100.00
1959	13.04	0.52	5.13	11.41	11.23	0.50	26.39	2.90	28.53	0.35	100.00
1960	14.14	0.13	5.45	9.90	9.07	0.43	21.68	2.79	35.97	0.43	100.00

Source: *Foreign Trade Statistics of the Philippines* (Manila: NEDA, 1976) p. 1.

Tariff System

Changes were also made in the tariff structure of the country. Right after World War II, the tariff schedules were basically similar to the Payne-Aldrich Law of 1909.[12] Philippine products entering the United States were free of ordinary customs duties up to certain quotas.[13] Goods entering the Philippines, on the other hand, were imposed tariff duties for revenue purposes. The Laurel-Langley Agreement[14] of 1955 extended the preferential relationship by accelerating the application of Philippine duties on U.S. products and decelerating the imposition of duties on Philippine exports to the United States. Towards the end of the period, the objective of the Philippine Tariff System was expanded to include some discrimination between types of commodities.[15] Low rates were provided for essential consumer and producer goods which were not locally produced in sufficient amounts and quality. On the other hand, high rates were imposed on luxury and non-essential articles.[16]

The resulting tariff structure was essentially biased towards the production of non-essentials which were protected by high tariff walls and the importation of essential items (Power and Sicat, 1970) which had to compete against foreign competitors. The Tariff System was also reinforced by the priorities imposed on the dollar allocations by the monetary system. Most of the essential items were products of agriculture and agriculture-based industries. On the other hand, non-essential items were mostly industrial products which required imported raw materials and capital equipment. Furthermore, the administrative set-up required frequent interaction with national offices and agencies and the need to be close to a good international

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[12]Commonwealth Act No. 733, July 3, 1946.

[13]Schedule A of the US Tariff Code had quotes on the following; sugar, cordage, cigars, rice, pearl buttons, coconut and some tobacco products.

[14]Republic Act No. 1355.

[15]Republic Act No. 1937.

[16]Rates of duty on fresh and preserved milk, for instance, were 5 and 10 percent, respectively, and an ad valorem duty of 250 percent was imposed on such non-essential goods as pianos; 160 ad valorem duty on automobiles over 6-cylinders; and 150 percent duty on jewelry and precious stones.

port. These and the advantage of being close to the biggest market in the country encouraged industrial activities to locate in Metro Manila during the 1950s.

Other Policies

The major policies were augmented by selective credit and by price and wage policies which were instituted for social objectives, among others, but which turned out to complement all the other policies towards the attainment of industrialization through import substitution.

Of the orthodox monetary instruments, only cash reserve requirements were consciously and frequently used as part of the general campaign to maintain domestic price stability and the prevailing exchange rate between the Philippine peso and the US dollar (P2 to $1). The growth objective was pursued through the system of priorities imposed on imports and foreign exchange. The resulting monetary policy was primarily reactive rather than a leading instrument. Credit as an auxiliary instrument for growth was undertaken through selective lending practices of government-owned financing institutions such as the Development Bank of the Philippines (DBP) and the Philippine National Bank (PNB) which were the largest institutions in the fields of development financing and commercial banking, respectively.

The Development Bank of the Philippines, created in 1958 by Republic Act No. 2081 to replace the former Rehabilitation Finance Corporation, was authorized to grant long-term loans for the development and expansion of agricultural and industrial enterprises owned by Filipinos or corporations with at least 60 percent Filipino capitalization. The bank's interest charges ranged between 7 to 11 percent except for those fixed by law (which could be lower). These were lower than those in the private funds market.

Basically, loans depended upon the financial requirements of the project, the paying capacity of the applicant and the loan value of securities offered. This feature may have contributed to the lack of evenness in the distribution of loans among regions. From 1947 to 1960, Metro Manila [now known as the National Capital Region (NCR)] received 42 percent of the total loans granted, followed by Western Visayas and Central Luzon (Table 9). However, NCR received 99 percent of total non-agricultural loans granted. Of the total agricultural loans, 60 percent went to Central Luzon, Southern Tagalog and Western Visayas. The first two regions are adjacent to the NCR and Western Visayas is characterized by sugar production. Thus, the pattern of credit availment of DBP loans favored indus-

try over agriculture and was biased towards areas around the NCR (the Central Industrial Region).

Under Republic Act No. 1300, the Philippine National Bank (PNB) was authorized to grant long-term loans and credit advances for agricultural, manufacturing, industrial or commercial purposes.[17] PNB extended 40 percent of the loans it granted from 1955 to 1960 for commercial purposes, while it extended 30 and 20 percent of the loans granted to the agricultural and industrial sectors, respectively (Table 10). In 1959 and 1960, at least, PNB favored import substituting industries. Almost one-half of the total industrial loans granted went to food manufacturing and textiles (Table 11) which were specially favored by tariff protection and currency allocation policies.

Other institutions were established as supplemental conduits of financing. The Industrial Guarantee Loan Fund (IGLF) was set up in 1952 by the National Economic Council and the United States Agency for International Development, to guarantee loans made by commercial banks and other credit institutions for approved industrial projects. The IGLF accepted up to 80 percent of the ultimate loan which the bank incurred upon default of the borrower. This was to enable banks to relax their customary collateral requirement for financing desirable projects. The Agricultural Credit and Cooperative Financing Administration was also created in 1952 under Republic Act No. 821 to assist small farmers in securing credit facilities and farm cooperatives in marketing their agricultural commodities.

Price Policies

The government was also engaged in activities that were designed to retard the increase in prices. With war damage payments tapering off in the last years of the 40s, the upward pressure on the foreign exchange rate and the subsequent control over importations created a scarcity for primary commodities. To dampen price fluctuations and to aid Filipino retailers and businessmen, the Price Stabilization Corporation was created under Executive Order No. 350[18] to procure consumer goods which were then resold to Filipino retailers and businessmen at prices that would enable them to compete in the open market. This was followed by the institution of

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[17]July 23, 1916.

[18]October 3, 1950.

Table 9. Value and Share of DBP Loans Approved by Sectors and By Region
           January 2, 1947 to June 30, 1960

	Region	All Loans Approved	Industrial Loans	Agricultural Loans	Other Loans
1	Ilocos Region	₱ 44,116,930 (3.51)	₱ 16,996,962 (3.79)	₱ 8,515,038 (2.94)	₱ 18,604,038 (3.37)
2	Cagayan Valley	21,235,634 (1.69)	1,395,292 (0.31)	16,073,938 (5.56)	3,766,404 (0.68)
3	Central Luzon	115,727,650 (9.21)	35,666,213 (7.96)	54,829,817 (18.95)	25,231,615 (4.57)
4	NCR	530,482,324 (42.24)	218,453,864 (48.74)	5,233,302 (1.81)	306,795,158 (55.58)
4-A	Southern Tagalog	95,612,128 (7.61)	24,843,562 (5.54)	39,969,410 (13.83)	30,799,156 (5.58)
5	Bicol Region	38,002,275 (3.03)	10,968,768 (2.45)	19,804,144 (6.85)	7,229,392 (1.31)
6	Western Visayas	183,350,447 (14.60)	6,927,345 (1.54)	76,471,176 (26.46)	99,951,926 (18.11)
7	Central Visayas	67,263,340 (5.36)	33,649,935 (7.51)	7,384,545 (0.55)	26,228,860 (4.75)
8	Eastern Visayas	21,276,401 (1.69)	7,502,931 (1.67)	5,885,220 (2.04)	7,888,250 (1.43)
9	Western Mindanao	12,492,815 (1.00)	2,771,135 (0.62)	4,493,780 (1.55)	5,227,900 (0.95)
10	Northern Mindanao	29,007,441 (2.31)	13,391,551 (2.99)	8,322,690 (2.88)	7,293,200 (1.32)
11	Southern Mindanao	36,852,504 (2.93)	8,499,970 (1.90)	19,564,134 (6.77)	8,788,400 (1.59)
12	Eastern Mindanao	30,444,912 (2.42)	3,803,787 (0.85)	22,496,225 (7.78)	4,144,900 (0.75)
	TOTAL PHILIPPINES	₱1,255,864,801 100.00	₱448,217,421 100.00	₱289,043,389 100.00	₱551,950,091 100.00

Note: Figures in parentheses are percentage shares.
Source: DBP Annual Reports, 1959-1960 pp. 59-65.

Table 10. Value and Share of PNB Loans Granted, 1950-1960 (in million ₱)

Sectors	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960
Agricultural	118.6	146.3	158.2	158.6	150.4	134.1	166.9	193.1	181.7	190.3	177.1
	(34.92)	(36.37)	(43.14)	(45.77)	(40.34)	(30.20)	(31.530	(26.04)	(32.26)	(36.62)	(34.21)
Commercial	158.3	197.6	147.7	125.0	136.8	201.5	242.5	361.5	265.9	219.6	223.1
	(46.61)	(49.12)	(40.28)	(36.08	(36.70)	(45.38)	(45.82)	(48.75)	(47.20)	(42.26)	(43.09)
Industrial	58.7	52.6	55.9	59.0	79.2	94.8	110.0	166.1	103.9	103.5	111.9
	(17.29)	(13.07)	(15.24)	17.03)	(21.24)	(21.35)	(20.78)	(22.40)	(18.44)	(19.92)	(21.61)
Others	4.0	5.8	4.9	3.9	6.4	13.7	9.9	20.8	11.8	6.2	5.6
	(1.18)	(1.44)	(1.34)	(1.13)	(1.72)	(3.08)	(1.87)	(2.81)	(2.09)	(1.19)	(1.08)
TOTAL	339.6	402.3	366.7	346.5	372.8	444.1	529.3	741.5	563.3	519.6	517.7
	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)

Note. Figures in parentheses are percentage shares.

Source: *PNB Annual Report*, 1960. p. 35.

Table 11   Value and Share of PNB Industrial Loans Granted, 1959-60
            (in thousand pesos)

Industries	1959		1960	
	Value	Percent	Value	Percent
Food Manufacturing	₱13,005	16.31	₱16,951	19.60
Beverage Industries	902	1.13	803	0.93
Coconut Products & Prep.	126	0.16	16	0.02
Tobacco Manufactures	2,838	3.56	1,707	1.97
Textile, Cordage & Twine Manuf.	18,774	23.55	25,813	29.84
Apparel & Other Finished Products	2,173	2.72	2,214	2.56
Lumber & Wood Products	5,066	6.35	3,686	4.26
Furniture & Fixture Manufactures	365	0.46	525	0.61
Paper & Paper Products	905	1.14	2,663	3.08
Printing & Publishing	1,082	1.36	1,283	1.48
Leather & Leather Products	2,477	3.11	2,417	2.79
Rubber Products	2,163	2.71	1,120	1.29
Chemical & Chemical Products	2,074	2.60	1,869	2.16
Non-metallic Products	2,696	3.38	2,290	2.65
Metal Industries	8,990	11.28	7,802	9.02
Machinery, Equipment Accessories & Parts	1,457	1.83	446	0.52
Electrical Machinery Accessories & Parts	2,186	2.74	5,763	6.66
Transportation Equipment & Parts	10,638	13.34	6,934	8.02
Ordinance & Accessories	–	–	–	–
Miscellaneous	1,813	2.27	2,202	2.54
TOTAL	₱79,730	100.00	₱86,504	100.00

Source: *PNB Annual Report*, 1960. p. 17.

the National Rice and Corn Corporation (NARIC) in 1951[19] which was created specifically to stabilize the price of rice and corn. In 1955, the National Marketing Corporation (NAMARCO) replaced the Price Stabilization Board.[20] This was also intended to assist Filipino businessmen through

[19]Republic Act No. 663, June 16, 1951.

[20]Republic Act No. 1345, June 17, 1955.

a continuous supply of goods at low prices. Further assistance was provided through the Retailer's Fund Law,[21] whereby a revolving fund was set up to guarantee loans extended by any government financing institution to a Filipino retailer.

The pursuance of stable consumer prices discouraged domestic production of consumer products by keeping their prices artificially low. This helped retard agricultural development during that period.

Wage Policy

Another policy which had social objectives but had strong economic effects pursued during the period was the Minimum Wage Law instituted right after reconstruction. Republic Act Number 602, known as the Minimum Wage Law was passed on April 6, 1951. This law set the minimum wage of P4 a day for industrial workers and P1.75 a day for agricultural workers employed in a farm enterprise exceeding 12 hectares. The agricultural minimum level was to be raised to P2.50 after 2 years. The law protected individual workers, as was intended; however, it induced the artificial increase of the price of labor vis-a-vis machines and other capital equipment. As such, the Minimum Wage Law complemented the capital incentives of the overvalued peso and the preferential credit rates in biasing Philippine industry towards capital-intensive techniques.

The Spatial Distribution of Economic Activity

The Import Substitution Period saw the accentuation of the primacy of Metro Manila in the country as firms located most often in the area where the densest concentration of a protected domestic market, the presence of the country's principal port and the access to the national government bureaucracy coincided.

In contrast to the industrial sector which received numerous incentives and accommodations during the period, the relative neglect of the agricultural sector resulted in its poor economic performance (Power and Sicat, 1970). The provisions of the Laurel-Langley Agreement likewise perpetuated the traditional character of the agricultural sector by providing traditional exports preferential access to the U.S. market. Consequently,

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[21]Republic Act No. 1292, June 15, 1955.

the structure of agricultural production did not change much. This tended to preserve the industrial structure of the traditional agricultural regions.

After Metro Manila, the highest concentrations of manufacturing establishments were found in Southern Tagalog, Western Visayas and Central Visayas in that order. Commercial and service establishments also tended to concentrate in NCR, Southern Tagalog and Central Visayas. The latter could be attributed to the role of Metro Cebu and its environs as the hub of trade for both the Visayas and Mindanao areas. The Mindanao regions had the least number of establishments indicating that they were not yet fully integrated with the rest of the national market (cf. Hermoso's Special Study).

The pattern of regional employment was similar to that of establishments. Employment tended to concentrate in the National Capital Region, Southern Tagalog and Central Visayas implying the presence of enlarged markets for consumer products as well as the relative concentration of economic activity in these regions.

When the growth rates of the various regions are examined, a slightly different picture emerges. In terms of number of establishments, the fastest growing regions were those in Mindanao, especially the Southeastern part. For the rest of the country, Metro Manila still had the edge (Hermoso's Special Study). The growth of employment among the regions during the period seems even more equal. The regions of Mindanao again had the highest growth rates in employment. The rest of the country, however, showed employment growth rates which were roughly equal except for the Visayas regions. In fact, in Luzon, Metro Manila lagged behind the other regions.

The preceding figures can be misleading, however. They are highlighted because they indicate the type of growth that was taking place in the country during that period. While Metro Manila was not predominant in the growth of establishments and employment, this did not mean that the other regions were catching up. In terms of the growth of value-added, Metro Manila and Southern Tagalog were still growing very fast compared to most of the country (Hermoso's Special Study). The types of firms that were locating in the National Capital Region were large and capital intensive. The increase in the number of establishments and employment understates the growth of economic activity in the area. On the other hand, the growth of establishments in other regions was mostly in small firms with lower capital intensity and therefore lower output per worker. The growth of Mindanao indicates the increasing integration of that area with the rest of the economy.

The Decontrol and Devaluation Period: 1960-68

Import substitution policies enabled the country to enjoy an initial period of exuberant growth as domestic producers replaced importation as the main source of finished consumer products. However, toward the end of the 50s, the domestic demand for consumption goods was already almost saturated by import substitutes. Manufacturing growth, therefore, started to decelerate (Power and Sicat, 1970). At the same time, the disincentives to the export sector served to slow down the growth of the rest of the economy and the growth of domestic demand. By the end of the decade, the Philippines was ready for a new set of policies which would be designed to alleviate the country's economic plight.

The main policy change was the gradual dismantling of the system of exchange controls and the de facto devaluation of the peso. The decontrol program (which was introduced on April 25, 1960) embodied the implementation of government policy to remove all restrictions on exchange transactions.

During the early part, restrictions on foreign exchange transactions remained. Properly documented free market purchases of foreign exchange for imports were restricted to old and newly authorized "free market" producers who enjoyed regular quotas for their requirements in excess of CB-determined allocations.[22] Sales of foreign exchange by the CB at the official rate of P2 to $1 plus the margin levy was limited to the following categories: (a) highly essential commodities, (b) essential producer's commodities, (c) semi-essential producer's commodities, and (d) decontrolled commodities. These articles were still subject to import licensing. Exchange for other import control categories and for invisible payments was sold at the free market rate with an additional foreign exchange fee of 25 percent.[23] Eighty percent of all export receipts were retained by authorized agent banks for sale at the prevailing market rate. The 20 percent balance was surrendered to the CB at the official rate (P2 to $1).[24] Imports in-

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[22]Only Filipinos or corporations with at least 60 percent Filipino ownership could be considered free market producers.
CB Circular No. 106, April 25, 1960.

[23]Official Gazette, Volume 56, No. 7, February 15, 1960, p. 138

[24]CB Circular No. 133, January 21, 1962.

volving more than $100 were covered by letters of credit which were accompanied by a special time deposit to be kept for periods no shorter than 120 days and with a 100 percent reserve requirement.[25]

On November 6, 1965, the official exchange rate was unified at P3.90 to $1.[26] Likewise, the requirement to surrender 20 percent of export receipts to CB at the official exchange rate was waived. The removal of controls triggered an increase in import values which consistently outpaced export earnings. The decade of the 60s was characterized by deficits in the country's balance of trade, the only exception being 1963 when a slowdown in importation permitted exports to catch up (Table 12). However, further reductions in importation could not be achieved since the bulk of imported items consisted of capital goods, raw materials and intermediate goods (Table 13). The country's heavy dependence on imports reflected the legacy of the industrial structure which emerged during the Import Substitution Period.

The Tariff Structure and Tax Incentives

Import substitution, while no longer the main concern, was not completely changed. With the removal of foreign currency controls and the devaluation of the peso to more realistic levels, the tariff structure (which was essentially instituted in the 50s now became an effective incentive (Valdepeñas, 1970). This tariff structure was biased towards import-substituting manufactures. Another feature of the previous period which continued into the Decontrol Era was the system of tax incentives granted to preferred industries.

The Basic Industries Act was passed at the start of the decade[27] providing exemptions from the payment of compensating tax for the importation of machinery, equipment and spare parts from 1961 to 1970[28] for persons engaged in a basic industry. Most of the commodities produced by

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[25]The schedule of special time deposits was as folows:

(1)   unclassified items and non-essential consumer items: 150%
(2)   Non-essential producer and consumer goods: 100%
(3)   semi-essential producer goods: 50%, (4) essential consumer and producer goods and decontrolled items: 25%.

[26]CB Circular No. 210.

[27]Republic Act 3127, June 17, 1961.

Table 12. Foreign Trade of the Philippines, 1959-1969
(F.O.B. value in thousand U.S. $)

Year	Exports	Imports	Balance
1959	529,493	523,580	5,913
1960	560,389	603,870	(43,481)
1961	499,512	611,298	(111,786)
1962	556,021	586,738	(30,717)
1963	727,106	618,190	108,916
1964	742,036	780,325	(38,289)
1965	768,448	807,579	(39,131)
1966	828,195	852,772	(24,577)
1967	821,456	1,062,191	(240,735)
1968	857,715	1,150,218	(292,503)
1969	854,601	1,131,486	(276,885)

Note: Figures in parentheses are negative in values.
Source: NEDA. *Philippine Statistical Yearbook*, 1980, p. 504.

Table 13 Imports by Category, 1959-69 (F.O.B. Value in Million US$)

Year	Total Imports	Total Consumer Goods	Total Capital Goods	Total Raw Materials & Intermediate Goods
1959	523.6	82.3	155.2	286.1
1960	603.9	99.6	223.3	281.0
1959	523.6	82.3	155.2	286.1
1960	603.9	99.6	223.3	281.0
1961	611.3	115.7	210.7	284.9
1962	586.7	102.1	196.7	287.8
1963	618.2	125.5	215.0	277.7
1964	780.3	150.4	281.6	348.4
1965	807.6	185.0	283.4	339.2
1966	852.8	152.9	304.8	395.1
1967	1,062.2	192.0	415.8	454.2
1968	1,150.2	168.2	454.9	527.1
1969	1,131.5	157.5	455.6	518.4

Source: NEDA. *Statistical Yearbook*, 1980. pp. 524-526.

the industries were for export. This policy was designed to encourage the development of industries in the less developed regions of the country. To some extent, the Basic Industries Act accomplished this by stimulating the growth of extractive activity of firms which are typically located at the raw materials source. The output growth of mineral and forestry products accelerated during the 60s.

Other special tax incentives pertain to cottage, mining and textile industries. Firms registered with the National Cottage Industries Development Administration (NACIDA) were entitled to exemption from the payment of fixed and privilege taxes and percentage taxes on sales taxes.[29] These firms were also exempted from payment of compensating taxes on the total landed cost of imported machinery and equipment. Mining companies, aside from all the exemptions given by the Basic Industries Act, were also exempted from all taxes except income taxes.[30] The textile industry, on the other hand, was exempted from the payment of tariff duties, sales tax and compensating tax at a diminishing rate[31] from 1964 to 1970.

Wage and Price Policies

During the 60s, revisions to the Minimum Wage Law occurred more frequently than in the 50s. On August 8, 1963, the Agricultural Minimum Wage, which had been P2.50 a day since 1951 was increased to P3.50 a day by the Land Reform Code.[32] The minimum wage of industrial workers

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[28]Duration of the exemption was to be as follows:
  (1) 100% of taxes due from 1961 to 1965.
  (2) 75% of taxes due from 1966 to 1968.
  (3) 50% of taxes due from 1969 to 1970.

[29]National Cottage Industries Act, R.A. No. 3470, June 16, 1962.

[30]R. A. No. 3823, June 22, 1963.

[31]R. A. No. 4086, June 18, 1964. Duration of the exemption:
  (1) 100 percent from June 18, 1954 to December 31, 1966.
  (2) 75 percent from 1967 to 1968.
  (3) 50 percent for 1969.
  (4) 25 percent for 1970.

[32]R. A. No. 3844.

was increased from P4.00 to P5.00 a day.[33] On April 21, 1965, a further amendment set the Agricultural Minimum Wage at P4.00 a day and the industrial minimum wage at P6.00 a day.[34] The effect of these amendments was to maintain the artificial costliness of labor vis-a-vis capital.

The government continued the price stabilization policy especially with respect to rice and corn. The Rice and Corn Administration (RCA) was established to carry out the function.[35] Rice producers were guaranteed a floor price for palay. At the same time, a ceiling price was established for rice traders, millers and retailers.

The Spatial Distribution of Economic Activity

The locational pattern of industrial activity in the Import Substitution Period was perpetuated in the Decontrol and Devaluation Period. NCR's lead was followed closely by Southern Tagalog and Central Luzon. This indicates the spatial bias of such macroeconomic policies as the tariff structure and tax incentives. However, NCR and, more broadly, the Central Industrial Region experienced a slight drop in manufacturing output share during the Decontrol and Devaluation Period accompanied by relatively low manufacturing output growth from 1961-67. Generally, the Mindanao regions displayed the highest growth performance, although contributing minimally to manufacturing output. Meanwhile, the Traditional Agricultural Region (Ilocos, Bicol and the Visayas regions) accounted for more than 60 percent of mining and quarrying output in 1961 and 1967; but, NCR and Southern Tagalog demonstrated remarkably high growth rates for the 1961-67 period (cf. Hermoso's Special Study).

The Regional Awareness Period: 1970 to the Present

The government took a more active role in the management and planning of spatial development in the seventies. Official policy actively pursued the promotion of exports and direct encouragement of growth in the less developed areas of the country. This was expressed in the various

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[33] 1st Minimum Wage Order (No. 1-BLS), March 17, 1964

[34] R. A. No. 602.

[35] R. A. No. 4643, 1962.

economic development plans, policies and administrative programs enunciated throughout the period. One of the principal objectives of the National Economic Development Plan for the 70s was the dispersal of industries to different regions of the country (NEDA, 1973). Other important policies included the stimulation of growth in the lagging areas of the economy through export promotion policies and agricultural development policies. By the end of the period, policies indicated a new thrust in Philippine development policy.

Investment and Export Promotion Policies

One of the earliest signals of the changing policy milieu was the transfer of concentration from import substitution to export promotion. Export industries especially those utilizing indigenous raw materials and industries based on the further processing of traditional exports were encouraged.

During the latter part of the 60s, the Investment Incentives Act was passed.[36] It granted a broader set of tax incentives to all industries which could qualify for registration with the Board of Investments (BOI) which was formed under the law. Among the benefits accorded to export producers were: special tax credit equivalent to 7 percent of the total cost of raw materials and supplies purchased or an amount equivalent to the taxes actually paid by the enterprises on such raw materials to the extent used in the manufacture of export products, whichever is higher; tax credits for withholding tax on interest payments on foreign loans and tax exemption on imported capital equipment was also granted; and tax credits on domestic capital equivalent to the value of the compensating tax and customs duties due on machinery, equipment and spare parts. The Export Incentives Act was also passed at the start of the 1970s.[37] Under this law, BOI-registered firms enjoyed, for a period of 10 years from registration, a tax credit equal to the sales, compensating and specific taxes imposed on the supplies, raw materials and semi-manufactured products used in the manufacture and processing of export products. Importation of machinery and equipment was exempted from tariff duties and compensating tax and exports of registered export producers amounting to less than $5 million in calendar year 1969 but which exceeded this amount during the 5-year period after

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[36]Republic Act No. 5186, September 16, 1967.

[37]Republic Act No. 6135, October 27, 1970.

registration were to be exempted from any export tax. A tax credit equivalent to the value of the compensating tax and customs duties paid on the imported machinery, equipment and spare parts was also granted to export producers.

In addition to the export incentives mentioned, incentives for regional dispersal were added. Whenever a registered export producer established its plant in a BOI-designated area, the following privileges were granted: (1) increased deduction from taxable income by doubling the direct labor cost for inomce tax purposes; and (2) deduction from taxes payable to the national government of an amount equivalent to the cost and maintenance of approved necessary infrastructure work undertaken by the export producer. Despite these steps to encourage the dispersal of industries, the pull of the National Capital Region (NCR) still proved very strong. Seventy percent of the total number of registered firms under Republic Act No. 6135 are located in Metro Manila (Table 14). The next ranking regions are Southern Tagalog and Central Luzon, the regions adjacent to NCR.

As a further support for the export drive, the Philippine Export Credit Insurance was created on March 30, 1972.[38] Under this scheme, the government covered commercial credit risks up to 80 percent and political·risks up to 85 percent of the invoice value. This was expected to increase the export producer's ability to secure financing for his operations. The ultimate objective was to increase the foreign exchange earnings of the country and industrial and commercial penetration by Philippine concerns in the world market.

These measures, however, did not significantly change the regional distribution of investments (Table 15). Out of 300 projects approved by the BOI between 1968 and 1974, 144 or 48 percent of the total were located in Southern Luzon. Northern and Southern Mindanao together received 23 percent of the approved projects. As far as the industry breakdown is concerned, the BOI incentives indicate a gradual change of priorities. Table 16 shows that manufacturing projects were only 37 percent of total approved projects under the Investment Incentives Act. The bulk of the approved projects were agro-industries. Thus, a definite shift away from import substitution was already indicated.

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[38]Republic Act No. 6424.

Agricultural Policies

During this period, the development of the agricultural sector also became an avowed government goal. Financing for agricultural production and the dissemination of technical information became priority activities. Presidential Decree No. 717[39] directed all banking institutions to set aside at least 25 percent of their loanable funds for agricultural credit and at least 10 percent of such funds to be made available for agrarian reform beneficiaries. Presidential Decree No. 275[40] provided for the creation of the

Table 14   Number of Firms Registered under R.A. 6135 By Region: December 1970-77

	Region	Number	Percent
1	Ilocos Region	3	0.58
2	Cagayan Valley	2	0.38
3	Central Luzon	29	5.58
4	NCR	379	72.88
4-A	Southern Tagalog	37	7.12
5	Bicol Region	6	1.15
6	Western Visayas	8	1.54
7	Central Visayas	27	5.19
8	Eastern Visayas	1	0.19
9	Western Mindanao	2	0.38
10	Northern Mindanao	7	1.35
11	Southern Mindanao	15	2.88
12	Eastern Mindanao	4	0.77
	Total Philippines	520	100.00

Source: BOI Information Department. Unpublished data, 1981.

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[39] A decree providing an Agrarian Reform Credit and Financing System for Agrarian Reform Beneficiaries through Banking Institutions.

[40] August 16, 1973.

Table 15.   Regional Distribution of Projects Approved by the BOI
             1968 — 1974

	Region	No. of Projects*	Percent
1	Ilocos Region	8	3
2	Cagayan Valley	2	1
3	Central Luzon	23	8
4	Southern Tagalog	144	48
5	Bicol Region	7	2
6	Western Visayas	9	3
7	Central Visayas	19	6
8	Eastern Visayas	8	3
9	Western Mindanao	9	3
10	Northern Mindanao	39	13
11	Southern Mindanao	30	10
	TOTAL	300	100

Source: BOI Information Department. Unpublished data, 1981.

   *These projects were approved under R.A. 5186.

Agricultural Guarantee Fund Board which extended guarantee coverage
for losses on production loans to agricultural projects in the provinces
of Lanao del Norte, Lanao del Sur, Zamboanga del Sur, Cotabato, South
Cotabato, Sulu and the City of Basilan. While intended primarily as a res-
ponse to the rebellion in Mindanao, the directive had specific area and
sector objectives. However, the incentives were insufficient to offset the
peace and order problems in these areas.

     The biggest agricultural effort of the government in this period was
the Masagana 99 program which was a concerted effort by all ministries
to develop the agricultural sector by offering a package of incentives to rice
farmers. Its immediate objective was the attainment of self-sufficiency in
rice production. But it had far-reaching effects on the spatial distribution
of economic activity. By the second half of the decade, the country was
largely self-sufficient in rice.

Table 16   Projects Approved by the Board of Investments by type of Product and Pioneer or Non-Pioneer Status July 1, 1968-December 31, 1969

Type of Product	Total
Grand Total	157
Agro-Industries	80
Activated Carbon	1
Livestock	2
Bananas	2
Rice	2
Marine products	13
Cassava starch	3
Coconut oil	4
Processed coconut products	7
Cornstarch	5
Fiber bags	1
Ramie (integrated)	1
Forest products (plywood, veneer)	32
Processed food	3
Pulp and Paper	4
Mining and Mineral Processing Industries	19
Aluminum smelting	1
Iron ore	1
Nickel	2
Copper	5
Pyrite	1
Clay	1
Rock aggregates	5
Primary steel (integrated)	2
Dinnerware	1
Manufacturing Industries	58
Ceramics	3
Industrial chemicals	9
Fine chemicals	1
Antibiotics	1
Synthetic bags	6
Communications equipment	2
Electrical equipment	5
Footwear	2
Glass products	7
Lubricating oil	1
Machinery and Capital equipment	7
Cold rolled strips and coils	2
Metal products and engineering	11
Transport equipment	1

Source: *The Philippines: An Investment Handbook of Facts and Figures,* (Manila: 1970) p. 103.

Fifty-Kilometer Radius Ban

A direct policy to decongest the Metro Manila area was the ban on the location of all new factories and plants within a 50-kilometer radius of Manila starting December 1973. In conjunction, a locational clearance was required by the Human Settlements Commission (HSC, later the Ministry of Human Settlements) for projects to be located within the growth centers identified by the Commission throughout the country. The result of the ban has been a tendency for industrial plants to group around the periphery of Metro Manila. Around 30 percent of the locational clearances granted by the Human Settlements Commission are in urban centers in Central Luzon and Southern Tagalog (Table 17). Another 17 percent of the exceptions were allowed for plants inside Metro Manila. About half of the total locational clearances granted under this directive, therefore, are still in the Central Industrial Region. Still, the distribution of clearances for plants are relatively more dispersed than the existing pattern.

Integrated Area Development

The most direct instrument for regional development undertaken by the government are the integrated area development and other area specific projects. Integrated area development projects are development projects planned for smaller geographic areas usually organized along the boundaries of a river basin whose immediate aims are to increase agricultural productivity and employment opportunities for the farm population in these areas.   Their most distinct feature is the coordination of various project components like irrigation, electrification and other instruments under a single administrative center. Among the integrated area projects are:

(1) Bicol River Basin Development Project,
(2) Mindoro Integrated Area Development Project,
(3) Cagayan Integrated Area Development Project,
(4) Southern Leyte Integrated Area Development Project,
(5) Cotabato-Agusan River Basin Development Project.

Other area specific projects were also undertaken at this time such as the secondary road projects of Cotabato and Zamboanga del Sur and the various irrigation projects. The distinguishing feature of these projects from earlier infrastructure projects was its implementation as a response to development needs rather than just part of the regular road infrastructure program. These projects would often involve the laying out of a whole network of roads or small irrigation projects in accordance with area development plans.

Table 17   Distribution of Locational Clearances Granted, by Region
            August 1974-February 1978

	Region	Number	Percent
1	Ilocos Region	2	1.96
2	Cagayan Valley	2	1.96
3	Central Luzon	13	12.74
4	NCR	29	28.43
4-A	Southern Tagalog	36	35.29
5	Bicol Region	3	2.94
6	Western Visayas	3	2.94
7	Central Visayas	4	3.92
8	Eastern Visayas	1	.98
9	Western Mindanao	—	—
10	Northern Mindanao	4	3.92
11	Southern Mindanao	3	2.94
12	Eastern Mindanao	2	1.96
	Total Philippines	102	100.00

Source: Development Control Division, HSC. Unpublished data; 1981

Other Policies

Other policies had spatial implication even though they were instituted for different objectives. Among these were the countryside development program of the Development Bank of the Philippines and the government infrastructure investment program.

In September 1971, the guidelines for the implementation of the DBP's lending program for development of the countryside was approved by the national government. The development program aimed at creating employment opportunities in the rural areas through the creation and operation of small[41] and medium scale industries. The setting up of these

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[41]By DBP's definition, small scale industries are those requiring investments of ₱100,001 to ₱1 million. Medium scale industries are those requiring investments above ₱1 million but not more than ₱3 million.

types of industries in the regions would effectively contribute to the dispersal of industries.

Throughout the seventies, the government launched an integrated national infrastructure building program. The most important part of this program was the Philippine-Japan highway (NEDA, 1974) that would run the full length of the country. By 1979, the project was virtually complete. As part of infrastructure development, the Philippine Ports Authority also embarked on a program to improve existing interisland ports in the country and build new ones where needed (Philippine Ports Authority, 1977) to provide sufficient outlets for agro-industrial commodites in areas with high resource base to ensure fast waterbourne commerce and to promote regional distribution of industries. The national transportation plan was designed to improve accessibility to rural areas as well as to connect regions.

The power development program of NEDA included a rural electrification component which complemented the government's plan to provide electricity throughout the country from geothermal and hydroelectric sources (NEDA, 1977). Presidential Decree No. 380^{42} provided for the construction of power plants in different areas of the country to be able to sell electric power in bulk to industrial enterprise and cooperatives.

The third major portion of the infrastructure program was the water resources development which included: (1) irrigation, (2) flood control, (3) water supply and sewerage development, and (4) multi-purpose projects to develop untapped potential of depressed areas (NEDA, 1977). The development of water resources, like the rest of the infrastructure program, aims at relieving bottlenecks which have choked opportunities for growth in certain areas of the economy.

Spatial Distribution of Economic Activity

Historically, industrial activity tended to concentrate in the NCR. From 1961 to 1975, roughly half of industrial output accrued to NCR, while the broader Central Industrial Region contributed about 70 percent of industrial output. The widening of the initial industrial core (NCR) to include the contiguous regions of Central Luzon and Southern Tagalog may be traced to the overwhelming attraction that Metro Manila exerts on economic activity which has spilled over into its neighboring regions as congestion has increased in the inner areas. Recently, however, regional,

rural and agricultural policies together with the emphasis on countryside development have started to counter-balance the polarization trends although these have been initially weak.

Almost a decade of dispersal efforts still has made no conspicuous shift in the regional pattern of economic activity. This may be partly due to the economic slowdown at the start of the period (1967-71). No rapid changes in economic activity could, therefore, be expected. The imposition of martial law in 1972 led to a spurt in economic activity, especially in construction, mining and agricultural export products (cf. Hermoso's Special Study). Consequently, the data available (up to 1975) really allows for only four years within which regional awareness was effectively pursued. The initial absence of spatial effects is not surprising since the policy changes introduced (relatively more balanced granting of government loans and locational clearances, among others) are felt only after a longer period.

Summary and Conclusion

In this paper, the effects of government policies as they influenced the spatial distribution of economic activities in the country are traced. A few observations can be made. First, the locational pattern of industrial, commercial and agricultural establishments during the Colonial Period was weighted in favor of regions producing agricultural crops for export (Ilocos, Bicol, and the Visayas). These regions had the greatest density of establishments, as a result of the policies of the government which then favored the production of primary products for the American market. The relationship between the density in the location of commercial and business establishments and employment is reflected in the regional pattern of population.

Second, the Import Substitution Period (1948-60) saw a growing industrial sector in the country. This could have sparked the country's economic growth were it not for the high degree of importation that it entailed, on one hand, and the production of non-essential commodities, on the other. A perceptible change in the locational pattern of industrial and commercial establishments accompanied the fundamental policy change, with the NCR holding the greatest density in the number of new establishments, followed closely by Southern Tagalog and Central Luzon.

Third, the Decontrol and Devaluation Period (1960-68) did not change the existing pattern of economic activity because accompanying policies maintained the overall spatial thrust of the Import Substitution Period. Firms still tended to locate at the NCR, Southern Tagalog and Central Luzon. The level of importation could not be significantly lowered despite devaluation and decontrol.

Fourth, the 1970s ushered in the Regional Awareness Period as manifested in the decentralization of administrative functions, investment and export incentives, the 50-kilometer radius ban, integrated area development and the promotion of small- and medium-scale industries, among others. The effects of the latest set of policies will not be apparent until some years from now. Still, the record of past policies indicates that new areas of the country will receive an initial push although it is not clear that this would be enough to completely offset the well-established advantages of the NCR and the broader CIR.

THE PHILIPPINE URBAN HIERARCHY: STRUCTURE AND DEVELOPMENT

Evangeline M. Soliman
and Cayetano W. Paderanga, Jr.

The spatial organization of cities involves a set of relationships — where people live in relation to their place of work, firms' location in relation to their markets and to sources of their inputs, the relationship of the transportation network to its users, the location of commercial establishments and the location of their consumers, among others. These interactions define the economic function of cities: to bring together all of the services required for the area to which they belong. These central functions are distributed among the different cities depending on their importance and level of development.

The city also has close interrelationships with other cities in the urban system. The level of services that cities perform is a measure of the degree of the city's relationship with the region to which it belongs and with the nation as a whole. The differences in the levels of services among cities give rise to a hierarchical structure shaped by the cities' functions in their regions which are influenced in turn by the regions' functions in the nation. The predominance of Metro Manila, for example, is not only a manifestation of its centrality in the Philippine economy; it also points to the importance of the central industrial region (CIR) in the total economic activity of the country.

This paper presents various efforts to identify the hierarchy of Philippine settlements from the late pre-colonial era to the present period. It hopes to trace the development of cities and provide the necessary background for understanding cities, as well as suggest clues to the future urban development pattern of the country.

Hierarchy of Settlements Before 1900

The pattern of settlements during the pre-colonial period reflected the prevailing political decentralization (with the barangay as the basic socio-

political unit) and the existing economic development of the country. Most of the largest communities were coastal villages engaged in extensive external trade. Manila and Cebu were large agricultural and fishing villages with unusually strong secondary trade functions.

During the Spanish colonial system, urban clusters were established to act not only as trading centers but also to serve as defensive centers from which control of indigenous villages was possible. Doeppers (1976) identified a three-level hierarchy of settlements: (a) the capital city, Manila, directing the affairs of the country; (b) provincial centers (*ciudades* and *villas*) which were centers of military, political and ecclesiastical control. (This group was composed of Cebu, Naga, Nueva Segovia, all ciudades and villas in Panay, and Fernandia, Vigan); and (c) central church village or *cabeceras* which became the focal points of activity and cultural change. These settlements were given functional importance and social prestige which continued to distinguish them from other settlements. Spanish colonial policy was characterized by a detailed recognition of ethnic groups and an effort to keep governmental, ecclesiastical and social functions spatially separated. The Spaniards and their retainers were located in the central area while the Filipino labor pool and Chinese providers of goods and services were in separate peripheral areas.

The rise of commercial agriculture and the stimulation of internal trade in the late eighteenth to mid-nineteenth century resulted in a sustained growth of Manila and the provincial centers. Secondary and tertiary rank settlements like Cebu, Cavite and Iloilo grew in size during this period of economic change. A number of lesser nodes, such as Batangas and Taal, became increasingly active.

The urban hierarchy that evolved by the end of the Spanish colonial period reflected the economic development of that period. The hierarchy was derived from a mean of the rank order positions of the four variables selected (Table 1) viz. (a) the number of Chinese residents, providing a rough index of the relative economic importance of the place and the level of urban economic activity; (b) professional services, also indicative of urban functions; (c) trade and transportation; and (d) manufacturing as an indicator of urban employment. Manila obtained the greatest benefit from the accelerating economic activity. Still, several port cities continued to grow as regionally important urban centers.

The hierarchy of urban places in 1900 showed that urban places were not evenly distributed. Almost half of the third rank towns were concentrated in Southern Tagalog and Central Luzon. (Table 1).

Table 1   Economic Rank of Philippine Cities and Towns, 1903.

		Number of China-born	Professional Service	Trade and Transport	Manufacturing Mechanical	Mean Rank of Variables
I.	Manila	1	1	1	1	1.0
II.	Iloilo	2	2	3	2	2.25
	Cebu	3	3	2	9	4.25
III.	Legaspi	9	4	12	4	7.25
	Tambobong (Malabon)	15	12	4	7	9.5
	Cavite	4	5	13	18	10.0
	Taal-Lemery	X[a]	24	5	4	11.0
	Naga	10	6	13	16	11.25
	Dagupan	8	19	6	17	12.25
	Lipa	X[a]	12	19	9	13.3
	Batangas	22	19	7	6	13.5
	Laoag	29	6	23	2	15.0
	San Pablo	18	15	13	15	15.25
	Aparri	6	26	11	20	15.75
	Zamboanga	5	6	22	31	16.0
	Vigan	15	19	19	13	16.5
	San Fernando, Pampanga	19	9	13	26	16.75
	Santa Cruz, Laguna	19	11	13	32	18.75
	Capiz (Roxas)	26	15	28	7	19.0
	Baliuag	35	14	18	11	19.5
	Malolos	26	22	9	26	20.75
	Dumaguete	22	22	28	12	21.0
	Daet	15	26	23	22	21.5
	Tacloban	12	31	19	26	22.0

[a] Lipa and the twin nuclei of Taal and Lemery were recognized towns in the middle to later 19th century. By 1900 they were in decline.

Source: Doeppers (1972), p. 39

Hierarchy of Settlements in the Recent Period

Ullman (1960) identified five types of trade centers, namely: (a) national center – Manila with population of 1,700,000; (b) interregional – Cebu, Davao, Iloilo and Zamboanga (population of about 50,000 – 200,000); (c) major centers – centers with large trade areas and a population of 10,000 – 40,000; (d) secondary centers – with a population of 5,000 – 25,000 (these are similar to major centers but are less important); and (e) minor centers – small retail and social centers and a population of about 1,000 – 5,000. The relative importance of cities was based on population size and commercial

functions. Ullman made use of several criteria in classifying trade centers, namely: population size, traffic flow maps, branch plants and warehouses of softdrink plants, depots for three major oil companies, Chinese Chamber of Commerce since the Chinese control most of the retail trade, and a variety of specific data such as port facilities, military installations, factories and sugar centrals. The study did not clearly identify the types of economic and service activities present in each type of trade center. Based on Ullman's findings, the Philippines has a greater number of major and secondary centers than would have been expected of similar rank size distributions, reflecting the geographic fragmentation of the country.

Two independent agencies of the Philippine government also undertook studies in identifying the hierarchy of Philippine settlements. The development of an urban hierarchy, with particular emphasis on the development of intermediate-sized cities, is a proposal of the National Economic and Development Authority for regional development (NEDA, 1978). Such an approach is aimed at relieving Metro Manila of population pressure and enhancing the development of rural areas. The identification of growth centers relies heavily on the comparative advantages of the regions and the proposed urban centers, as well as the relative capacity of the urban centers and their hinterland in generating internal market demand increases for urban type of goods and services. The proposed hierarchy of urban centers consists of three types, namely: metropolitan areas with Metro Manila, Metro Cebu and Davao City; primary urban centers; and secondary urban centers. Cities belonging to the other levels of the hierarchy were not identified.

The hierarchy of settlements identified by the Ministry of Human Settlements (1978) was presumably based on the growth center theory with a purpose of generating development in regions by concentrating projects in relatively few places with development and growth potentials. The hierarchical scheme also aims to divert population from overcrowded large cities toward smaller cities. The selection of growth centers was based on population size and population growth trends (Alternative I), and population potentials based on the geographic centrality of the area (Alternative II). Alternative I shows the distribution of settlements by the year 2000 based on historical trends and relative population size while Alternative II is based on population size and geographical centrality of each municipality. The second alternative considers the accessibility of each settlement to the rest of the provinces. Two aspects were taken into consideration: the relative aerial distance between two municipalities, and population per location. Other factors taken into consideration in selecting growth centers were topography, presence/absence of roads, feasibility of development due to favorable characteristics of the site, and social and behavioral factors (e.g.,

culture, religion, race, trade flow patterns). The growth centers were classified into four types with the following characteristics: (a) metropolitan center (population of 1,000,000 and over) comprises major cities with their outlying districts of satellite communities offering various facilities and services for the region; (b) regional centers (population of 250,000-999, 999) are those designated as the administrative headquarters and the seat of regional offices of government agencies serving the region while sub-regional centers do not have any administrative functions of the government but offer a complete range of urban services and facilities; (c) major urban centers (population of 80,000 to 249,999) are trade centers of resource frontiers and the nuclei of leading development areas; (d) minor urban centers (population of 25,000 to 79,999) are described as agricultural service centers with a range of urban services and facilities to complement the major urban center of the province and having potentials for development as intermediate-sized centers; and (e) satellite municipalities (population of less than 25,000) are settlements dependent on the growth centers for urban services and facilities. Their services and facilities are limited to the basic requirements of the settlements.

The Ministry's selection of hierarchical growth centers using Alternative II (i.e., population size) did not fully adopt the concept of central places as defined by the functions fulfilled by cities. The principal variable of the accessibility index used by the Ministry's study is population size under the assumption that population concentration is indicative of the area's centrality. This may not always be the case. As will be noted later in this paper, some cities exhibit large population sizes yet possess none or few of the economic and service functions that would classify them as higher order centers. The hierarchy prepared by the Human Settlements also considered all the municipalities, resulting in a great number of regional centers, sub-regional centers and other lower types of urban centers. For municipalities with a dearth of central services, substantial government direct intervention may be necessary before these places acquire the capability to generate development in the surrounding area.

The Present Hierarchy of Cities

The urban hierarchy manifested by Philippine cities is described and analyzed using 1975 census data. Cities in the Philippine urban system are classified into broad types of centers based on the varying degrees of presence of central functions. Chartered cities of 1975 with a minimum population size of 40,000 and density greater than or equal to the average density

of 140 persons per square kilometer and provincial capitals with the same required population size and average density were included.[1]

Chartered cities are used because these government units are autonomous municipal corporations governed by charters and possess taxing powers not enjoyed by ordinary municipalities. They have more leeway to broaden their revenue base and therefore invest in economic and urban activities and services. Provincial capitals are official centers of administrative divisions of the country serving as the transportation and communication centers and providing direct physical links to all other settlements of the provinces and to the national economy.   Generally, provincial capitals rank first in urban population, commercial and industrial establishments, and utilities and facilities within their provinces. And most chartered cities are also provincial capitals.

Aside from population size, the other criteria used are the following central functions: (a) banking — considered important because it serves to finance wholesale trade and business enterprises in the city and surrounding area. The number of bank branches of twenty Manila-based commercial banks listed in the *1976 Directory of Banks* (Dosdos 1976) is counted and cities are ranked according to the total number of bank branches present; (b) presence of breweries and softdrink warehouses or their branch plants, and presence of depots of major oil companies (Ullman 1960); (c) the number of large wholesale establishments; (d) the presence of essential service type activities such as transport and communication, health, education and recreational services.[2] Data for items (c) and (d) are found in the *1975 Directory of Large Establishments* which contains a listing of large establishments by industry and geographic location; and (e) port and airport facilities, and such other data as average annual traffic flow on roads and road network within provinces and urban centers (cf. Soliman 1981). Quite

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[1]Definition of urban areas stressed the following criteria: (a) critical minimum population size, i.e., the threshold demand level needed to supply a range of urban services; and (b) a critical population density. (Richardson, 1978.) A municipality may become a city when its population is greater than or equal to 40,000. At this minimum size, it reflects that some degree of urbanization has occurred and that some urban problems require resources to deal with. The average density suggests that critical level of population density (World Bank 1979).

[2]The types of service functions considered were: five (5) types of transport services presence of provincial bus service, local bus service, interisland and overseas ocean transport, and air-chartered services; three (3) types of communication services — presence of telephones, telegraph and printing press; and six (6) types of services for health, education and recreation — presence of hospitals, universities, hotels, television channels, movie theaters, and radio broadcasting system.

often, these criteria were very closely related. This close correlation among the different measures of centrality facilitated the classification of cities (cf. Appendix Table 1).

Seven types of urban centers were identified: (a) the national center and regional center for Luzon: Metro Manila[3]; (b) broad regional centers: Metro Cebu[4] and Davao City; (c) regional centers: Iloilo, Bacolod, Cagayan de Oro, Zamboanga, Tacloban, Legaspi, Cotabato, and San Fernando (La Union).

The other chartered cities were classified as major urban centers, secondary urban centers, minor urban centers and satellites depending on the types of central functions and service activities present (Table 2 and Figure 1).

National Center

Metro Manila with a population of 4.97 million in 1975 is seven times larger than the next largest urban center, Metro Cebu with a population of 656 thousand in the same year. The primacy of Manila, brought about by historical forces, natural endowments as well as economic policies, has made this center the political, administrative, commercial and industrial center of the country. Metro Manila exerts a dominant influence on the rest of the country. This influence is manifested not only by population size and density but also by heavy concentration in the area of industries, transport facilities, and a vast range of social services.[5] And because of its natural harbor, Manila also far exceeds other Philippine cities in the volume of foreign trade (Soliman 1981).

Broad Regional Centers

Metro Manila is also the country's leading regional center. With the size of its hinterland embracing Luzon, Mindoro and Palawan, its large trade area is the principal market for regional surpluses and the major source of domes-

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[3]Metro Manila comprises four cities: Manila, Quezon City, Pasay, and Caloocan; and 13 municipalities: Las Pinas, Makati, Malabon, Mandaluyong, Marikina, Muntinglupa, Navotas, Paranaque, Pasig, Pateros, San Juan, Taguig and Valenzuela.

[4]Metro Cebu comprises three (3) cities: Cebu City, Lapu-Lapu, and Mandaue; and two (2) municipalities: Minglanilla and Talisay.

[5]However, as Figure 2 indicates, there is some relationship between population size and type of center.

Figure 1. Philippines: Distribution of Higher Order Centers, 1975:

South
China Sea

LUZON

Philippine Sea

VISAYAS

Sulu Sea

MINDANAO

Mindanao Sea

LEGEND

■ Broad Regional Center

● Regional Centers

▲ Major Urban Centers
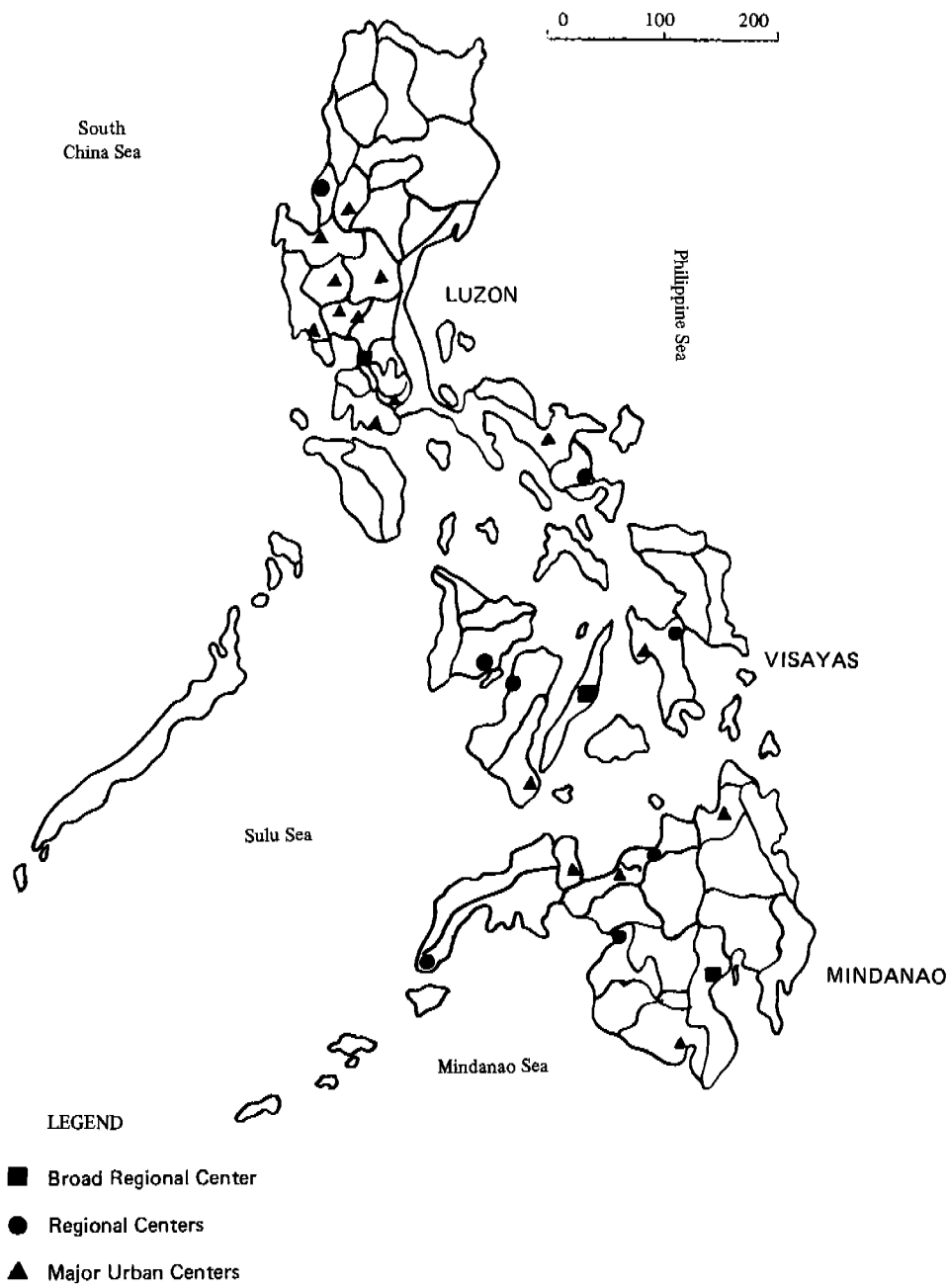
Table 2. Classification of Cities: The Urban Hierarchy

Cities	Type of Classification
Metro Manila	National Center
Metro Cebu	Major Regional Centers
Davao	
Iloilo	Regional Centers
Bacolod	
Cagayan de Oro	
Zamboanga	
Tacloban	
Legaspi	
Cotabato	
San Fernando (La Union)	
Angeles	Major Urban Centers
Olongapo	
Butuan	
Batangas	
Iligan	
San Pablo	
Cabanatuan	
Dagupan	
Ormoc	
Naga	
Dumaguete	
Tarlac	
Baguio	
General Santos	
San Fernando (Pampanga)	
Tuguegarao	Secondary Urban Centers
Lucena	
San Carlos (Negros Occidental)	
Roxas	
Laoag	
Pagadian	

Table 2 (Continued)

Cities	Type of Classification
Surigao Dipolog Daet Gingoog	Secondary Urban Centers
Oroquieta Cavite Toledo Iriga Marawi	Minor Urban Centers
Cadiz Lipa Silay San Carlos (Pangasinan) La Carlota Bago San Jose Danao Dapitan Bais Tangub	Satellites

tically manufactured goods. Furthermore, the concentration of population and economic activities support specialized professional services which are not present in the other two regional centers; e.g., large accounting firms, advertising agencies, consultancy and research firms.

Metro Cebu serves as the regional center for the Visayas region. Its domestic trade by water for the year 1973-74 (Soliman 1981) is bigger than Manila's because Cebu's only connection with the other areas is by water while Manila has the longest land connections, i.e., the longest railroad connections and paved highways. Cebu's strategic location and accessibility make it the trading center for the central part of the Philippines. Its influence extends beyond its immediate hinterland to Eastern Visayas and the northern half of Mindanao.

Considering the different types of service functions selected, all fourteen service functions are present in Metro Cebu. Metro Cebu ranks closer to Metro Manila than Davao City, the regional center for Mindanao.

Davao City with a population of 484.7 thousand in census year 1975 is by far the largest settlement in Mindanao. It is agriculture-based, and possesses a deep water port for international shipping and has one of the country's leading hotels.

Broad regional centers have a whole complex of central functions in contrast to the other lower type of centers. They have adequate hospitals, universities, recreation and tourist facilities, telephone and other communication facilities, and roads and other transport means. Their large trade area requires an extensive transportation system which serves to link the center with surrounding hinterland as well as with the lower type of centers. Cities of this type (and also regional centers) have a primary or secondary port facility[6] and an international or trunkline type of airport facility.[7]

The presence of other economic functions such as location of breweries, softdrink warehouses and branch plants, location of depots of major oil companies, and availability of local and provincial buses for cities with fairly good roads distinguishes broad regional and regional centers from other lower types of urban centers.

Regional Centers

Cities that are classified as regional centers rank next to broad regional centers based on the measures used in classifying cities. To a considerable extent, these cities possess the same types of service functional units as broad regional centers except that regional centers have less of these establishments. The significant role of these cities as a link to the region and national economy makes the different economic and service functional establishments locate in these cities. Regional centers have become the focus of development thrust of the government in the region where they belong.

Depending on the region's level of development, regional centers serve as substitutes for broad regional centers where these are absent. Except for Western Visayas which has two regional centers (Iloilo and Bacolod), almost all other regions have one regional center each. Regions II, III and IV-A (Cagayan Valley, Central Luzon and Southern Luzon), however, have neither broad regional nor regional centers. Regions III and IV-A are adjacent to Metro Manila, with Central Luzon and Southern Tagalog being part

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[6]Primary ports are capable of handling domestic and foreign traffic of national significance. Secondary ports serve the main population centers of its region.

[7]International airports are used for operation of aircraft engaged in international air navigation. Trunkline airports serve commercial centers of the Philippines.

of an expanded version of Metro Manila called the Central Industrial Region.[8] Thus, the cities in these two regions tend to be satellites of Metro Manila rather than true central places for their regions. The absence of a regional center for Cagayan Valley indicates its level of development.

Major Urban Centers

Major urban centers are important because these centers provide basic urban services, i.e., health, education, transport and communication, to the surrounding area. The spatial relationships among urban centers as well as the volume of traffic flow for cities with extensive road network are also considered. These may be used as an indicator of the size of the hinterland. Take the case of Ozamis City, Misamis Occidental. According to the presence of economic and social infrastructures, the city can be classified as secondary urban center but the traffic flow map (Soliman, 1981) indicates that the city serves more as a major urban center for the province of Misamis Occidental. This shows that functional relationships with other urban centers is also one important measure of centrality. The volume of cargo of principal ports is another measure used in classifying major urban centers. Most of these major urban centers have tertiary ports[9] and secondary airport facilities.[10]

Secondary Urban Centers

Secondary urban centers do not offer as complete basic urban services as the major urban centers. These centers offer the minimum service functions usually confined to health or education services. With regard to the economic variables (i.e., number of commercial banks, number of large wholesale establishments, and type of port and airport facilities) used, secondary urban centers have the least number of establishments for economic services, a tertiary type of port and secondary airport facilities.

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[8]See Chapter 3 and Hermoso's Special Study in this volume.

[9]Tertiary ports are capable of handling traffic serving a limited portion of the regional hinterland and capable of performing local port functions (National Transportation System, 1975 Appendix II.I).

[10]Secondary airports serve principal towns and cities with regular traffic densities that warrant the operation of jet-prop aircraft (National Transportation System, Appendix II.2).

Figure 2.   Relationship Between City Population Size and Type of Urban Center
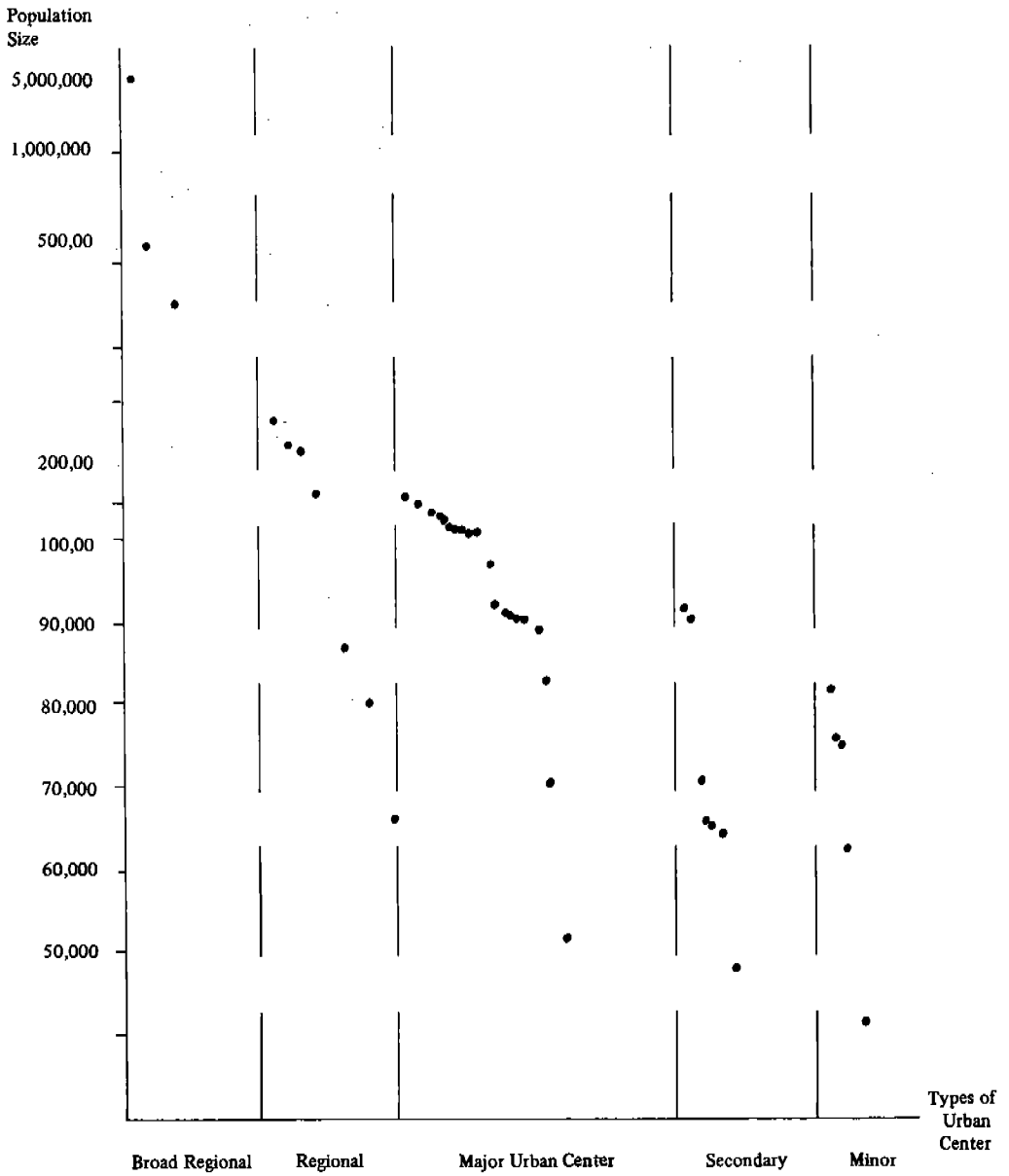
Minor Urban Centers and Satellites

Cities comprising minor urban centers lack, in most respects, the different types of economic and service activities which higher order centers offer. Still, these centers perform minimal services of some type or another for their tributary area. They ranked in at least one of the factors used as measures of centrality. For example, Appendix Table 1 shows that cities like Toledo and Iriga have only a bank branch located within the geographic area, having no establishments present for the other types of economic and service activities considered.

On the other hand, there are chartered cities close to a larger urban center which exhibit substantial population concentration though these cities possess none or very few of the service functions considered (Appendix Table 1). For example, Silay, Bago, La Carlota, Cadiz, and San Carlos cities belonging to the sugar-producing province of Negros Occidental and close to Bacolod City, exhibit population concentration yet the service functional establishments listed in the *1975 Directory of Large Establishments* show that these establishments are localized in Bacolod City. This is also true for the rest of the satellites where service functional establishments are located in the neighboring urban center belonging to a higher order rank.

Economic and Social Infrastructure of Philippine Cities

The position of cities in the urban hierarchy reflects the type of economic activities and social infrastructure present in each city in response to the demands of the tributary area. Cities can, therefore, be also classified into various classes depending on the package of services available. In the following sections, cities are first classified by the social and economic services they offer; then the average level of each social and economic service is examined for significant differences between types of cities. The correspondence between this classification and the previous one is also examined.

The same cities are used in the new classification and the following indicators are used to reflect the type of economic activities and social infrastructure in the city:[11]

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[11] As distinguished from the previous classification which was based on the presence or absence of central functions.

Economic Indicators

a)   Total number of bank branches of Manila-based commercial banks (Dosdos, 1976). This economic variable was also used in the identification of the hierarchical classification mentioned in the earlier sections.

b)   Total number of establishments in all economic sectors (agriculture, industry and service sectors) per 1000 population. [NCSO, *Listing of Establishments*, 1975].

c)   Number of establishments in the service sector per 1000 population.

d)   Number of establishments in the industrial sector per 1000 population.

e)   Type of port and airport facilities (National Transportation System, 1975).

f)   Number of telegraph offices, and post offices.

g)   Number of telephone connections per 1000 households.

Items (e) to (g) can be considered as economic infrastructure which give support to economic activities.

Indicators for Social Infrastructure

a)   Educational services — number of schools by levels of education; number of elementary schools per 10,000 population; number of secondary schools per 10,000 population; and number of tertiary schools per 10,000 population.

b)   Health services — number of hospitals, health and community centers; and total number of beds per 1000 population.

c)   Housing services — proportion of households with plumbing facilities, with electricity and with toilet facilities.

d)   Per capita total government expenditures by function for fiscal year 1975 (June 1974 — July 1975).

Discriminant Analysis

Discriminant analysis was used in the classification of cities by socio-economic infrastructure. Here, a set of linear combinations of the different economic and social variables is formed such that the discriminant functions maximize the separation of the groups. The hypothesis that the groups are

distinct, and if they are, whether or not the variables give enough information to discriminate among groups is tested.[12]

Three different sets of discriminant analysis were performed, namely: a) classification of cities using economic infrastructure to indicate the economic functions present in the city; b) classification of cities based on the type and level of social infrastructure; and c) classification of cities based on both economic and social infrastructure. The results are shown in Table 3.

There are some differences between the previous grouping by central functions and the new classifications by both economic and social infrastructure. Most of the differences arise in the lower types of urban centers. Some of these cities are close to a larger urban center, e.g., San Pablo City and Cavite City of Southern Tagalog Region, and Cabanatuan City of Central Luzon are all close to Metro Manila; and Iriga to Naga City, a major urban center. Economic impulses of higher order cities are probably transmitted to lower order cities such that the dominating influence of higher order cities extends farther than its immediate surrounding tributary areas (Table 3).

The classification of cities on the basis of both economic and social infrastructure only has three differences (i.e., Batangas City, San Carlos and La Carlota, both of Negros Occidental) out of forty-eight observations when compared to the classification of cities based on the cities' central functions. The values of the discriminating variables are also shown to be significantly different among all groups of cities. The results of this comparison further indicate that the function of cities is not confined solely to providing economic services but also includes the provision of social infrastructure to a great majority of the population and the surrounding area.

Conclusion and Implications

The preceding discussion has shown the symbiotic relationship between the city, the region that it serves, and the overall economy to which it belongs. The city provides the services that the region requires while drawing on the surrounding area for its support. Depending on its importance, the city's tributary area will be of a corresponding size. Minor urban centers, for example, provide only the most basic central services for their small tributary area. At the other end of the spectrum, the broad regional centers provide higher order services to areas that transcend their environs while ser-

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[12]See Soliman, 1981 for details.

Table 3. Alternative Classification of Philippine Cities

Observed Groups, a/ Groups of Cities based on presence of central functions	Groups of Cities Using Discriminant Analysis Based on:		
	Economic Infrastructure	Level of Social Infra- structures	Both economic and social infra- structure
Group I: Broad Regional			
Metro Manila	1	1	1
Metro Cebu	1	5	1
Davao	1	3	1
Group 2: Regional Centers			
Zamboanga	2	2	2
Iloilo	2	2	2
Bacolod	3	2	2
Cagayan de Oro	2	2	2
Legaspi	2	2	2
Tacloban	2	2	2
Cotabato	2	2	2
Group 3: Major Urban Centers			
Angeles	3	1	3
Olongapo	3	2	3
Butuan	3	3	3
Batangas	3	3	4
Iligan	3	3	3
San Pablo	5	4	3
Cabanatuan	5	3	3
Baguio	3	3	3
Dagupan	3	3	3
Ormoc	4	6	3
Naga	3	3	3
Ozamis	4	3	3
Dumaguete	4	2	3
General Santos	3	3	3

Table 3 cont'd

Observed Groups: Groups of Cities based on presence of central functions	Groups of Cities Using Discriminant Analysis Based on:		
	Economic Infrastructure	Level of Social Infra- structure	Both economic and social Infrastructure
Group 4: Secondary Urban Centers			
Lucena	4	4	4
San Carlos (Negros Occidental)	6	6	5
Roxas	4	4	4
Gingoog	6	4	4
Laoag	3	4	4
Pagadian	4	4	4
Surigao	4	4	4
Dipolog	4	4	4
Group 5: Satellites			
Cadiz	5	5	5
Lipa	5	5	5
Silay	5	5	5
San Carlos (Pangasinan)	5	5	5
Bago	5	5	5
San Jose	5	5	5
Danao	5	5	5
Dapitan	5	5	5
Bais	5	5	5
La Carlota	5	6	6
Tangub	6	5	5
Group 6: Minor Urban Centers			
Cavite	4	6	6
Toledo	6	2	6
Iriga	5	6	6
Marawi	6	6	6
Oroquieta	6	6	6

[a]Previously grouped by central economic functions

vicing the basic needs of their immediate tributary area. Metro Cebu really serves most of the Visayas and Northern Mindanao while Davao is the central point of the economic activities in the rest of Mindanao. Metro Manila however holds a special place as the primate city in the country, providing services of the highest order for the whole country. All these relationships define the urban hierarchy which binds the sometimes disparate regions of the country.

This organic view of the urban hierarchy has some immediate policy implications. On a superficial plane, the degree to which a city has developed is an indication of the region's development. The types of cities in a region, therefore, indicate a region's maturity. Beyond that, however, the development of a region's cities also largely determines the extent to which it can avail of impulses from other regions and from the overall growth of the economy and its ability to transmit exogenous changes that start within its boundaries.

The centrality of a city has to be considered in regional development. Some form of integration of the whole country into one market should be attempted so that the spread effects of economic changes are not hindered. This is best done by exploiting the city system. For less developed regions, for example, an important part of a development program is to enhance the social and economic infrastructure and increase the availability of central functions in their cities. This integrates the region with the rest of the economy and at the same time prevents choking off the effect of an impulse due to a shortage of crucial services. Hand in hand, therefore, with any program to develop any region should be a plan to upgrade the system of cities in that region. Balanced regional development requires the balanced development of cities if full effectivity of any development program is to be attained.

Appendix

Table 1. Indicators of Centrality Used in The Classification of Cities, 1975

Indicators of Centrality Cities	Population size, 1975	Total No. of Comm'l. banks & special banks	Rank	Total No. of whole sale large establish- ments	Rank	Types of trans- portation & com- nmunication serv- ices, health & school services (presence/absence)	Rank	Type of ports[1] present	Type of air ports[2]	Location[3] of brewe- ries and softdrinks plants	Location of depot of major oil com- panies
Metro Manila	4970006	20	1	1560	1	14	1	1	1	1	1
Metro Cebu		19	2	189	2			1	2	1	0
Davao	484678	16	3	103	3	11	2	1	3	2	0
Zamboanga	265023	6	9	16	8	8	3	2	3	2	0
Iloilo	227027	13	4	81	4			2	3	2	0
Bacolod	223390			75	5	7	4	0	3	2	1
Cagayan de Oro	165220			40	6	6	5	1	3	2	0
Angeles	151564	9	6	4	17	3	8	0	0	0	0
Olongapo	147109	4	11	2	19	4	7	0	0	0	0
Butuan	132682			16	8	3	8	2	4	0	0
Cadiz	127653	1	14	1	20	1	10	0	0	0	0
Batangas	125363	4	11	4	17	3	8	2	0	0	1
Iligan	118778	6	9	13	10	2	9	3	4	0	0
San Pablo	116607	5	10	9	13	3	8	0	0	0	0
Cabanatuan	115258	6	9	11	12	3	8	0	0	0	0
Lipa	106094	1	14	0				0	0	0	0
Silay	104887	1	14	0				0	0	0	0
Baguio	97449	9	6	4	17	7	4	0	4	0	0
Lucena	92432	5	10			2	9	4	5	0	0
San Carlos (Negros Occidental)	90982	3	12	1	20			3	3	0	0
San Carlos (Pangasinan)	90882							0	0	0	0
Dagupan	90092	10	5	9	13	2	9	4	4	0	0
Ormoc	89466	5	10	6	15	1	10	3	3	0	0
Bago	89213							0	0	0	0
Legaspi	88378	8	7	9	13	5	6	2	2	2	0
Naga	83337	9	6			3	8	0	0	2	0
Cavite	82456	2	13					4	4	0	0
Tacloban	80707	9	6	14	9	3	8	2	3	2	0

Indicators of Centrality Cities	Population size, 1975	Total No. of Comm'l. banks & special banks	Ranks	Total No. of whole sale large establishments	Rank	Types of transportation & communication services, health & school services (presence/absence)	Rank	Type of ports[1] present	Type of air ports[2]	Location[3] of breweries and softdrinks plants	Location of depot of major oil companies
Toledo	76521	1	14	1	20			3	0	0	0
Iriga	78885			3	18	2	9	0	0	0	0
Ozamis	71559	2	13	2	19	3	8	3	4	0	0
Roxas	71305	1	14	5	16	1	10	3	4	0	0
Cotabato	67097	6	9	4	17	2	9	2	3	0	0
Gingoog	66577	2	13	5	16	1	10	4	0	0	0
Laoag	66259	7	8	1	20	2	9	0	3	0	0
Pagadian	66062	1	14			1	10	3	4	0	0
Surigao	66027	3	12	3	18			3	4	0	0
Marawi	63332					2	9	4	0	0	0
San Jose	58387							0	0	0	0
Dumaguete	52765	6	9	9	13	2	9	3	3	0	0
Davao	50260			1	20			3	0	0	0
Dipolog	48403	3	12			2	9	4	4	0	0
Dapitan	46261							4	4	0	0
Bais	45672							0	0	0	0
Oroquieta	42497			3	18			3	0	0	0
La Carlota	40984							0	0	0	0
Tangub	40961							4	4	0	0
General Santos	91154	7	8	26	7	1	10	3	3	0	0
San Fernando, Pampanga	98382	5	10	4	17	3	8	0	0	2	0
San Fernando, La Union	61166			6	15	2	9	2	4	0	0
Daet	50010	4	11	4	17	1	10	0	4	0	0

Appendix   Table 2 (Cont'd.)

Indicators of Centrality Cities	Population size, 1975	Total No. of Comm'l. banks & special banks	Ranks	Total No. of whole sale large establishments	Rank	Types of transportation & communication services, health & school services (presence/absence)	Rank	Type of ports[1] present	Type of air ports[2]	Location[3] of breweries and softdrinks plants	Location of depot of major oil companies
Tuguegarao	62513	2	13	4	17			0	4	0	0
Tarlac	160595	5	10	12	11	2	9	0	0	0	0
Calapan (Oriental Mindoro)	55608	2	131				10	3	4	0	0

[1]Classification of Ports: 1 primary
                              2 secondary
                              3 tertiary

[2]Classification of Airports:
       1 international
       2 alternate international
       3 trunkline
       4 secondary

[3]Dummy variable for location
       1 with breweries, and softdrink warehouses and plants
       2 softdrink warehouses and branch plants

SMALL AND INTERMEDIATE SIZE CITIES AND REGIONAL DEVELOPMENT

Ernesto M. Pernia

Introduction

Because urban systems in most developing countries are punctuated by primacy, urban research has tended to focus on the primate city or on secondary cities as alternative centers for decentralized urbanization. Very little attention has so far been given to small and intermediate size cities, resulting in a partial view of the national urban system. In discussions of development policy, these cities have been taken for granted and their potential role largely ignored.

This paper takes the position that small and intermediate size cities are essential parts of the national urban system; hence, an understanding of their structure and behavior would sharpen our grasp of issues concerning primacy as well as attempts to bring about diffused urbanization and development. Accordingly, in this paper, we examine small and intermediate size cities in the Philippines to see what has been their growth performance over time, what factors have underlaid their behavior, what role they might play in national development, and how such role may be fostered by policy. The organization of the paper follows these questions.

Performance of SMCs

Data compiled by the United Nations reveal the slackening growth of small and intermediate size cities (SMCs)[1] in developing countries since 1950, resulting in a diminution of their position in the national urban hierarchy (Mathur 1981). This observation can also be made regarding SMCs[2] in the Philippines, as can be seen in Table 1.

Table 1   Annual Percent Growth Rates of Population of Different Size Cities: Philippines, 1903-80

City Size	1903-39	1948-60	1960-70	1970-80
Small	1.79	2.00	2.05	2.17
Intermediate	2.57	3.11	2.11	2.57
Large	3.16	3.75	4.22	3.79
Total	2.51	3.10	3.18	3.15

Source: Annex Table 1.

We note that large (100,000+) cities had consistently grown the fastest, always exceeding the national urban average, over the long historical stretch from 1903 to 1980. Especially salient among these large cities are Metro Manila in Luzon, Metro Cebu and Bacolod in the Visayas, and Zamboanga and Davao in Mindanao (see the Annex map). The overall growth rate of large cities peaked during the 60s at 4.2 percent per annum. Small (40,000-59,999) cities started out slow and hardly changed their growth rate during the 50s and 60s, but picked up somewhat in the 70s. After some burst in

[1]SMCs are defined as urban places with population in the 20,000-100,000 range.

[2]For the present paper, size categories are reckoned as of 1960: small = 40,000-59,999; intermediate = 60,000-99,999; large = 100,000+. This procedure allows for a backward and forward inspection of the performance of these different size cities.

1948-60, intermediate (60;000-99,999) cities decelerated in the 60s and also perked up in the 70s. A particularly noteworthy point in Table 1 is the visibly slow growth of SMCs in the 60s in contrast to a most rapid expansion of large cities (LCs) during the same period. This was the decade when several SMCs experienced absolute decreases in population (see Annex Table 2). While SMCs had always been the sources of growth for LCs, it was during 1960-70 when the former suffered severe population losses to the latter. A final point that can be gleaned from Table 1 is that during the 70s, SMCs picked up at the same time that LCs appeared to be tapering off.

We argue that the growth pattern of small, intermediate and large cities can be explained by natural economic and social forces accentuated by the spatial biases of economic development policies.[3] And to the extent that the large-city bias becomes established, dispersal policies designed to promote regional and rural development benefitting SMCs tend to be ineffective.

A Spatial-Temporal Framework

We attempt to explain the growth pattern of different size cities in the context of the country's four broad economic regions and four historical periods representing changing economic policy thrusts (see Part I of this volume). The four regions are: the national capital region (NCR or Metro Manila), the central industrial region excluding NCR (Other CIR: Southern Tagalog and Central Luzon), the traditional agricultural region (TAR: the Visayas, Bicol and Ilocos), and the frontier region (FR: Mindanao and Cagayan Valley). These regional divisions of the country were arrived at on the basis of the following criteria: (a) natural resource endowments or constraints, (b) spatial impacts of economic policies, (c) the distribution of rural and urban population and economic activity over time, and (d) growth rates of population and economic activity.

The four historical periods are: the Colonial Period (1903-39), Early Import Substitution Period (1948-60), Later Import Substitution Period (1960-70), and Regional Awareness Period (1970-80). The Colonial Period was characterized by preferential trade relations with the United States which facilitated the exportation of agricultural products from the colony

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[3]This argument has been made by a number of scholars although in somewhat different contexts (e.g., Alonso 1968, Sicat 1970, Renaud 1979).

to the mother country.[4] Hence, during this period, the center of population and economic activity was largely the traditional agricultural region of the Visayas, Bicol and Ilocos (what is referred to now as the sluggish region).[5]

The period after World War II (1948-60) is known as the Early Import Substitution Period because industrialization policy was anchored on various kinds of import-substituting measures, such as exchange and import controls, tax incentives, tariffs and credit schemes. Because of the (well-known) problems that cropped up on account of exchange and import controls, there was a change in policy to decontrol and devaluation in the subsequent period (1960-70). Nonetheless, the import-substitution strategy was effectively carried over with the continuation of the tariff structure and tax incentives, including wage and price policies; hence, the nomenclature Later Import Substitution Period.[6]

We have shown (in Part I and Part II of this volume) that during the 50s and 60s, there was massive shift of population and economic activity from the traditional agricultural region (making them sluggish) to Metro Manila, gradually spilling over into the adjacent regions of Southern Tagalog and Central Luzon (Other CIR). Thus, the trade and industrial development policies of the earlier and later import substitution periods exerted a strong impact for spatial concentration in Metro Manila and more broadly in what is now known as central industrial region (see Annex Tables 4-7).

The fourth period (1970-80) can be identified by the government's conscious attempt at regional and rural development, although there were already such attempts (or intentions) earlier as exemplified by the Basic Industries Act of 1961. The objective of dispersed development was to be pursued more vigorously this time by various investment and export promotion policies in addition to agricultural and infrastructure programs (cf. Reyes and Paderanga's Special Paper). However, due to the lingering spatial effects of former policies, the well-developed networks for migration, as well as agglomeration economies benefiting individual firms and households, the end of the 70s saw little departure from the concentration that had been built up in the 50s and 60s (cf. Part I of this volume).

In the context of our spatial-temporal framework which reflects policy timing and regional impact, we find that the growth of cities of all sizes was

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[4]For a review of economic policies during the Colonial Period, see Reyes and Paderanga's Special Paper.

[5]This can be seen in Annex Tables 4-5.

[6]For a comprehensive discussion of import-substitution policies during the 50s and 60s, see *op. cit.*

both rapid and steadily rising in the NCR, and slightly less so in the other CIR, from 1903 to 1970 followed by some deceleration in 1970-80 (Table 2). The opposite seems to be the case for the TAR and the FR although the growth rates in the latter were higher during the first two periods. What is particularly striking are the peak growth rates in the NCR and Other CIR (4.8 and 3.7 percent) in contrast to the low ones in the TAR and FR (1.7 and 2.5 percent) during the Later Import Substitution Period (1960-70).

Table 2   Annual Percent Growth Rates of Population in All Size-Class Cities by Broad Region, 1903-80

Region	1903-39	1948-60	1960-70	1970-80
NCR	3.13	4.04	4.79	4.10
Other CIR	1.79	2.96	3.74	2.70
TAR	2.23	2.24	1.70	1.86
FR	4.42	3.68	2.53	3.78
Philippines	2.51	3.10	3.18	3.15

Source: Annex Table 3.

If we control for city size as in Table 3, we note essentially the same pattern as the more aggregative one in Table 2. Small and intermediate size cities in the CIR evince accelerating growth rates during the Early and Later Import Substitution Periods[7] at the same time that those in the TAR and FR were becoming depressed. In other words, regardless of size, cities tend to perform better in certain regions and periods than in others. It thus seems that insofar as the growth of cities is concerned, the key aspect is not so much size *per se* but the economic region in which cities are located as well as the relevant historical period.

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[7]Noteworthy among these SMCs in the CIR are Calamba, Cavite, Lucena, San Fernando, and Angeles (Annex Map).

The buoyancy of large cities in the TAR even during the Import Substitution Period (1948-70) can be explained by the fact that they (Cebu, Bacolod and Iloilo) have been highly connected with Metro Manila (or the NCR) which was having a heyday during that era. The same is true of Davao and, to some extent, Zamboanga in the FR (see Annex Table 3).

Table 3. Annual Percent Growth Rates of Cities by Size and Broad Region, 1903-80

Region	1903-39	1948-60	1960-70	1970-80
NCR	3.13	4.04	4.78	4.10
Other CIR	1.79	2.96	3.74	2.70
Small	1.57	2.61	3.67	2.61
Intermediate	2.16	3.45	3.84	2.83
Large				
Traditional	2.23	2.24	1.70	1.86
Small	1.82	1.78	1.42	1.89
Intermediate	2.59	2.41	0.89	1.65
Large	2.60	2.78	2.84	1.99
Frontier	4.42	3.68	2.53	3.78
Small	2.73	1.64	1.16	2.12
Intermediate	4.26	4.79	2.51	4.08
Large	5.46	4.10	3.59	4.62
PHILIPPINES	2.51	3.10	3.18	3.15

Source: Annex Table 3.

In sum, small and intermediate cities (SMCs) in the CIR have been growing rapidly over time due to its progressive economic environment favored by economic policy. By contrast, SMCs in the TAR and FR have performed poorly because they tended to be sapped by large cities (LCs) in the same region and by cities in the CIR. In other words, following Myrdal (1957), the process has generated mostly backwash and little spread effects to SMCs in the lagging regions. LCs in all regions have been generally

buoyant on account of their connectivity with the NCR and to some extent among themselves.[8] All this bears out the segmentation of the national urban system in line with a fragmented space economy.

Prospects of SMCs

Data on the most recent intercensal period, 1970-80, seem to signal an overall acceleration of the growth of SMCs, on the one hand, and a deceleration for LCs on the other (Table 1). But, again, this generalization does not apply when we look at cities in the context of the different regions (Table 3). SMCs in the TAR and FR appear to have become resilient while those in the CIR are slowing down. Particularly resilient SMCs are Bago, Tacloban, Silay and Cauayan in the TAR, and Cagayan de Oro, General Santos, Panabo, Midsayap and Pagadian in the FR (Annex Map). Could this be the result of the Regional Awareness policy or of such spontaneous market forces as diseconomies of scale at the NCR and other CIR?

Some manifestations of policy and economic activity do not seem to indicate an appreciable reversal of the trends established during the Import Substitution Period. Table 4 shows that the share of government infra-structure expenditures for the CIR remained at about 56 percent of the total from 1959-61 to 1971-73; in fact, for most projects, the shares increased. Also, during the good part of the 70s, tax incentives, purportedly for regional dispersal in addition to export promotion, were mostly granted to firms and investments in the NCR or more broadly the CIR. As can be seen in Table 5, over the period 1968-77, 56 percent of new projects and 86 percent of firms benefiting from the incentives were concentrated in the CIR; and as much as 73 percent of firms were located in the NCR.

There has generally been no visible response on the part of the business sector to the government's avowed initiative for the development of the lagging regions, as may be gleaned from Table 6. Business investments have apparently continued to be concentrated in the NCR and other parts of CIR — up to as much as 85 percent of total large investments by 1979, from 73 percent in 1970. The TAR and FR captured average shares of only 12 and 11 percent, respectively, of these investments during the 70s.

The government has seemingly been more successful with regard to small and medium scale industries. As Table 7 shows, the proportion of loans going to these enterprises in the peripheral regions appears to have risen from one-fifth to almost one-third of the total in the TAR, and from 15 to 19

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[8]Five such cities have stood out in recent years and currently, namely: Metro Cebu, Iloilo, Bacolod, Davao and Zamboanga (Annex Table 3 and Annex Map).

Table 4. Allocation of Infrastructure Expenditures by Broad Region, FY 1959-61 to 1971-73
(in percent)

Region	All Infrastructure		Portworks		Waterworks	
	1959-61	1971-73	1959-61	1971-73	1959-61	1971-73
CR	56.6	56.1	70.4	64.5	54.3	92.2
TAR	24.0	24.9	18.4	20.6	26.1	4.1
FR	19.4	19.0	11.2	14.9	19.6	3.7
TOTAL*	40,104.0	224,869.8	11,141.9	22,813.6	12,255.3	24,733.7

Region	Irrigation		Flood Control and Drainage		Building, Schools and Hospitals		Highways
	1959-61	1971-73	1959-61	1971-73	1959-61	1971-73	1971-73
CR	25.9	63.6	61.3	67.1	70.1	60.5	26.0
TAR	47.5	8.4	23.3	20.9	4.1	34.7	44.0
FR	23.5	28.0	15.4	12.0	25.8	4.8	30.0
TOTAL*	8,828.4	87,080.1	1,601.7	8,086.6	7,055.9	17,409.0	66,800.0

*Total expenditures are expressed in thousands of pesos.

Source: Javier (1976), p. 298.

Table 5.   Distribution of Projects and Firms Given Tax Incentives
by Broad Region

Region	Projects, 1968-74[a]		Firms, 1970-77[b]	
	Number	Percent	Number	Percent
NCR	*	*	379	73
CIR	167	56	66	13
TAR	51	17	45	9
FR	80	27	30	6
Philippines	298	100	520	100

*Included in CIR.

[a]Under Investment Incentives Act, September 1967.

[b]Under Export Incentives Act, October 1970.

Source: Board of Investments.

Table 6   Distribution of Paid-in Capital of All Business Organizations
by Broad Region (in percent)

Region	1970	1975	1979	1970-79*
NCR	43.9	43.9	72.5	57.1
Other CIR	29.1	29.1	12.5	20.0
TAR	15.0	15.0	10.0	12.0
FR	12.0	12.0	5.0	10.9
Philippines (100%)	₱438 M	₱1,635 M	₱2,250 M	₱15,357 M

*Cumulative total.

Sources: *Central Bank Statistical Bulletin*, 1951-79; Bureau of Commerce, and Securities
and Exchange Commission.

Table 7.   Distribution of Government-Sponsored Loans to Small and
            Medium Scale Industries by Broad Region (in percent)

Region	1978	1979
NCR	40.1	30.0
CIR	23.9	21.4
TAR	20.9	29.2
FR	15.0	19.4
Philippines (100%)	₱132.9 M	₱181.2 M

Source: Development Bank of the Philippines.

percent in the FR during the 1978-79 period alone. The relative success of regional policy in terms of the promotion of small and medium industries (see, e.g., Pernia 1982) may well partially explain the resilience of small and intermediate cities (SMCs) in the TAR and FR during the 70s. Their growth and development may have stemmed out-migration from, as well as attracted in-migration to, these SMCs. As is already known, small and medium enterprises abound in the SMCs of the relatively unindustrialized regions.

Conclusion and Implications

On the whole, small and intermediate size cities (SMCs) in the Philippines experienced depressed growth rates during the 50s and 60s, following the general trend observed in developing countries. However, when SMCs are analyzed in a spatial-temporal framework, it turns out that only those in the backward regions performed poorly, as expected. SMCs in the central industrial region favored by the industrial and trade policies of the Import Substitution Period exhibited buoyancy similar to that of Metro Manila and a few other large cities (LCs) in the lagging regions. These LCs have been well connected with Metro Manila but not with SMCs in their own region. Thus, it seems that during the 50s and 60s, economic policies, along with natural economic and social forces, tended to further accentuate the segmentation of the national urban system or the space economy in general.

During the 70s, SMCs in the backward regions appeared to be resilient. It is difficult, however, to attribute such resilience to the government's avowed regional orientation shift because policy manifestations in terms, for example, of the shares of infrastructure expenditures and tax incentives going to the lagging regions remained low relative to the National Capital Region or more broadly the Central Industrial Region. Likewise, large business investments continued to be concentrated in the advanced regions. Regional policy, nevertheless, appears to show some initial success in the promotion of small and medium scale industries in the less developed regions. This may well explain in part the apparent resurgence of SMCs in these regions during the 70s.

In the Philippines, as in many developing countries, small enterprises hold a dominant position in the manufacturing sector (Annex Table 6). This is particularly true in small and intermediate cities outside the industrial region. It seems that providing the environment conducive for the promotion of small industries is a promising role that SMCs can play. This is because small enterprises can prosper without the advantages of agglomeration and urbanization economies present in large cities.

There is scope for government intervention in, for instance, putting up the relatively inexpensive infrastructure in SMCs so that they can offer a climate favorable to small enterprises. In addition, intervention can be in terms of technical extension services and concessionary loans, as had been successfully initiated by the Ministry of Industry about seven years ago, but in which there is still much latitude for expansion and improvement.

Recently, the government launched a huge program of local community projects (*Kilusang Kabuhayan at Kaunlaran* – KKK). The KKK approach is supposed to reach all towns and cities throughout the country in as short a time as two to three years. While the economic rationale of such an ambitious program is not yet clear, it seems logical to expect that SMCs are better placed to receive them than are small towns and barrios, and that certain SMCs are more prepared than others would be. It is important, in other words, to have a more general policy on SMCs before specific local projects are put in place.

To the extent that a policy on SMCs is correctly fashioned, they can be expected to flourish and thus spontaneously serve as agents in rural industrialization and regional development. The time may be ripe for a conscious SMC policy since the lingering concentration effects of the import-substitution strategy may be starting to weaken and diseconomies of scale may be creeping up in Metro Manila and in other large cities. An SMC policy may be seen as a complement to, or even a substitute for, the well-worn alternative growth centers strategy.

ANNEX MAP

MAP: Large Cities, Small and Intermediate Cities (SMCs) in CIR Brisk During the Import Substitution
      Period, and SMCs in SR and FR Resilient During 1970-80.

0   METRO MANILA
I   ILOCOS
II   CAGAYAN
III   CENTRAL LUZON
IV   SOUTHERN LUZON
V   BICOL
VI   WESTERN VISAYAS
VII   CENTRAL VISAYAS
VIII   EASTERN VISAYAS
IX   WESTERN MINDANAO
X   NORTHERN MINDANAO
XI   SOUTHERN MINDANAO

LEGEND:

▲ INTERMEDIATE / SMALL
● LARGE
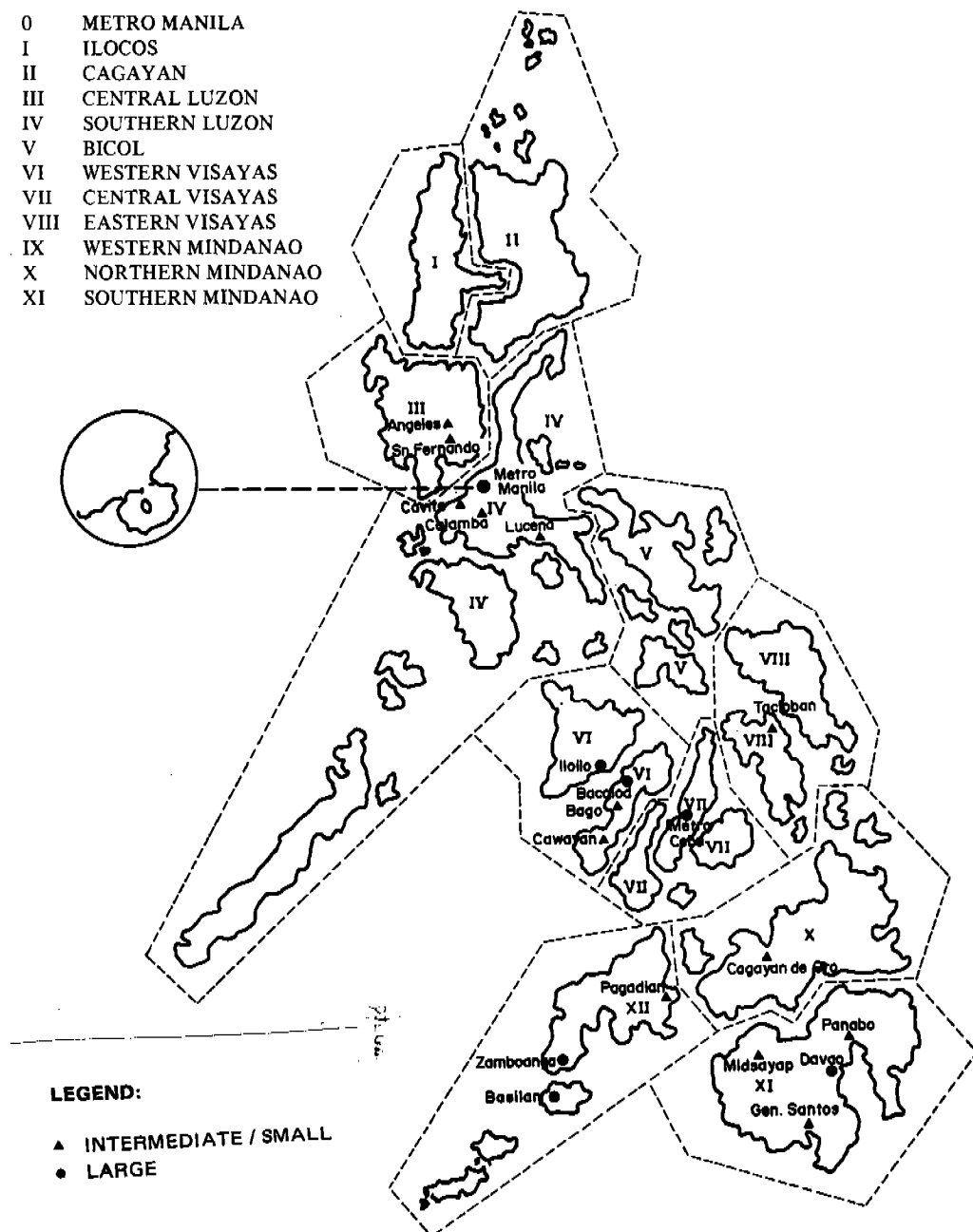
MAP OF THE PHILIPPINES DELINEATED BY REGIONS

Table 1. Population of Small, Intermediate and Large Cities: Philippines, 1903-80

Size Category*/Name	1903	1918	1939	1948	1960	1970	1975	1980[a]
SMALL	683,206	811,074	1,358,046	1,652,352	2,367,440	2,912,901	3,233,577	3,607,819
Guagua (Pampanga)	15,151	15,962	22,331	34,738	40,126	58,270	65,336	72,609
Malalag (Davao del Sur)					40,153	34,764	44,034	44,669
Sultan sa Barongis (Maguindanao)					40,347	45,421	17,630	21,639
Camiling (Tarlac)	25,243	23,375	25,824	33,935	40,536	49,156	52,421	53,920
Bauan (Batangas)	39,094	27,729	37,043	40,168	41,147	36,862	38,200	43,543
Laoang (N. Samar)	8,636	11,508	19,736	29,748	41,158	37,382	42,498	46,883
Manaoag (Pangasinan)	16,793	22,279	29,030	34,304	41,164	48,091	48,450	36,749
Pagadian (Zamboanga del Sur)			46,262	51,913	41,810	57,615	66,062	80,519
Daraga (Albay)	18,695		29,484		41,973	58,335	63,265	73,224
Himamaylan (Negros Occidental)	14,932	15,559	28,407	33,984	41,985	53,663	65,521	70,076
Milang (N. Cotabato)					42,085	44,844	51,596	56,975
Sariaya (Quezon)	12,453	14,158	25,736	29,904	42,089	58,997	66,842	74,154
Panabo (Davao del Norte)					42,509	42,920	53,015	63,618
Tuguegarao (Cagayan)	16,105	19,298	27,643	29,083	43,074	56,956	62,513	73,529
Cauayan (Negros Occidental)	8,174	13,907	25,645	34,946	43,384	52,508	64,244	71,301
Ozamis (Misamis Occidental)	11,709	23,237	36,313	35,262	44,091	64,643	71,559	78,036
Lubao (Pampanga)	19,063	21,614	29,154	36,574	44,129	61,609	69,903	77,502
Urdaneta (Pangasinan)	20,544	24,536	29,120	35,811	44,744	58,690	65,390	71,889
Tanauan (Batangas)	18,263	22,473	26,186	30,203	44,979	61,910	66,703	74,005
Concepcion (Tarlac)	12,962	17,487	32,702	30,785	45,084	62,227	72,554	80,650
Lingayen (Pangasinan)	21,529	22,750	20,655	36,806	45,321	56,096	59,034	65,025
Olongapo (Zambales)					45,330	107,785	147,109	156,312

Table 1 (Cont'd)

Size Category*/Name	1903	1918	1939	1948	1960	1970	1975	1980[a]
Bansalan (Davao del Sur)					45,360	33,374	35,558	40,671
Midsayap (N. Cotabato)			23,033	42,473	46,169	47,093	52,142	67,079
Talisay (Negros Occidental)	14,548	14,165	40,547	43,610	46,308	45,084	48,518	52,229
Tabaco (Albay)	21,946	24,812	29,957	33,209	46,416	60,572	65,254	71,928
Bulan (Sorsogon)	13,431	19,268	29,414	37,231	46,520	54,180	56,013	60,843
Manapla (Negros Occidental)	10,123	10,033	19,490	35,218	46,809	31,097	38,357	37,494
Hagonoy (Bulacan)	21,304	22,490	29,734	37,532	46,861	59,889	65,592	73,532
Janiuay (Iloilo)	20,738	24,641	38,778	44,348	46,946	34,409	39,172	39,973
Bayambang (Pangasinan)	11,098	15,260	25,578	35,171	47,490	56,415	62,808	64,044
Guinobatan (Albay)	20,027	25,113	26,419	32,280	48,157	47,190	49,724	52,747
Malolos (Bulacan)	12,575	26,109	33,384	38,779	48,968	73,996	83,491	95,641
Lucena City (Quezon)	9,375	12,108	21,675	33,092	49,264	77,006	92,330	107,872
Roxas City (Capiz)	21,472	23,022	29,021	32,353	39,326	67,648	71,305	81,183
Laoag City (Ilocos Norte)	34,454	38,469	41,842	44,406	50,198	61,727	66,259	69,648
Baguio City (Benguet)	489	5,464	24,117	29,262	50,436	84,538	97,449	118,611
Malasigui (Pangasinan)	14,550	22,747	33,660	40,786	50,736	61,423	67,489	71,801
Baybay (Leyte)	22.990	30,917	42,526	50,725	51,779	63,782	67,031	74,771
Libmanan (Camarines Sur)	17,416	11,729	23,000	43,482	52,512	62,862	66,601	68,413
Gingoog (Misamis Oriental)	2,876	5,391	16,746	30,699	52,677	65,522	66,577	81,098
Ligao (Albay)	17,687	21,467	27,927	37,331	53,376	56,765	61,548	62,860
Tacloban (Leyte)	11,948	15,787	31,233	45,421	53,551	74,391	80,707	102,609
Cavite City (Cavite)	16,337	22,169	38,054	35,052	54,891	75,739	82,456	87,813
Naga City (Camarines Sur)	17,943	9,396	22,505	56,238	55,506	79,846	83,337	90,712
La Carlota City (Negros Occ.)	13,097	20,410	26,084	45,789	56,772	38,321	40,984	42,651
San Fernando (Pampanga)	13,556	20,622	35,662	39,549	56,861	84,862	98,382	110,892

Table 1 (Cont'd)

Size Category*/Name	1903	1918	1939	1948	1960	1970	1975	1980[a]
Calamba (Laguna)	8,058	18,062	32,363	36,586	57,715	82,714	97,432	121,066
Bago City (Negros Occidental	23,630	26,262	53,874	56,693	58,834	71,653	89,213	103,116
Escalante (Negros Occidental)	12,192	29,287	60,152	56,846	59,768	52,060	53,969	69,695
INTERMEDIATE	351,726	542,460	887,942	1,138,467	1,613,051	1,997,574	2,232,201	1,573,930
Silay City (Negros Occ.)	25,214	23,328	39,483	35,570	60,324	69,200	104,887	104,018
Legaspi City (Albay)	23,255	52,756	41,468	47,171	60,593	84,090	88,378	100,488
Ormoc City (Leyte)	16,126	38,174	77,349	72,733	62,764	84,563	89,466	104,912
Dagupan City (Pangasinan)	20,357	22,441	32,602	43,838	63,191	83,582	90,092	98,362
Toledo City (Cebu)	12,929	25,244	34,413	39,225	63,881	67,727	76,521	91,618
Lipa City (Batangas)	37,934	46,677	45,175	46,928	64,239	93,971	106,094	121,162
Calatrava (Negros Occ.)	6,385		38,695	53,805	65,888	53,151	58,867	59,052
Nabua (Camarines Sur)	18,893	19,314	29,433	42,946	66,657	44,417	48,635	53,292
Cagayan de Oro (Misamis Oriental)	10,937	28,062	53,194	54,293	68,274	128,319	165,220	228,409
Cabanatuan City (Nueva Ecija)	7,109	15,286	46,626	54,628	69,580	– 99,890	– 115,258	138,297
San Pablo City (Laguna)	22,612	31,399	46,311	50,435	70,680	105,517	116,607	131,686
Sagay (Negros Occidental)	8,311	17,752	53,767	67,152	71,335	79,702	95,401	98,409
Buluan (Maguindanao)		5,263	15,317	61,934	73,201	49,158	41,357	40,698
San Carlos City (Pangasinan)	27,166	35,780	47,334	61,671	73,900	84,333	90,882	101,254
Iriga City (Camarines Sur)	19,297	24,145	31,005	42,049	75,439	77,382	75,884	66,117
Angeles City (Pampanga)	10,646	17,948	26,027	37,558	75,900	134,544	151,164	185,995
Butuan City (Agusan del Norte)	8,207	10,875	18,295	31,628	79,770	131,094	132,682	172,404
Batangas City (Batangas)	33,131	41,089	46,164	59,582	82,627	108,868	125,363	143,554

Table 1 (Cont'd)

Size Category*/Name	1903	1918	1939	1948	1960	1970	1975	1980[a]
Gen. Santos City (S. Cotabato)	33	9,787	14,115	32,019	84,988	85,861	91,154	146,550
Cadiz City (Negros Occidental)	16,429	22,183	41,905	48,960	88,542	124,108	127,653	128,839
Guihulngan (Negros Oriental)	14,415	31,069	53,582	89,745	92,993	72,969	80,041	84,147
Tarlac (Tarlac)	12,340	23,888	55,682	64,597	98,285	135,128	160,595	174,667
LARGE	974,686	869,876	1,753,079	2,513,627	3,821,499	5,828,762	7,187,789	8,450,298
Bacolod City (Negros Occ.)	15,983	19,424	57,474	101,432	119,315	187,300	223,392	266,604
San Carlos City (Negros Occ.)	9,749	42,453	69,990	92,250	121,756	90,058	90,982	93,268
Zamboanga City (Zamboanga del Sur)	20,692	42,007	74,823	103,317	131,489	199,901	265,023	344,275
Iloilo City (Iloilo)	52,472	77,925	116,277	110,122	151,266	209,738	227,027	244,211
Basilan City (Zamboanga del Sur)	4,480	23,089	56,632	110,297	155,712	143,289	171,027	199,029
Davao City (Davao del Sur)	8,560	21,538	95,546	111,263	225,712	392,473	484,679	611,311
Metro Cebu[b]	133,811	182,274	288,448	315,818	450,760	639,308	755,654	767,037
Metro Manila[c]	328,939	461,166	993,889	1,569,128	2,462,489	3,966,695	4,970,006	5,924,563
TOTAL	1,609,618	2,223,408	3,999,067	5,304,419	7,801,990	10,739,237	12,653,567	14,632,047

*Size categories are reckoned as of 1960: small = 40,000-59,999; intermediate = 60,000 – 99,999; large = 100,000 +.

[a]Preliminary data.

[b]Metro Cebu is defined to include Cebu City, Lapu-Lapu, Mandaue, Minglanilla & Talisay.

[c]Metro Manila comprises Manila, Quezon City, Pasay City, Caloocan City, Las Piñas, Makati, Malabon, Mandaluyong, Marikina, Muntinlupa, Navotas, Parañaque, Pasig, Pateros, San Juan, Taguig & Valenzuela.

Source: Census on Population (various years).

Table 2. Annual Percent Growth Rates of Population In Small, Intermediate,
And Large Cities, 1903 – 80

Size Category/Name	1903-18	1918-39	1939-48	1948-60	1960-70	1970-75	1975-80
SMALL	1.27	2.22	2.26	2.00	2.05	2.12	2.21
Guagua (Pampanga)	0.33	1.69	4.64	1.28	3.72	2.32	2.13
Malalag (Daval del Sur)					−1.40	4.86	0.29
Sultan sa Barongis (Maguindanao)					1.17	−17.29	4.18
Camiling (Tarlac)	−0.48	0.50	2.84	1.58	1.91	1.30	0.57
Bauan (Batangas)	−2.15	1.46	0.83	0.21	−1.07	0.72	2.65
Laoang (N. Samar)	1.83	2.73	4.30	2.90	−0.94	2.61	1.98
Manaoag (Pangasinan)	1.90	1.33	1.73	1.62	1.53	0.16	−5.38
Pagadian (Zamboanga del Sur)			1.19	−1.88	3.19	2.78	4.04
Daraga (Albay)					3.27	1.64	2.97
Himamaylan (Negros Occidental)	0.26	3.06	1.86	1.88	2.43	4.09	1.35
Milang (N. Cotabato)					0.62	2.85	2.00
Sariaya (Quezon)	0.81	3.03	1.55	3.05	3.36	2.54	2.10
Panabo (Daval del Norte)					0.09	4.33	3.71
Tuguegarao (Cagayan)	1.15	1.81	0.52	3.15	2.77	1.89	3.30
Cauayan (Negros Occidental)	3.41	3.11	3.23	1.92	1.89	4.13	2.11
Ozamis (Misamis Occidental)	4.42	2.26	−0.30	1.98	3.82	2.06	1.75
Lubao (Pampanga)	0.80	1.51	2.35	1.66	3.32	2.57	2.09
Urdaneta (Pangasinan)	1.13	0.86	2.14	1.98	2.69	2.19	1.91

Table 2 (Cont'd)

Size Category/Name	1903-18	1918-39	1939-48	1948-60	1960-70	1970-75	1975-80
Tanauan (Batangas)	1.32	0.77	1.48	3.56	3.18	1.51	2.10
Concepcion (Tarlac)	1.91	3.18	−0.62	3.41	3.20	3.13	2.14
Lingayen (Pangasinan)	0.35	1.50	1.89	1.85	2.11	1.03	1.95
Olongapo (Zambales)					8.85	6.44	1.22
Bansalan (Davao del Sur)					−2.96	1.28	2.72
Midsayap (N. Cotabato)			6.48	0.74	0.19	2.06	5.17
Talisay (Negros Occidental)	−0.17	5.40	0.75	0.53	−0.26	1.48	1.49
Tabaco (Albay)	0.78	0.95	1.06	2.99	2.64	1.50	1.97
Bulan (Sorsogon)	2.31	2.14	2.45	1.98	1.50	0.67	1.67
Manapla (Negros Occidental)	−0.06	3.38	6.26	2.53	−3.92	4.30	−0.45
Hagonoy (Bulacan)	0.34	1.41	2.42	1.97	2.43	1.84	2.31
Janiuay (Iloilo)	1.10	2.29	1.39	0.50	−2.99	2.63	0.41
Bayambang (Pangasinan)	2.03	2.62	3.32	2.68	1.70	2.18	0.39
Guinobatan (Albay)	1.44	0.25	2.08	3.58	−0.20	1.06	1.19
Malolos (Bulacan)	4.72	1.24	1.55	2.07	4.12	2.45	2.76
Lucena City (Quezon)	1.63	2.95	4.44	3.56	4.47	3.71	3.16
Roxas City (Capiz)	0.44	1.17	1.12	3.78	3.14	1.06	2.63
Laoag City (Ilocos Norte)	0.70	0.42	0.61	1.08	2.04	1.43	1.00
Baguio City (Benguet)	16.47	7.71	2.00	4.90	5.18	2.89	4.01
Malasigui (Pangasinan)	2.86	1.98	1.99	1.94	1.89	1.91	1.25

Table 2 (Cont'd)

Size Category/Name	1903-18	1918-39	1939-48	1948-60	1960-70	1970-75	1975-80
Baybay (Leyte)	1.89	1.61	1.83	0.18	2.06	1.00	2.21
Libmanan (Camarines Sur)	−2.47	3.42	6.75	1.67	1.78	1.17	0.54
Gingoog (Misamis Oriental)	4.05	5.83	6.41	4.86	2.16	0.32	4.03
Ligao (Albay)	1.23	1.32	3.02	3.19	0.60	1.64	0.42
Tacloban (Leyte)	1.78	3.47	3.92	1.46	3.26	1.66	4.92
Cavite City (Cavite)	1.95	2.74	−0.84	4.02	3.20	1.72	1.27
Naga City (Camarines Sur)	−4.00	4.46	9.85	−0.16	3.62	0.86	1.71
La Carlota City (Negros Occ.)	2.84	1.23	5.94	1.91	−3.62	1.36	0.80
San Fernando (Pampanga)	2.69	2.78	1.07	3.24	4.00	3.01	2.42
Calamba (Laguna)	5.23	2.96	1.27	4.09	3.58	3.34	4.44
Bago City (Negros Occidental)	0.67	3.66	0.53	0.33	1.95	4.49	2.94
Escalante (Negros Occidental)	5.69	3.66	−0.98	0.44	−1.34	0.73	5.25
INTERMEDIATE	2.83	2.50	2.98	3.11	2.11	2.25	2.89
Silay City (Negros Occidental)	−0.49	2.67	−1.06	4.75	1.35	8.70	−0.17
Legaspi City (Albay)	5.31	−1.20	1.33	2.23	3.26	1.00	2.60
Ormoc City (Leyte)	5.59	3.59	−0.63	−1.29	2.96	1.14	3.24
Dagupan City (Pangasinan)	0.62	1.89	3.08	3.27	2.77	1.52	1.77

Table 2 (Cont'd)

Size Category/Name	1903-18	1918-39	1939-48	1948-60	1960-70	1970-75	1975-80
Toledo City (Cebu)	4.32	1.56	1.35	4.38	0.57	2.48	3.67
Lipa City (Batangas)	1.32	−0.16	0.39	2.80	3.79	2.46	2.69
Calatrava (Negros Occidental)			3.44	1.80	−2.08	2.07	0.06
Nabua (Camarines Sur)	0.14	2.13	3.95	3.94	−3.89	1.84	1.85
Cagayan de Oro (Misamis Occ.)	6.13	3.25	0.21	2.04	6.37	5.20	6.69
Cabanatuan City (Nueva Ecija)	4.95	5.73	1.64	2.15	3.60	2.91	3.71
San Pablo City (Laguna)	2.10	1.96	0.88	3.01	4.00	2.02	2.46
Sagay (Negros Occidental)	4.91	5.70	2.31	0.53	1.09	3.67	0.62
Buluan (Maguindanao)		5.49	15.41	1.48	−3.82	1.21	−0.32
San Carlos City (Pangasinan)	1.76	1.41	2.75	1.60	1.30	1.51	2.19
Iriga City (Camarines Sur)	1.43	1.26	3.18	5.27	0.25	−0.39	−2.72
Angeles City (Pampanga)	3.35	1.88	3.88	6.38	5.76	2.36	4.23
Butuan City (Agusan del Norte)	1.79	5.48	2.44	8.47	4.98	0.24	5.38
Batangas City (Batangas)	1.37	0.58	2.65	2.92	2.74	2.87	2.75
Gen. Santos City (South Cotabato)	43.27	1.85	8.77	8.96	0.10	1.21	9.96
Cadiz City (Negros Occ.)	1.92	3.23	1.61	5.35	3.36	0.57	0.19
Guihulngan (Negros Oriental)	4.97	2.76	5.43	0.31	−2.35	1.87	1.01
Tarlac (Tarlac)	4.26	4.32	1.54	3.76	3.16	3.52	1.69

Table 2 (Cont'd)

Size Category/Name	1903-18	1918-39	1939-48	1948-60	1960-70	1970-75	1975-80
LARGE	2.65	3.57	3.77	3.75	4.22	4.29	3.29
Bacolod City (Negros Occ.)	1.24	1.44	5.57	6.00	4.51	3.60	3.60
San Carlos City (Negros Occ.)	9.74	2.69	2.53	2.87	−3.14	0.21	0.90
Zamboanga City (Zamboanga del Sur)	4.97	2.14	2.93	3.37	4.18	5.82	5.37
Iloilo City (Iloilo)	2.53	2.83	2.02	−0.56	3.25	1.60	1.47
Basilan City (Zamboanga del Sur)	10.91	3.08	4.59	7.08	−0.77	3.61	3.08
Davao City (Davao del Sur)	6.00	6.42	7.73	1.57	5.56	4.32	4.75
Metro Cebu	1.97	3.18	2.32	0.93	3.48	3.41	0.30
Metro Manila	2.16	4.04	3.91	4.80	4.78	4.63	3.58
TOTAL	2.15	2.80	3.02	3.10	3.18	3.34	2.95

Source: Annex Table 1.

ANNEX
Table 3.   Annual Percent Growth Rates of Population in Small,
Intermediate and Large Cities by Broad Region:
Philippines, 1903-80

Region/Size/Name	1903-18	1918-39	1939-48	1948-60	1960-70	1970-75	1975-80
NCR (Metro Manila)	2.16	3.91	4.80	4.04	4.78	4.63	3.58
OTHER CIR	1.52	2.01	1.67	2.96	3.74	2.85	2.55
SMALL	1.07	1.96	1.64	3.61	3.67	2.94	2.27
Guagua (Pampanga)	0.33	1.69	4.64	1.28	3.72	2.32	2.13
Camiling (Tarlac)	−0.48	0.50	2.84	1.58	1.91	1.30	0.57
Bauan (Batangas)	−2.15	1.46	0.83	0.21	−1.07	0.72	2.65
Sariaya (Quezon)	0.81	3.03	1.55	3.05	3.36	2.54	2.10
Lubao (Pampanga)	0.80	1.51	2.35	1.66	3.32	2.57	2.09
Tanauan (Batangas	1.32	0.77	1.48	3.56	3.18	1.51	2.10
Concepcion (Tarlac)	1.91	3.18	−0.62	3.41	3.20	3.13	2.14
Hagonoy (Bulacan)	0.34	1.41	2.42	1.97	2.43	1.84	2.31
Malolos (Bulacan)	4.72	1.24	1.55	2.07	4.12	2.45	2.76
Lucena City (Quezon)	1.53	2.95	4.44	3.56	4.47	3.71	3.16
Cavite City (Cavite)	1.95	2.74	−0.84	4.02	3.20	1.72	1.27
San Fernando (Pampanga)	2.69	2.78	1.07	3.24	4.00	3.01	2.42
Calamba (Laguna)	5.23	2.96	1.27	4.09	3.58	3.34	4.44
Olongapo (Zambales)					8.85	6.44	1.22
INTERMEDIATE	2.26	2.08	1.71	3.45	3.84	2.72	2.93
Lipa City (Batangas)	1.32	−0.16	0.39	2.80	3.79	2.46	2.69
Cabanatuan City (Nueva Ecija)	4.95	5.73	1.64	2.15	3.60	2.91	3.71
San Pablo City (Laguna)	2.10	1.96	0.88	3.01	4.00	2.02	2.46
Angeles City (Pampanga)	3.35	1.88	3.88	6.38	5.76	2.36	4.23
Batangas City (Batangas)	1.37	0.58	2.65	2.92	2.74	2.87	2.75
Tarlac (Tarlac)	4.26	4.32	1.54	3.76	3.16	3.52	1.69
TRADITIONAL AGRICULTURAL	1.98	2.46	2.17	2.24	1.70	2.27	1.45
SMALL	1.24	2.32	2.53	1.78	1.42	1.91	1.87
Manaoag (Pangasinan)	1.80	1.33	1.73	1.62	1.53	0.15	−5.38
Laoang (N. Samar)	1.83	2.73	4.30	2.90	−0.94	2.61	1.98
Himamaylan (Negros Occ.)	0.26	3.06	1.86	1.88	2.43	4.09	1.35
Cauayan (Negros Occidental)	3.41	3.11	3.23	1.92	1.89	4.13	2.11
Urdaneta (Pangasinan)	1.13	0.86	2.14	1.98	2.69	2.19	1.91
Lingayen (Pangasinan)	0.35	1.50	1.89	1.85	2.11	1.03	1.95
Talisay (Negros Occidental)	−0.17	5.40	0.75	0.53	−0.26	1.48	1.49
Manapla (Negros Occidental)	−0.06	3.38	6.26	2.53	−3.92	4.30	−0.45
Janiuay (Iloilo)	1.10	2.29	1.39	0.50	−2.99	2.63	0.41
Bayambang (Pangasinan)	2.03	2.62	3.32	2.68	1.70	2.18	0.39
Roxas City (Capiz)	0.44	1.17	1.12	3.78	3.14	1.06	2.63
Laoag City (Ilocos Norte)	0.70	0.42	0.61	1.08	2.04	1.43	1.00
Baguio City (Benguet)	16.47	7.71	2.00	4.90	5.18	2.89	4.01
Malasigui (Pangasinan)	2.86	1.98	1.99	1.94	1.89	1.91	1.25
Baybay (Leyte)	1.89	1.61	1.83	0.18	2.06	1.00	2.21
Tacloban (Leyte)	1.78	3.47	3.92	1.46	3.26	1.66	4.92
La Carlota City (Negros Occidental	2.84	1.23	5.94	1.91	−3.62	1.36	0.80
Bago City (Negros Occidental)	0.67	3.66	0.53	0.33	1.95	4.49	2.94
Escalante (Negros Occ.)	5.69	3.66	−0.58	0.44	−1.34	0.78	5.25
Daraga (Albay)					3.27	1.64	2.97
Tabaco (Albay)	0.78	0.95	1.06	2.99	2.64	1.50	1.97
Bulan (Sorsogon)	2.31	2.14	2.45	1.98	1.50	0.67	1.67
Guinobatan (Albay)	1.44	0.25	2.08	3.58	−0.20	1.06	1.19
Libmanan (Camarines Sur)	−2.47	3.42	6.70	1.67	1.78	0.17	0.54
Ligao (Albay)	1.23	1.32	3.02	3.19	0.60	1.64	0.42
Naga City (Camarines Sur)	−4.00	4.46	9.85	−0.16	3.62	0.86	1.71

Table 3 (Cont'd.)

Region/Size/Name	1903-18	1918-39	1939-48	1948-60	1960-70	1970-75	1975-80
INTERMEDIATE	2.78	2.20	2.21	2.41	0.89	2.11	1.21
Silay City (Negros Occ.)	−0.49	2.67	−1.06	4.75	1.35	8.70	−0.17
Ormoc City (Leyte)	5.59	3.59	−0.63	−1.29	2.96	1.14	3.24
Dagupan City (Pangasinan)	0.62	1.89	3.08	3.27	2.77	1.52	1.77
Toledo City (Cebu)	4.32	1.56	1.35	4.38	0.57	2.48	3.67
Calatrava (Negros Occ.)			3.44	1.80	−2.08	2.07	0.06
Sagay (Negros Occ.)	4.91	5.70	2.31	0.53	1.09	3.67	0.62
San Carlos City (Pangasinan)	1.76	1.41	2.75	1.60	1.30	1.51	2.19
Cadiz City (Negros Occ.)	1.92	3.23	1.61	5.35	3.36	0.57	0.19
Guihulngan (Negros Oriental)	4.97	2.76	5.43	0.31	−2.35	1.87	1.01
Legaspi City (Albay)	5.59	3.59	−0.63	1.29	2.96	1.14	3.24
Nabua (Camarines Sur)	0.14	2.13	3.95	3.94	−3.89	1.84	1.85
Iriga City (Camarines Sur)	1.43	1.26	3.18	5.27	0.25	−0.39	−2.72
LARGE	2.68	2.54	1.57	2.78	2.84	2.87	1.12
Bacolod City (Negros Occ.)	1.24	5.57	6.00	1.44	4.51	3.60	3.60
San Carlos City (Négros Occ.)	9.74	2.53	2.87	2.69	−3.14	0.21	0.50
Iloilo City (Iloilo)	2.53	2.02	−0.56	2.83	3.25	1.60	1.47
Metro Cebu	1.97	2.32	0.93	3.18	3.48	3.41	0.30
FRONTIER REGION	5.08	3.94	3.90	3.68	2.53	0.90	4.66
SMALL	2.86	2.64	2.42	1.64	1.16	1.10	3.14
Milang (N. Cotabato)					0.62	2.85	2.00
Panabo (Davao del Norte)					0.09	4.33	3.71
Tuguegarao (Cagayan	1.15	1.81	0.52	3.15	2.77	1.89	3.30
Ozamis (Misamis Occidental)	4.42	2.26	−0.30	1.98	3.82	2.06	1.75
Bansalan (Davao del Sur)					−2.96	1.28	2.72
Midsayap (N. Cotabato)			6.48	0.74	0.19	2.06	5.17
Gingoog (Misamis Oriental)	4.05	5.83	6.41	4.86	2.16	0.32	4.03
Sultan sa Barongis (Maguindanao)					1.17	−17.29	4.18
Malalag (Davao del Sur)					−1.40	4.86	0.29
Pagadian (Zamboanga del Sur)	1.19		−1.98	−1.88	3.19	2.78	4.04
INTERMEDIATE	6.07	3.18	6.11	4.79	2.51	1.77	6.44
Cagayan de Oro (Misamis Oriental)	6.13	3.25	0.21	2.04	6.37	5.20	6.69
Butuan (Maguindanao)		5.49	15.41	1.48	3.82	1.21	0.32
Butuan City (Agusan del Norte)	1.79	5.48	2.44	8.47	4.98	0.24	5.38
Gen. Santos City (South Cotabato)	43.27	1.85	8.77	8.96	0.10	1.21	9.96
LARGE	6.14	4.93	0.75	4.10	3.59	4.60	4.63
Zamboanga City (Zamboanga del Sur)	4.57	2.93	3.37	2.14	4.18	5.82	5.37
Basilan City (Zamboanga del Sur)	10.91	4.59	7.08	3.08	0.77	3.64	3.08
Davao City	6.00	7.73	1.57	6.42	5.56	4.32	4.75
TOTAL	2.15	2.80	3.02	3.10	3.18	3.34	2.95

Source: Census on Population (various years).

ANNEX

Table 4. Distribution of Total, Urban and Rural Population by Broad Region, 1903 − 75 (in percent)

Region	1903	1939	1948	1960	1970	1975
CIR						
Total	27.1	27.3	28.6	29.8	32.8	34.2
Urban	45.7	38.8	40.9	46.3	51.8	52.6
Rural	24.2	24.4	24.6	23.2	22.1	21.9
TAR						
Total	59.6	54.2	52.1	45.9	40.9	39.5
Urban	52.4	46.2	42.1	37.4	31.8	31.3
Rural	60.8	56.2	55.3	49.3	46.0	44.9
FR						
Total	13.3	18.5	19.3	24.3	26.3	26.3
Urban	1.9	15.0	17.0	16.3	16.4	16.1
Rural	15.0	19.4	20.1	27.5	31.9	33.2
Philippines (100.0%)			(in thousands)			
Total	7,635	16,300	19,234	27,088	36,684	42,071
Urban	1,026	3,272	4,615	7,731	13,211	16,878
Rural	6,609	12,728	14,619	19,356	23,473	25,192

Note: CIR − Central Industrial Regions, TAR − Traditional Agricultural Region, FR − Frontier Regions.

Source: NCSO, Census on Population (various years).

ANNEX

Table 5. Growth Rates of Total, Urban and Rural Population by Broad Region, 1903 — 75 (in percent)

Region	1903-39	1948-60	1960-70	1970-75
CIR				
Total	2.11	3.44	3.99	3.65
Urban	2.82	5.80	6.54	5.36
Rural	1.87	1.94	1.45	1.21
TAR				
Total	1.81	1.91	1.85	2.06
Urban	2.93	3.55	3.71	4.74
Rural	1.63	1.47	1.22	0.94
FR				
Total	3.04	5.15	3.81	2.80
Urban	9.41	4.24	5.50	4.59
Rural	2.57	5.38	3.38	2.25
Philippines				
Total	2.09	3.06	3.01	2.78
Urban	3.29	4.64	5.38	5.04
Rural	1.85	2.50	1.91	1.43

Note: CIR — Central Industrial Region, TAR — Traditional Agricultural Region, FR — Frontier Regions.

Source: NCSO, Census on Population (various years).

ANNEX
Table 6. Number of Establishments, Employment and Value-Added in Small, Medium and Large Industries, Philippines 1967 and 1975

Establishment Size*	1967	(% Share)	1975	(% Share)	% Growth Rate
A. Number of Establishments					
Cottage	34,995	(77.8) 98.6	59,251	(76.6) 98.8	69.3 72.3
Small	9,343	(20.8)	17,153	(22.2)	83.6
Medium	278	(0.6)	401	(0.5)	44.2
Large	384	(0.8)	486	(0.6)	26.6
TOTAL	45,000	(100.0)	77,291	(100.0)	71.8
B. Employment					
Cottage	85,083	(16.4) 41.0	121,832	(16.9) 46.3	43.2 56.6
Small	127,529	(24.6)	211,186	(29.4)	65.6
Medium	38,407	(7.4)	56,371	(7.8)	46.8
Large	267,685	(51.6)	329,625	(45.9)	23.1
TOTAL	518,704	(100.0)	719,014	(100.0)	38.6
C. Census Value-Added (₱000 at 1965 prices)					
Cottage	111,870	(1.8) 27.4	113,983	(1.8) 15.0	1.9 −77.0
Small	1,571,344	(25.6)	836,759	(13.2)	−87.5
Medium	482,138	(7.8)	1,154,861	(18.3)	139.5
Large	3,978,858	(64.8)	4,219,054	(66.7)	6.0
TOTAL	6,144,210	(100.0)	6,324,657	(100.0)	2.9

*Cottage refers to establishments with 1-4 workers, small 5-99 workers, medium 100-199, and large 200 + workers. References to small enterprises in the text concern cottage and small establishments combined.

Sources: NCSO, Census of Establishments.

SOME ASPECTS OF URBANIZATION AND AGRICULTURAL PRODUCTIVITY

Cardozo Luna, Ernesto M. Pernia
and Victorina P. Hermoso

Agriculture remains a major sector of the Philippine economy although its shares in total output and labor force continue to decline. About 70 percent of the population are dependent on it for their livelihood and roughly 30 percent of GNP originate in agriculture — about the same as manufacturing. Export crop production and the relative neglect of the agricultural sector during the Import Substitution Period resulted in a sluggish traditional agriculture throughout most of the first six decades of the century (Paauw and Fei 1971). Agricultural production grew principally through the expansion of the traditional inputs, land and labor (Barker *et al.* 1971). But the closing of the land frontier in the 60s brought about a major shift in resource use — from dependence on the traditional inputs to modern inputs (irrigation, fertilizer, new seeds, etc.) which became the major source of growth in agricultural output and productivity (Crisostomo 1972).

From a broader perspective, urbanization also contributes to agricultural productivity. Clawson (1973) discusses the urban impact on agriculture especially in LDCs, as follows: first, the growth of cities provides a market for the agricultural products of the farming areas, inevitably resulting in the commercialization of agriculture; second, urban areas provide employment opportunities to excess agricultural labor; third, because of the close association between urbanization and industrialization, a high level of urbanization allows industries to supply agriculture with its needed inputs of fertilizer, machinery, chemicals, etc.; and fourth, the modernizing agricultural sector also requires many services in the form of marketing, transportation, storage, financing, etc. which the city can supply. Berry (1973) even delineates the gradient effects of the different categories of urban centers on the rural hinterland.

A study by Perloff *et al.* (1960) on U.S. regional economic growth reveals that the impact of urbanization on agriculture was most noticeable in the South, the region where incomes are lowest and rural farm incomes are farthest below the national average; in the other Northern and Western states, there was no apparent relationship between agricultural output per worker and urbanization by state. This is attributed to urbanization's influence on the value of capital per worker as well as on the opportunities for off-farm employment, indicating that labor income from non-farm employment tends to vary significantly with urbanization. Meanwhile, Gibb (1972) cites Cabanatuan as evidence of agriculturally-based cities, i.e., its growth is stimulated by agricultural modernization that has occurred in the rural hinterlands of the province and which the city serves with specialized industries.

Since interregional differences in agricultural productivity would tend to aggravate disparities among regions, an analysis of agricultural productivity differentials is important in the study of spatial development. Furthermore, to complement the other papers in this volume which point to the importance of the pace and structure of agricultural development in relation to the urbanization process, it is worthwhile to determine the influence of urbanization on agriculture in the space economy.

This paper examines the role of urbanization in agricultural productivity by analyzing cross-section data on the provinces of the country. More specifically, it aims to find out: (a) to what extent regional differentials in agricultural productivity are significant, (b) whether and to what degree agricultural productivity is affected by urbanization and the development of urban centers, and (c) whether the agricultural productivity effect of urbanization changes with the level of development.

Analytic Framework

Myrdal's (1957) cumulative causation model implies that, at low levels of economic development, the relationship between backward and core regions tends to be detrimental to the former — the backwash effect. Likewise, the Lewis-Ranis-Fei development model proposes that excess farm labor and resource constraints in agriculture stimulate the process of rural-to-urban labor transfer. Meanwhile, location theory (Bos 1965) suggests that the existing distribution of population and economic activity are important factors in determining differentials in agricultural productivity. Specifically, Perloff *et al.* (1960) stress the importance of such resource inputs as land, labor, irrigation systems and farm machines, as well as markets which are largely population centers in the cost and demand considerations for the location of agricultural activity.

Dependent Variable

Agricultural productivity

Agricultural growth, until the late 50s, was the result mainly of an increase in the area of land under cultivation. More than 80 percent of agricultural output growth was accounted for by the expansion of cultivated land, with less than 20 percent attributable to increase in yield per hectare. Thereafter, the intensification of land use achieved by double or multiple cropping and the use of such modern inputs as irrigation, fertilizer and new seeds constitute the major sources of agricultural output growth (ILO 1974).

In 1960, agricultural output was distributed as follows: traditional agricultural region, 44 percent; the frontier region, 31 percent; and central industrial region, 25 percent. Likewise, TAR, FR and CIR accounted for 50 percent, 30 percent and 20 percent, respectively, of agricultural employment. In 1971, TAR continued to capture the largest shares of agricultural output and employment although at lower levels; CIR also experienced a falling relative share of agricultural activity while FR exhibited the opposite.

Explanatory Variables

Input Considerations

1.   Farm size. Size of land per worker is expected to influence agricultural productivity positively since, between the two traditional inputs, land is regarded as the more important in a labor surplus agricultural economy.

2.   Farm fragmentation. This is expected to affect agricultural productivity adversely because of such disadvantages as diseconomies due to a reduced scale of production and limited crop diversification.

3.   Irrigation. Considered as a crucial infrastructure in rice production, investment in irrigation accelerated when the land-labor ratio declined towards the late 50s. Irrigation increases agricultural productivity in two ways. First, an adequate supply of water in the dry season is a precondition for double-cropping especially for rice culture. Second, it is necessary for the effectiveness of fertilizer and seeds of high-yielding variety.

4.   Farm Mechanization. This increases agricultural productivity by allowing the farmer to prepare his land more thoroughly and efficiently, thereby reducing the time interval between crops. This consideration is all the more important in areas where water is not available throughout the year or where multi-cropping is practiced (Barker *et al.* 1971).

Market Considerations

1.   Urbanization. Population and non-agricultural economic activity tend to concentrate in urban centers. Hence, urban centers provide markets for agricultural products, which are either consumed by the population or further processed, and for excess farm labor. The presence of urban centers affect agricultural productivity in various ways. Agriculture production areas close to urban centers can compete successfully with alternative land uses only if in these areas, land is used intensively and yield reasonable returns. This explains the high intensity of land use and the high yield per hectare in areas near urban centers. Likewise, input requirements in agricultural production such as farm machines, fertilizers, chemicals and seeds are readily available in urban centers. Moreover, other production and service activities related to agriculture such as agro-based processing, storage, transport and financing are commonly found in urban centers. Finally, urban centers, by providing off-farm employment, can increase both the income and productivity of the agricultural area.

2.   Road Network. This is éxpected to affect agricultural productivity positively to the extent that it reduces transport costs and facilitates access to markets and services.

Data and Method

Agricultural gross output per province is computed by adding the production values of crops and livestock provided by the 1960 and 1971 Censuses of Agriculture. For 1971, value-added in agriculture is estimated using the value-added coefficients of the 1974 Input-Output table.[1] Data on farm workers by province are available from the 1971 Census of Agriculture. For 1960, only the data on farm population by province are avail-

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[1]Table 1 shows the value-added coefficients of agricultural products using the 1974 I-0 table. Except for pinapple, sugar and coconut which contribute substantially to agricultural production, the averages of the value-added coefficients for agricultural crops/ other agricultural products and livestock are taken. The value-added coefficients of the three above-mentioned crops are multiplied by their respective 1971 gross value of production by province. Likewise, the average value-added coefficients of agricultural crop/other agrucltural and livestock are multiplied by their corresponding 1971 gross value of production for each province. Actually, the correlation coefficient between these estimates of provincial value-added and gross value of production is 0.99, meaning that the gross value could be used just as well. For 1961, gross value of production was used due to data constraints. Its correlation coefficient with the 1971 value-added estimates is 0.90. See Luna (1982) for further elaboration.

Table 1. Value Added Coefficients in Agriculture, 1974

Agricultural product	Coefficient
Palay	.8705
Corn	.8813
Banana	.8714
Pineapple	.7467*
Other fruits and nuts	.9246
Vegetables	.9248
Tuber and rootcrops	.9394
Coffee and Cacao	.9184
Sugarcane	.8174*
Coconut including copra in farms	.7741*
Tobacco (native and virginia)	.8787
Abaca and other fibers	.8898
Other crops	.8806
Cattle	.7671
Hogs	.7516
Other livestock	.8686
Poultry	.6546
Other agricultural products	.8797

able and farm workers were computed by applying the ratio of population aged 10-65 to total population for each province. Estimates of agricultural output per worker (Q/L) by province are thus derived.

Urban centers (Table 2) are classified according to their level of development and population as follows:[2]

[2] The classification of urban centers is discussed in Soliman and Paderanga's Special Paper.

*not included in the average of agricultural crops and other agricultural products.

Note: 1. Average of value added coefficient of agricultural crops and other agricultural products = .8963.

2. Average of value added coefficient of livestock = .7705.

Source: 1974 Input-Output Table.

(a) National urban center (NUC) and broad regional urban centers (BRUC),

(b) Regional urban centers (RUC),

(c) Major urban centers (MUC), and

(d) Secondary urban centers (SUC).

Provinces without any of these centers are classified as rural provinces.

The following average values are computed: (a) Q/L of provinces within each region, (b) regional Q/L of provinces with BRUCs and RUCs[3], (c) regional Q/L of provinces with the MUCs and SUCs, and (d) regional Q/L of rural provinces.

To determine the extent of interregional differences in agricultural productivity as well as the influence each category of urban centers exerts on these differences, a two-way analysis of variance (ANOVA) is performed for 1960 and 1971 data.[4]

For the regression analysis, provincial observations from 1960 and 1971 are used. For possible comparative purposes, the 1971 provinces are made consistent with those of 1960, i.e., provinces which were subdivided after 1960 were recombined. The data on farm size, fragmentation,[5] irrigated farms, tractors, etc. are also from the 1960 and 1971 Censuses of Agricul-

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[5]The Agricultural Census defines a parcel or a fragment of a farm as that part of the farm surrounded by land or water of other farms or by land or water not forming part of any farm like roads, rivers and canals. The aggregate of all parcels of farmland operated by different members of a household and which may be located in different barrios constitutes only one farm.

[3]Tuguegarao (Region II) and San Fernando (Region III), although considered as a SUC and MUC, respectively, are here classified as RUCs.

[4]Under this scheme, Regions II and VIII have no provinces with MUC and SUC while Region VII, and XI and XII have no rural provinces. To remove the bias, an ANOVA with unequal cells is performed. Also, to avoid another bias due to special-case provinces such as Bukidnon and Negros Occidental (for 1960 and 1971 ANOVA) as well as Bataan (for 1971 ANOVA), these provinces are excluded from the analysis. Although Bukidnon is considered a rural province, it experienced a very high agricultural Q/L in both periods due to its specialization in export crops like pineapple. Negros Occidental has a RUC but its extraordinary high agricultural Q/L is due to its specialization in sugar, an export crop. Bataan is the site of the Export Processing Zone (which started in 1968) whose effects became felt in the early 70s. This and its proximity to Metro Manila may have caused the high agricultural output per worker in 1971.

Table 2. Classification of Urban Centers[a]

Cities	Classification
Metro Manila	National Urban Center
Metro Cebu	Broad Regional Urban Centers
Davao	
Iloilo	Regional Urban Centers
Bacolod	
Cagayan de Oro	
Zamboanga	
Tacloban	
Legaspi	
San Fernando (La Union)	
Cotabato	
Angeles	Major Urban Centers
Olongapo	
Butuan	
Batangas	
Iligan	
San Pablo	
Cabanatuan	
Dagupan	
Ormoc	
Naga	
Ozamis	
Dumaguete	
San Fernando (Pampanga)	
Baguio	
General Santos	
Tarlac	
Malolos[b]	
Cavite[b]	
Tuguegarao	Secondary Urban Centers
Lucena	
San Carlos (Negros Occidental)	

[a]This classification is discussed in the special paper on urban hierarchy.
[b]Given a MUC rank because of its proximity to Metro Manila.

Table 2 (Con't)

Cities	Classification
Roxas	
Laoag	
Pagadian	
Surigao	
Dipolog	
Daet	
Virac	
Tagbilaran	

ture. Data on kilometers of roads[6] are from the consolidated reports of the Bureau of Public Highways. For the regression the variable notations are as follows:

$\dfrac{Q}{L}$ = agricultural output per worker (in pesos);

$\dfrac{S}{L}$ = size of land in hectares per 100 workers;

$\dfrac{R}{H}$ = weighted kilometers of roads per 10,000 hectares;

FI = proportion of total farm area under irrigation;

$\dfrac{T}{L}$ = tractors per 10,000 workers (representing the degree of farm mechanization);

F6 = proportion of farms fragmented into 6 parcels or over;

URB = level of urbanization (proportion urban) of the total provincial population;

[6]Roads are weighted by type as follows: earth and macadam types of road = 1, bituminous (high and low) type = 2, and concrete type = 3. Their sum gives total weighted length of roads for each province.

SUC =   secondary urban center, 1 for presence and 0 for absence.

MUC -   major urban center, 1 for presence and O for absence;

RUC =   regional urban center, 1 for presence and O for absence;

BRUC =   broad regional urban center, 1 for presence and O for absence.

To determine the differential effects of urbanization in the more developed versus the less developed regions, separate regression runs are made for the provinces of these two groups of regions. Less developed regions are determined according to their per capita gross regional domestic products (1971-79). The six of the thirteen regions that consistently experienced the lower per capita GRDP are considered the less developed regions and the rest comprise the more developed regions.[7]

Empirical Results

Differences in Agricultural Productivity

The ANOVA results for 1960 show that interregional differences in agricultural productivity were significant. However, the differential effects of the various types of urban centers on regional agricultural productivity were not significant (Table 5).

For 1971, productivity differentials across regions seem to be even more significant (1.0 percent level) and the differential effects of urban centers were likewise significant (5 percent level). Also, a pairwise test of the differential effects of urban centers denotes that the effects of BRUC/RUC and MUC/SUC were significant, implying that the presence of BRUC/RUC and MUC/SUC in a province had some influence on agricultural productivity (Table 6).

For both periods, the pair wise test of regional agricultural productivity differences reveal that the degree of difference between regions III and IV (parts of CIR) on one hand and the rest of the regions on the other was appreciable. The high agricultural productivity in regions XI and XII in 1971 resulted in a marked difference in productivity relative to the other regions. It may also be observed that region III's difference from the other regions

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[7]The more developed regions are composed of thirty provinces in regions III, IV, VI, VII and X plus Davao of regions XI and XII. The less developed regions are composed of twenty-three provinces in regions I, II, V, VIII, IX, and XI and XII (excluding Davao). Davao was included in the developed regions because of its comparatively high agricultural performance (see Tables 3 and 4).

Table 3   Regional and Provincial Agricultural Output per worker with the Corresponding Urban Centers of Provinces, 1960

Region/Province	Gross Value of Output	Estimated Farm Workers	Output/ Worker	Urban Center	Classification
I· — Ilocos	₱317,423,960	947,268	335.09		
Abra	25,920,526	58,460	443.39	Rural	
Ilocos Sur	44,142,669	109,875	401.75	Rural	SUC
Ilocos Norte	50,254,586	141,358	355.51	Laoag	SUC
Mt. Province	56,109,958	179,765	312.13	Baguio	MUC
Pangasinan	111,293,322	358,815	310.17	Dagupan	MUC
La Union	29,702,896	98,995	300.04	San Fernando	RUC
II — Cagayan Valley	180,259,770	461,543	390.56		
Nueva Vizcaya	25,654,216	58,644	437.46	Rural	
Batanes	2,795,361	6,719	416.04	Rural	
Isabela	82,863,452	210,178	394.25	Rural	RUC
Cagayan	68,946,739	186,002	370.68	Tuguegarao	RUC
III — Central Luzon	350,558,710	713,270	491.48		
Pampanga	75,194,108	119,937	626.95	San Fernando & Angeles	RUC/ MUC
Bataan	15,333,560	27,233	563.05	Rural	
Tarlac	76,530,883	144,767	528.05	Tarlac	MUC
Bulacan	59,297,536	132,805	446.50	Malolos	MUC
Nueva Ecija	106,132,863	238,253	445.46	Cabanatuan	MUC
Zambales	18,069,759	50,275	359.42	Olongapo	MUC
IV — Southern Tagalog	396,487,740	961,232	412.47		
Laguna	57,874,516	97,649	592.68	San Pablo	MUC
Quezon	95,183,115	214,836	443.05	Lucena	SUC
Cavite	41,363,117	96,068	430.56	Cavite	MUC
Occidental Mindoro	13,506,382	31,449	429.47	Rural	
Rizal	19,678,363	46,044	427.38	Metro Manila	BRUC
Oriental Mindoro	35,254,130	82,937	425.07	Rural	
Batangas	87,967,422	218,979	401.72	Batangas	RUC
Palawan	18,747,773	65,586	285.85	Rural	
Romblon	13,985,805	55,957	249.94	Rural	
Marinduque	12,918,118	51,727	249.74	Rural	
V — Bicol	248,944.030	797,543	312.20		
Camarines Norte	38,130,358	55,772	683.68	Daet	SUC
Sorsogon	38,281,826	115,457	331.57	Rural	
Masbate	37,463,869	117,815	317.99	Rural	
Camarines Sur	75,801,826	273,372	277.28	Naga	MUC
Albay	12,407,300	163,061	260.07	Legaspi	RUC
Catanduanes	16,908,852	72,066	234,63	Virac	SUC
VI — Western Visayas	357,685,000	851,973	419.83		
Negros Occidental	184,414,750	234,270	787.19	Bacolod	
Capiz	39,179,969	111,210	352.31	Roxas	SUC
Iloilo	89,830,275	314,084	286.02	Iloilo	RUC
Aklan	20,272,117	87,843	289,78	Rural	
Antique	23,987,889	104,586	229.36	Rural	

Table 3 (Cont'd)

Region/Province	Gross Value of Output	Estimated Farm Workers	Output/ Worker	Urban Center	Classification
VII - Central Visayas	197,388,560	897,071	220.04		
Negros Oriental	59,574,750	262,339	256.41	Dumaguete	MUC
Cebu	92,289,250	427,962	215.65	Cebu	BRUC
Bohol	45,524,558	236,770	192.27	Tagbilaran	SUC
VIII - Eastern Visayas	189,155,430	748,051	252.86		
Samar	98,330,089	353,855	277.88	Rural	
Leyte	90,825,342	394,196	230.41	Tacloban & Ormoc	RUC MUC
IX — Western Mindanao	129,460,560	443,665	P 291.80		
Sulu	28,200,614	93,507	301.59	Rural	
Zamboanga del Norte	31,782,768	113,214	280.73	Pagadian	SUC
Zamboanga del Sur	69,477,173	236,944	293.22	Zamboanga	RUC
X — Northern Mindanao	236,543,050	549,538	430.44		
Bukidnon	77,047,810	83,128	926.86	Rural	
Misamis Oriental	58,013,235	132,926	436.43	Cagayan de Oro	RUC
(Misamis Occidental)	35,496,649	90,619	391.71	Ozamis	MUC
Agusan	25,459,646	89,983	282.94	Butuan	MUC
Surigao	40,525,712	152,882	265.08	Rural	
XI & XII Southern and Central					
Mindanao	391,024,140	1,060,210	368.82		
Davao	136,360,000	349,790	389.83	Davao	BRUC
Lanao	79,527,135	213,930	371.69	Iligan	MUC
Cotabato	175,137,000	496,460	352.77	Cotabato and General Santos	RUC MUC
Philippines	P 2,994,972,000	8,431,364	P 355.22		

Note: 1976 regional delineation is used. Metro Manila is excluded and assumed to have no agricultural production and employment. Regions XI and XII are combined due to data restrictions. The sum of the individual figures does not correspond to the totals due to rounding.

Source: 1960 Census of Agriculture.

Table 4   Regional and Provincial Agricultural Output per worker with the Corresponding Urban Centers of Provinces, 1971

Region/Province	Value Added	Farm Workers	Output/ Worker	Urban Center	Classification
I — Ilocos	P 628,284,860	1,494,286	P 420.46		
Ilocos Norte	79,859,751	105,215	759.01	Laoag	SUC
Ilocos Sur	71,730,077	148,277	483.76	Rural	
Pangasinan	261,856,000	625,639	418.54	Dagupan/ San Carlos	MUC
Abra	26,534,434	75,011	353.74	Rural	
Mt. Province	138,456,000	394,527	350.94	Baguio	MUC
La Union	49,848,599	145,617	342.33	San Fernando	RUC
II — Cagayan Valley	428,338,270	908,657	471.40		
Batanes	5,746,357	6,403	897.45	Rural	
Isabela	231,973,000	422,248	549.38	Rural	
Nueva Vizcaya	68,634,912	144,800	474.00	Rural	
Cagayan	121,984,000	335,206	363.91	Tuguegarao	RUC
III — Central Luzon	777,558,240	1,056,398	736.05		
Bataan	50,650,189	25,008	2,025.36	Rural	
Bulacan	121,531,000	96,307	1,261.92	Malolos	MUC
Tarlac	169,250,000	206,059	821.37	Tarlac	MUC
Nueva Ecija	264,657,000	412,424	641.71	Cabanatuan	MUC
Zambales	38,005,054	60,180	631.52	Olongapo	MUC
Pampanga	133,465,000	256,420	520.49	San Fernando & Angeles	RUC/ MUC
IV — Southern Tagalog	721,980,960	1,102,738	654.72		
Cavite	59,074,649	56,977	1,036.82	Cavite	MUC
Rizal	31,752,628	33,824	938.76	Metro Manila	BRUC
Marinduque	28,485,619	33,487	850.65	Rural	
Batangas	151,379,000	194,641	777.73	Batangas	MUC
Laguna	106,285,000	144,469	735.69	San Pablo	MUC
Oriental	P 91,095,101	131,034	P 695.20	Rural	
Occidental Mindoro	50,062,163	90,046	555.96	Rural	
Quezon	141,174,000	254,863	553.92	Lucena	SUC
Romblon	22,777,573	52,819	431.24	Rural	
Palawan	39,895,231	110,578	360.79	Rural	
V — Bicol	467,539,250	1,221,370	382.80		
Camarines Norte	46,561,248	49,595	938.83	Daet	SUC
Masbate	92,118,386	153,705	599.32	Rural	
Sorsogon	57,370,983	116,381	492.96	Rural	
Camarines Sur	150,801,000	454,932	331.49	Naga	MUC
Albay	98,904,731	361,179	273.84	Legaspi	RUC
Catanduanes	21,782,903	85,578	254.54	Virac	SUC
VI — Western Visayas	805,982,740	1,205,240	668.73		
Negros Occidental	354,652,000	265,969	1,333.43	Bacolod	MUC
Capiz	108,635,000	185,644	585.18	Roxas	SUC
Antique	47,549,329	81,712	581.91	Rural	
Iloilo	263,919,000	540,072	488.67	Iloilo	RUC
Aklan	31,227,406	131,843	236.85	Rural	

Table 4 (Cont'd)

Region/Province	Value Added	Farm Workers	Output/ Worker	Urban Center	Classification
VII — Central Visayas	P 385,972,000	759,187	P 485.39		
Negros Oriental	165,219,000	222,869	741.33	Dumaguete	MUC
Bohol	104,521,000	247,579	422.17	Tagbilaran	SUC
Cebu	116,232,000	324,739	357.92	Cebu	RUC
VIII — Eastern Visayas	422,716,000	1,094,807	386.11		
				Tacloban	RUC/
Leyte	244,779,000	563,027	437.76	Ormoc	MUC
Samar	177,937,000	531,780	334.61	Rural	
IX — Western Mindanao	319,664,960	613,567	P 520.99		
Zamboanga del Sur	201,768,000	345,993	588.16	Zamboanga	RUC
Zamboanga del Norte	79,475,539	162,423	489.31	Pagadian	SUC
Sulu	38,421,420	105,151	365.39	Rural	
X — Northern Mindanao	532,844,800	769,456	680.80		
Bukidnon	195,304,000	184,729	1,057.25	Rural	
Misamis Oriental	95,517,317	132,326	721.82	Cagayan de Oro	
Misamis Occidental	61,868,714	88,133	701.99	Ozamis MUC	RUC
Agusan	90,154,990	137,932	653.62	Butuan MUC	
Surigao	80,999,778	226,334	357.88	Rural	
XI & XII Southern and Central Mindanao	1,238,487,000	1,422,469	870.66		
Lanao	271,831,000	268,802	1,030.44	Iligan	MUC
Cotabato	679,552,000	749,151	907.10	Cotabato &	RUC
				Gen. Santos	MUC
Davao	287,104,000	409,516	701.08	Davao	BRUC
Philippines	₱6,720,369,100	11,684,175	P 575.17		

Note: 1976 regional delineation is used. Metro Manila is excluded and assued to have no agricultural production and employment. Regions XI and XII are combined to be consistent with 1960 data. The sum of the individual figures does not correspond to the totals due to rounding.

Source: 1971 Census of Agricultural.

diminished in 1971.

While there were notable differences in regional agricultural productivity in both periods, the influence of urban centers was weak in 1960 but apparently improved in 1971. It thus seems that the agricultural productivity effect of urbanization increases at higher levels of development.

Influence of Urbanization on Agricultural Productivity

The regression results using the 1960 provincial data (Table 7) show the input variables to be consistently significant and with the correct positive

Table 5. Analysis of Variance for Regions, 1960

A. Table of Averages of Q/L

Region	All Provinces		Provinces with BRUC/RUC		Provinces with MUC/SUC	Rural Provinces
I	Ilocos	353.83	300.04		355.94		422.56
II	Cagayan	404.61	370.68	(397.07)	361.62*		415.92
III	Central Luzon	495.00	626.95		445.00		563.05
IV	Southern Tagalog	393.54	414.55		488.73		328.02
V	Bicol	350.97	260.07		398.53		324.78
VI	Western Visayas	274.62	286.02		352.31		230.07
VII	Central Visayas	224.44	215.65		224.34	(221.47)	342.10*
VIII	Eastern Visayas	254.16	230.41	(237.49)	361.62*		227.88
IX	Western Mindanao	274.82	242.13		280.73		301.59
X	Northern Mindanao	344.04	436.43		337.32		265.08
XI & XII							Southern and
	Central Mindanao	371.43	371.30		371.69	(371.47)	342.10*

*These are supposed to be empty cells, but to avoid biases in ANOVA, averages of the data in the respective columns are substituted in the empty cells. Those in parentheses are averages of their respective rows. The column averages are used in analyzing differences among regions; when an analysis among types of urban centers is performed, the row averages are used.

B. ANOVA Results

Analysis	Tabular F		Computed F
	5 percent	1 percent	
Differences among regions	2.16	2.98	8.05
Differences among types of urban centers	2.92	4.51	0.31

Table 5 (Cont'd.)

C. Pairwise Test between Regions

	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
I												
II	120.46											
III	697.62**	577.16**										
IV	192.47	72.01	505.15**									
V	98.12	218.58	795.74**	290.59								
VI	289.35	409.81*	986.97**	481.82**	191.23							
VII	425.84*	546.30**	1,123.46**	618.31**	327.72*	136.49						
VIII	358.27*	478.73**	1,055.89**	550.74**	260.15	68.92	67.57					
IX	333.10*	453.56**	1,030.72**	525.57**	234.98	43.75	92.74	25.17				
X	49.50	169.96	747.12**	241.97	48.62	239.85	376.34*	308.77	283.6			
XI & XII	24.15	96.31	673.47**	168.32	122.27	313.5	449.99**	382.42*	357.25*	73.65		

*and ** denote significance levels at 5 percent and 1 percent, respectively.

Table 6. Analysis of Variance for Regions, 1971

A. Table of Averages of Q/L

Region		All Provinces	Provinces with BRUC/SRUC		Provinces with MUC/SUC		Rural Provinces
I	Ilocos	451.39	342.33		509.50		418.75
II	Cagayan Valley	471.19	363.91	(491.89)	666.32*		640.58
III	Central Luzon	775.40	510.49		839.13	(711.67)	456.44*
IV	Southern Tagalog	693.68	858.23		775.48		578.77
V	Bicol	481.83	273.84		508.29		546.14
VI	Western Visayas	473.16	488.67		585.18		409.38
VII	Central Visayas	507.14	357.92		581.75	(482.27)	456.44*
VIII	Eastern Visayas	386.19	437.76	(386.18)	666.32*		334.61
IX	Western Mindanao	479.29	583.16		489.31		365.39
X	Northern Mindanao	608.83	721.82		677.81		357.88
XI & XII	Southern & Central Mindanao	879.54	604.09		1,030.44	(904.69)	456.44*

*These are supposed to be empty cells, but to avoid biases in ANOVA, averages of the data in the respective columns are substituted in the empty cells. Those in parentheses are averages of their respective rows. The column averages are used in analyzing differences among regions, when an analysis among types of urban centers is performed, the row averages are used.

B. ANOVA Results

Analysis	Tabular F 5 percent	1 percent	Computed F
Differences among regions	2.16	2.98	4.43
Differences among types of urban centers	2.92	4.51	2.99

Table 6 (Cont'd)

C. Pairwise Test Between Regions

	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
I												
II	420.03										–	
III	869.49*	449.46									–	
IV	1,184.19**	764.16*	314.7								–	
V	88.13	331.9	781.36*	1,096.06**							–	
VI	234.42	185.61	635.07	949.77*	146.29						–	
VII	181.28	238.75	688.21*	1,002.91**	93.15	53.14					–	
VIII	102.69	317.34	766.8*	1,081.5**	14.56	131.73	78.59				–	
IX	195.18	224.85	674.31*	989.01**	107.05	39.24	13.9	92.49			–	
X	644.37	224.34	225.12	539.82	556.24	409.05	468.09	541.68	449.19		–	
XI & XII	1,448.54**	1,928.52**	579.05	264.35	1,360.41**	1,214.12**	1,267.26**	1,345.86**	1,253.36**	804.17*	–	

* and ** denote significance levels at 5 percent and 1 percent respectively.

D. Pairwise Test Between Types of Urban Centers

	All Provinces	Provinces with BRUC/RUC	Provinces with MUC/SUC	Rural Provinces
All Provinces				
Provinces with BRUC/RUC	455.42			
Provinces with MUC/SUC	667.32	1,122.74*		
Rural Provinces	457.51	2.09	1,124.83*	

*Significant at 5 percent level.

Table 7. Determinants of Provincial Agricultural Productivity (Q/L), 1960

| | Regression Run | | | |
	1[a]	2	3	4
Constant	−42.298	−27.299	−102.009	−65.834
S/L	2.054	2.080	2.164	2.118
	(3.600)	(3.843)	(3.966)	(3.936)
FI	2.345	2.512	1.947	2.376
	(1.083)	(2.267)	(1.593)	(2.143)
T/L	0.424	0.292	0.306	0.381
	(3.261)	(2.431)	(2.539)	(3.382)
F6			0.044	
			(1.089)	
LOG R/H	53.352	47.304	48.449	55.390
	(1.844)	(1.679)	(1.722)	(1.979)
URB		1.733	2.164	
		(1.319)	(1.579)	
SUC	−31.253			
	(−0.719)			
MUC	−18.824			
	(−0.493)			
RUC	−70.515			−66.560
	(−1.551)			(−1.540)
BRUC	−10.731			
	(−0.146)			
R^2	0.499	0.486	0.499	0.492

[a]Regression run no. 1 is in double log form.

Note: t-values are in parentheses underneath regression coefficients.

signs, except farm fragmentation (F6). These input variables, which accord with our hypotheses discussed above, are farm ($\frac{S}{L}$), farm irrigation (FI), and farm mechanization ($\frac{T}{L}$). Road network ($\frac{R}{H}$), a market variable, also turns out significant and positive. Level of urbanization (URB) has the correct sign but is not significant.

Noteworthy also are the negative signs, though insignificant, for the various kinds of urban centers. This result seems to imply that, if anything, the impact of urban centers on agriculture at that time was of the "back-wash" type. This might be because the general level of development then was low and urban centers were just starting to evolve. In the process, they tended to be competitive with rather than supportive of the farms. For instance, there was probably much transfer of resources from agriculture to the city.

The 1971 regression results are generally an improvement over those for 1961 (Table 8). The overall explanatory power of the model (R^2) is higher at about 0.70 compared to the earlier one at 0.50. Again, the input variables, including farm fragmentation (F6), are significant and positive. The positive sign for F6, though unexpected, may reflect intensive land cultivation and crop diversification which result in higher productivity. In other words, given capital scarcity, fragmented farms may be more manageable than large tracts.

Except for secondary urban centers (SUC), the other types of centers have the positive sign, and regional urban centers (RUC) now prove to be slightly significant. This suggests that at a higher level of development around the early 70s, urban centers were beginning to have some favorable influence on the productivity of farms in their vicinity. For instance, whereas in the early 60s, agriculture depended on traditional inputs, in the 70s, there was increasing use of such modern inputs as irrigation, fertilizer and seeds, as well as of urban-based services like storage, transport and processing. In short, there seemed to be greater reciprocity between farms and cities.

Separate regressions for less developed and more developed regions lend further support to the differential farm productivity effect of urbanization (see Luna 1982). At early stages of development, urban places tend to be "parasitic" on the farms, but at later stages, the relationship becomes seemingly more salutary.

Summary and Conclusion

Differences in agricultural productivity across regions are shown (using ANOVA) to be remarkable, as expected, for both 1960 and 1971 periods. Likewise, the various types of urban centers exhibit differential effects on farm productivity for 1971 (though not for 1960).

Table 8. Determinants of Provincial Agricultural Productivity (Q/L), 1971

	Regression Run			
	1	2	3	4
Constant	−284.647	−5.235	11.860	−20.882
S/L	5.868 (6.184)	5.263 (6.208)	5.177 (6.250)	5.419 (5.987)
FI	3.649 (1.704)	3.249 (1.602)	2.802 (1.405)	3.330 (1.546)
T/L	0.921 (3.76)	1.085 (5.280)	1.122 (5.449)	1.053 (4.604)
F6	0.548 (1.986)	0.627 (2.399)	0.625 (2.388)	0.642 (2.372)
LOG R/H	70.481 (1.421)			
SUC	−43.573 (−0.609)			−25.776 (−0.362)
MUC	25.341 (0.391)			25.143 (0.383)
RUC	114.980 (1.480)		123.645 (1.665)	134.878 (1.738)
RUC/BRUC		113.955 (1.710)		
R^2	0.705	0.687	0.700	0.691

Note: t-values are in parentheses underneath regression coefficients.

Regression results reveal the usual input variables and roads (a market variable) to be consistently significant in explaining agricultural productivity differentials across provinces. The influence of urban centers (reflecting urbanization) appears to be negative or in the nature of a "backwash" at low levels of development. In other words, urban places tend to develop at the expense of the farms. At later stages of development, the impact of cities on nearby agriculture becomes increasingly beneficial. On the whole, the findings of this study appear to accord well with theory and similar empirical works.

PATTERNS AND DETERMINANTS OF INTERREGIONAL MIGRATION

Virginia Gonzales and Ernesto M. Pernia

The national settlement pattern is made dynamic by the movement of population in addition to the shifting location of industries. Like industrial location, population settlements tend to be uneven especially in the early and intermediate stages of development. Unbalanced spatial distribution of the population can become excessive, impairing the functional participation of large segments in national urbanization and development. In view of this, various policies and programs have been implemented, or are planned for implementation, by the government to influence population distribution as part of a regional development framework. But these have appeared largely ineffective, perhaps due to an insufficient understanding of the mechanisms underlying population movements.

This paper hopes to be able to shed additional light on the migration phenomenon. It first presents the trends and patterns of interregional migration, and then analyzes the factors that influence population movements.

Patterns of Interregional Migration

Pre-1960 Period

Prior to the 60s, there were two major migration streams: from Luzon regions and Eastern-Western Visayas to the National Capital Region (NCR) and Cagayan Valley, and from the Visayas regions and some parts of Luzon to frontier areas in Mindanao (Pascual 1966, Smith 1977). This pattern is evident in Table 1. Southern Mindanao ranked first both in terms of in-migration and net migration rates, followed closely by the NCR. Three other regions proved to be net receivers of migrants: Western Mindanao, Cagayan Valley and Northern Mindanao. The rest exhibited negative net migration

Table 1. In-Migration, Out-Migration and Net Migration Rates, Birth-to-1960 (per thousand)

Region	In-Migration Rate	Rank	Out-Migration Rate	Rank	Net Migration Rate	Rank
I Ilocos	35.0	8	139.4	3	−104.4	9
II Cagayan Valley	157.7	6	66.5	8	91.2	4
III Central Luzon	40.9	7	138.3	4	−97.4	8
IV Southern Tagalog	110.7	4	126.2	9	−15.5	6
IV-A National Capital	375.1	2	46.2	10	328.9	2
V Bicol	34.8	9	83.9	7	−49.1	7
VI Western Visayas	22.7	11	142.9	2	−120.2	11
VII Central Visayas	31.5	10	243.5	1	−212.0	12
VIII Eastern Visayas	18.1	12	132.0	5	−113.9	10
IX Western Mindanao	293.0	3	37.1	11	255.9	3
X Northern Mindanao	166.5	5	113.5	6	48.0	5
XI Southern Mindanao	378.0	1	27.0	12	351.0	1

Source: *Census of Population and Housing,* 1960, Appendix.

rates, with the heaviest population loss experienced by Central Visayas, Western Visayas, Eastern Visayas and Ilocos, in that order.

The strong attraction of the NCR is easily attributable to its advantages as the seat of political power and the hub of economic activities with relatively adequate infrastructures and other social amenities. On the other hand, the population movements to Cagayan Valley and Mindanao may be seen as a response to the rich agricultural resources in those regions and to the resettlement programs of the government in the 50s. At the same time, the post-war period prior to the 60s saw a marked shift in economic activity from the traditional agricultural region of the Visayas (and Ilocos) to the industrializing region in and around Manila as well as to the frontier lands. This shift resulted in the slow-down of the traditional agricultural areas — making them a sluggish region.

1960-70 Period

The migration pattern during the decade of the 60s appeared to be an extension of the preceding one, except for some slight alterations (Table 2). The NCR became the most preferred destination with Southern Mindanao only second although it continued to be the top net receiver of migrants. Similarly, Northern Mindanao surpassed Western Mindanao in terms of both in-migration and net migration. Cagayan Valley lost some of its attractiveness but it remained a net absorbing region. Southern Tagalog changed status from a losing to a gaining region, reflecting together with NCR the rise of the central industrial region (CIR).

The in-migrants to the NCR came mainly from Luzon and the Visayas regions, particularly Western and Eastern Visayas. Those who migrated to Mindanao came principally from the Visayas, especially Central Visayas.

On the whole, the 1960-70 migration pattern may be characterized by the shift from a frontierward to an urbanward orientation. This seems to accord with the industrializing nature of the economy which revolved around NCR and gradually also its surrounding regions.

1970-75 Period

The urban-industrial orientation of migration that began in the 60s became more visible in 1970-75 (Table 3). Both Southern Tagalog and Central Luzon (which, together with NCR, form CIR) appreciably improved their relative rankings in terms of net migration, and there was an apparent

Table 2.   In-Migration, Out-Migration and Net Migration Rates, 1960-70 (per thousand)

Region	In-Migration Rate	Rank	Out-Migration Rate	Rank	Net Migration Rate	Rank
I Ilocos	20.35	12	52.71	9	−32.65	10
II Cagayan Valley	57.05	7	41.33	10	15.72	5
III Central Luzon	66.54	5	94.46	4	−27.92	9
IV Southern Tagalog	64.16	6	55.44	7	8.72	6
IV-A National Capital	231.59	1	104.14	3	127.14	2
V Bicol	18.45	13	35.43	12	−16.98	8
VI Western Visayas	22.08	11	86.32	5	−64.24	11
VII Central Visayas	39.47	8	135.71	1	−96.24	13
VIII Eastern Visayas	29.06	9	115.38	2	−86.32	12
IX Western Mindanao	83.67	4	40.67	11	43.00	4
X Northern Mindanao	156.27	3	85.05	6	71.21	3
XI Southern Mindanao	212.63	2	53.42	8	159.21	1
XII Central Mindanao	28.30	10	26.32	13	1.97	7

Source: Flieger *et al.* (1976), Table 21, p. 40.

Table 3. In-Migration, Out-Migration and Net Migration Rates, 1970-75 (per thousand)

Region	In-Migration Rate	Rank	Out-Migration Rate	Rank	Net Migration Rate	Rank
I Ilocos	12.2	9	29.1	2	−16.9	13
II Cagayan Valley	13.3	8	15.6	12	−2.3	7
III Central Luzon	21.8	4	15.9	11	5.9	5
IV Southern Tagalog	64.5	1	50.5	1	14.0	2
IV-A National Capital	34.0	3	25.3	4	8.7	4
V Bicol	11.5	10	21.8	7	−10.3	10
VI Western Visayas	10.3	11	14.4	13	−4.1	8
VII Central Visayas	15.9	6	28.0	3	−12.1	12
VIII Eastern Visayas	17.9	5	19.9	9	−2.0	6
IX Western Mindanao	9.2	12	20.9	8	−11.7	11
X Northern Mindanao	34.0	3	19.0	10	15.0	1
XI Southern Mindanao	35.5	2	22.9	6	12.6	3
XII Central Mindanao	14.6	7	23.9	5	−9.3	9

Source: NCSO, Census Place-of-Residence data, 1975 (unpublished).

change in the destination preference of Visayas migrants from Mindanao to NCR and Southern Tagalog, resulting in some net loss to Mindanao. In addition, Cagayan Valley which used to be a net in-migration region started to suffer a net outflow in the first half of the 70s.

Determinants of Interregional Migration

Theoretical and empirical studies of migration allude to various factors that influence population movements. This section discusses these factors, along the lines suggested in the literature, as a prelude to the analytic model that will be used to identify the ones that matter in the Philippine context. Among the most commonly referred to in the literature are: employment and unemployment, farm density and technology, income, education and literacy, distance, ethnicity and migrant stock.

Employment and Unemployment

The prospect of better employment or even mere employment is commonly considered a crucial factor in motivating people to move and choose a specific destination. The "job-vacancies" thesis, for example, posits that responsiveness to job openings is stronger than to higher income. A number of studies shows that migrants tend to move to regions where employment is expanding (e.g., Muth 1968, Olvey 1972, Pernia 1978). Likewise, studies on gross migration point out that job opportunities seem to give a better explanation for in-migration than for out-migration (Greenwood 1975).

Other empirical works use the unemployment rate to reflect the same concept. But some studies show this variable to be insignificant as a deterrent for in-migration. Greenwood (1975) attributes this to the simultaneity problem inherent in studies that use end-of-period unemployment rate. Mueller (1964) finds that out-migration in the United States during 1950-60 was negatively related to unemployment. Similarly, Marsh (1967) reports that in areas of high unemployment, out-migration did not increase; rather, in-migration was retarded.

Farm Density and Irrigation

The propensity to migrate tends to rise when the farm land becomes crowded for the population, given a certain level of technology (Oberai

1979). This is shown by studies on Indonesia (Naim 1975), Nepal (Khadka 1979), and the Philippines (Morales 1978).

By contrast, irrigation tends to exert the opposite effect on migration (Dhar 1979). This is because it changes farm technology, resulting in higher productivity per hectare and increased effective farm size cultivated. Hence, the demand for labor rises and more population can be accommodated.

Income

The income effect is frequently shown in terms of a net flow of migration away from low-income to high income areas. Pascual (1966) shows that in the case of the Philippines, origin income was significant while destination income was not, and that origin income and out-migration rate are positively related. On the other hand, a number of studies on gross migration indicate that income provides a better explanation for in-migration than for out-migration.

Education and Literacy

Education invariably figures importantly in migration selectivity. The better educated are oftentimes the more mobile segment of the population due to higher aspirations and stronger risk-taking propensity. This is borne out by studies on the U.S. (Shryock 1974, Nam 1976, Taueber 1959) and on the Philippines (Zachariah and Pernia 1975, Juan and Kim 1977, Pernia 1978). Likewise, education widens the labor market sphere and facilitates access to information on job opportunities. However, the education effect may not be necessarily linear and may vary depending on type of origin area, e.g., whether rural or urban (Pernia 1979, Wery 1980). At area of destination, education can hasten and ease adaptation to the new environment.

Distance

This determinant of migration is among the oldest referred to in the literature, figuring prominently in Ravenstein's "laws" of migration (Ravenstein 1889). Distance represents transfer cost involving time and money (Levy and Wadycki 1974). It also serves as a proxy for psychic and information costs. Information tends to decline with distance, raising the risk and uncertainty of a move. However, Schwartz (1973) notes that

the deterrent effect of distance diminishes with education, controlling for age.

Ethnicity and Migrant Stock

Generally, migrants prefer to reside in a place with ethnic characteristics akin to their origin. The presence of a common language, for example, facilitates the flow of information between origin and destination and reduces the adaptation problem at destination.

A variant of the ethnicity factor is the so-called "migrant stock" variable. This refers to relatives or friends who had moved earlier to some place and who come from the same origin as the potential migrant. Several studies have demonstrated this variable to be highly significant (Fabricant 1967, 1970; Greenwood 1969, 1970; Pernia 1978, 1979). The effect is conceivably in terms of information, temporary shelter and financial assistance, and psychic support. Like education, ethnicity and migrant stock reduce the costs of distance.

Analytic Model and Results

The analytic model incorporates the above factors considered important in influencing population movements. Most of these factors are examined from the standpoints of origin (i) and destination (j).

The dependent variable is specified as[1]

m_{ij} = migration rate from region i to region j during time interval t-1 to t.

The independent variables, all referring to t-1, are as follows:

EST_{ij} = business establishments at i and j (reflecting employment opportunities),

UN_{ij} = unemployment rate at i and j,

FD_{ij} = farm density at i and j,

IRR_i = farm irrigation at i,

FY_{ij} = level of education at i and j,

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[1]Further specifications of the variables are given in Appendix A.

ED_{ij} = level of education at i and j,

POV_i = poverty incidence at i,

$TRANS_{ij}$ = transportation access between i and j (reflecting distance),

L_{i-j} = common language and ethnicity between i and j,

MS_{ij} = migrant stock from i at j

The hypothetical signs of the regression coefficients for the independent variables are:

$$EST_i < 0, EST_j > 0, UN_i > 0, UN_j < 0, FD_i > 0, FD_j < 0,$$

$$IRR_i < 0, FY_i < 0, FY_j > 0, ED_i > 0, ED_j > 0,$$

$$POV_i > 0, TRANS_{ij} > 0, L_{ij} > 0, MS_{ij} > 0.$$

Regression analysis is applied to place-of-residence data by region in 1960 and 1970 from the 1970 Census, and in 1970 and 1975 from the 1975 Census. Relevant data are presented and qualifications on them are discussed in Gonzales (1982).

Empirical Results

In explaining population movements, the results for 1960-70 bring out the importance of economic (employment) opportunities at destination (EST_j), farm density at destination (FD_j), extent of irrigation at origin (IRR_i), level of education at origin (ED_i), migrant stock at destination from origin (MS_{ij}) and common ethnicity between origin and destination (L_{ij}). These carry the hypothesized signs and are statistically highly significant (Table 4). What is particularly noteworthy is the salience of employment opportunities (EST_j or UN_j) over income (FY_j) and the dominance of the kinship effect (MS_{ij}) — which are consistent with micro-data analysis (Pernia 1978, 1979). Another point is the insignificance of transportation access ($TRANS_{ij}$), as expected, given the importance of MS_{ij} and ED_i.

The other variables are not significant although they have the correct signs. Nonetheless, the overall explanatory power ($\overline{R}^2$) of the model comes out to between 0.80 to 0.85 (Table 4, regressions 1 and 2). Different specifications for the regression equation improve the significance of the other variables but also result in a lower explanatory value of the model.

Table 4.   Determinants of Interregional Migration, 1960-70

Independent Variables	1	2	3	4	5	6
EST_i		−0.017 (−0.089)		−0.720 (−2.063)	−0.673 (−1.934)	
EST_j	0.788 (5.495)		1.593 (5.693)		1.553 (5.595)	
FD_i	0.381 (1.689)	0.217 (0.626)	1.709 (3.772)	2.528 (4.282)	2.429 (4.169)	1.926 (3.762)
FD_j	−0.806 (−3.913)	−0.162 (−0.758)	−1.505 (−3.428)	−0.462 (−1.118)	−1.473 (−3.391)	−0.441 (−1.116)
IRR_i	−0.73735 (−6.575)	−0.765 (−4.772)	−0.642 (−2.617)	−1.053 (−3.413)	−0.997 (−3.277)	−1.393 (−2.988)
UN_i						2.401 (3.323)
UN_j		.328 (−1.693)		−0.837 (−2.294)		−0.724 (−1.982
ED_i	1.533 (4.553)	1.253 (2.527)	1.459 (2.060)	2.722 (2.999)	2.539 (2.834)	1.255 (1.287)
ED_j	0.395 (1.382)		−0.782 (−1.281)		−0.762 (−1.261)	−0.504 (−0.797)
FY_i				1.848 (5.269)		−0.607 (−0.910)
FY_j		.252 (1.075)				1.988 (5.718)
MS_{ij}	0.624 (14.339)	0.713 (12.479)				
$TRANS_{ij}$	0.001 (0.005)	−0.038 (−0.477)	−0.688 (−1.999)	−0.858 (−2.484)	−0.738 (−2.160)	−1.141 (−3.328)
L_{ij}	0.778 (4.975)	).455 (2.508)				
R^2	0.848	0.802	0.263	0.261	0.279	0.325

Note: t-values in parentheses underneath regression coefficients.

The results for 1970-75 further substantiate the crucial role in migration of kinship and ethnicity (rendering $TRANS_{ij}$ immaterial), and economic (employment)- opportunities at destination (Table 5). Farm density at destination has less importance but at origin, it now seems to exert pressure for moving out. At the same time, however, poverty incidence at origin (POV_i) appears to hamper the ability to migrate, i.e., given the costs of moving, the very poor are forced to stay put.

Table 5.   Determinants of Interregional Migration, 1970-75

Independent Variables	1	2	3	4	5	6
EST_i		0.056 (0.233)				
EST_j	0.725 (5.547)	0.693 (2.970)		0.675 (2.929)	0.940 (4.950)	0.689 (2.989)
FD_i	−0.907 (3.113)	1.840 (3.618)	1.292 (2.035)	1.286 (2.008)	1.899 (4.615)	1.759 (3.481)
FD_j	0.345 (1.615)	−0.152 (−0.396)	−0.546 (−1.364)	−0.1.63 (−0.428)	).039 (0.125)	−0.175 (−0.458)
IRR_i	−0.116 (−1.037)	−0.615 (−3.096)	−0.430 (−1.693)	−0.415 (−1.471)	−0.429 (−2.671)	−0.614 (−3.141)
UN_i	0.012 (0.145)		0.312 (1.977)	0.283 (1.778)	0.247 (2.007)	0.222 (1.471)
UN_j			0.447 (3.010)			
ED_i	−0.125 (−2.071)	0.181 (1.770)	0.089 (0.755)	0.085 (0.715)	0.201 (2.509)	0.165 (1.683)
ED_j	−0.101 (−1.998)	0.0003 (0.003)	0.057 (0.677)	0.004 (0.047)	0.049 (0.684)	0.003 (0.029)
FY_i			0.927 (1.334)			
FY_j			0.462 (1.316)	0.842 (1.200)		
NS_{ij}	−0.582 (12.922)					
$TRANS_{ij}$	0.082 (0.398)	−0.185 (−0.497)	−0.278 (−0.764)	−0.207 (−0.563)	0.055 (0.182)	−0.200 (−0.544)
L_{ij}	0.535 (3.540)				1.607 (8.686)	
POV_i	−0.256 (−1.578)	−0.682 (−2.446)	0.044 (0.078)	0.013 (0.023)	−0.669 (−2.865)	−0.575 (−2.007)
Constant $\overline{R}^2$	0.731	0.116	0.147	0.131	0.423	0.129

Note: t-values in parentheses underneath regression coefficients.

Analysis of migration determinants, controlling for sex, produces similar findings as above (Table 6). Likewise, no notable variation in the determinants for males versus females shows up.

Table 6.   Determinants of Interregional Migration, 1960-70, by Sex

Independent Variables	1 Male	1 Female	2 Male	2 Female
EST_i			0.083 (0.479)	0.077 (−0.439)
EST_j	0.502 (3.377)	0.306 (2.262)		
FD_i	0.491 (2.099)	0.210 (0.862)	0.534 (1.668)	0.519 (1.601)
FD_j	0.021 (0.097)	0.455 (2.042)	0.321 (1.625)	0.606 (3.025)
IRR_i	−0.679 (−5.851)	−0.747 (−6.159)	−0.546 (−4.361)	−0.794 (−5.297)
UN_i			−0.087 (−0.488)	0.096 (0.529)
UN_j				
ED_i	1.214 (3.481)	0.697 (1.915)	1.062 (2.319)	0.841 (1.813)
ED_j	0.780 (2.635)	1.147 (3.712)		
FY_i				
FY_j			0.912 (4.211)	1.022 4.661)
MS_{ij}	0.657 (14.571)	0.709 (15.062)	0.611 (11.578)	0.622 (11.652)
$TRANS_{ij}$	−0.194 (−1.163)	−0.059 (−0.337)	−0.359 (−2.114)	−0.284 (−1.655)
L_{ij}	0.614 (3.792)	0.536 (3.167)	0.598 (3.570)	0.568 (3.349)
$\bar{R}^2$	0.832	0.824	0.827	0.829

Note: t-values in parentheses.

Summary and Conclusion

Migration trends prior to the 60s, during the 60s, and in the first half of the 70s appear quite consistent with the shifting pattern of economic activity during those periods, as discussed in Hermoso's Special Study. Population movements prior to 1960 were largely from Luzon regions and Eastern-Western Visayas to the NCR and Cagayan Valley, and from the Visayas to the frontiers of Mindanao. During the 60s, there was an apparent shift from frontierward to urbanward migration — in accord with the industrializing character of the economy which revolved around the NCR and, gradually, also the Southern Tagalog region. Subsequently, the urban-industrial orientation of population movements became more pronounced, with Cagayan Valley and Mindanao losing their relative attractiveness and Southern Tagalog-Central Luzon becoming a more integral part of the CIR.

An analysis of the determinants of population movements highlights the key roles of economic (employment) opportunities at destination, kinship network and ethnicity, and educational level at origin. While these factors facilitate migration, thus generally allowing people to improve their lot, it should also be noted that high poverty incidence prevent certain segments of the population from moving to where they might be better off.

Appendix A

Specification of Variables

Dependent Variable

The dependent variable, interregional migration rate between t-1 to t (m_{ij}), is defined as:

$$m_{ij} = \frac{M_{ij}}{P_i} \times 1,000$$

where:

M_{ij} = the number of migrants from i to j,

P_i = mid-interval population of i exposed to the risk of migrating.

To test the hypothesis that responses to migration stimuli vary with the migrant's demographic characteristics, the dependent variable was disaggregated by sex and age for 1970-75. The age groups considered were: 15-29, 30-44, and 45 and over.

Independent Variables

Employment Opportunities. This variable is defined as the ratio of business establishments in a region in 1961 and 1972 to the total population of the region during the census years 1960 and 1970, respectively. Sources are the *Economic Censuses* of 1961 and 1972.

Farm Density. This is expressed as the ratio of total farm population in 1960 and 1970 to total farm area (in hectares) in 1960 and 1970 of the region. Data are from the *Census of Agriculture*, 1960 and 1971.

Average Family Income. This variable was based on family income data of the *Family Income and Expenditure Survey (FIES)* for the years 1961 and 1971 of the then Bureau of Census and Statistics (now NCSO).

Education Level. In 1960, educational level was defined as the proportion of population with completed elementary education. For 1970, available data pertained only to proportion of population 25 years or over

with completed elementary education. Data are from the *Census on Population,* 1960 and 1970.

Irrigation at Origin. This refers to the ratio of farm population in 1960 and 1971 to total irrigated farm area (in hectares) of the region in 1960 and 1971, respectively. The source is the *Census of Agriculture,* 1960 and 1971.

Poverty Incidence at Origin. Poverty incidence is defined as the proportion of the region's population falling below the poverty line in 1971. The two main criteria for determining the poverty line are the consumption basket of the "representative poor" and the "least-cost" consumption basket necessary to meet the specified minimum needs of a household. Data are from the *World Bank Report on Poverty* (1980) based on the BCS, *Family Income and Expenditure Survey,* 1971.

Unemployment Rate. For 1960-70, unemployment rate is defined as the ratio of unemployed persons to the total labor force of the region in 1961 from BCS, *Facts and Figures about the Philippines,* 1963. For 1970-75, data on unemployment rate come from the BCS *Survey of Household Bulletin,* 1971.

Transportation Access. Distance between two regions is measured in terms of transportation access. The modes of transportation considered are land and water. Air transport is excluded since migrants generally do not travel by air (because of its high cost). When regions are separated by bodies of water, water transportation is considered more significant than land. The reverse applies when regions are linked by land. A dummy variable of 1 is used to indicate the presence of sea and/or land transport, 0 otherwise. The presence of primary and/or secondary port for the paired regions, suggestive of the availability and frequency of interisland vessels, is used as an indicator of access via water transport. On the other hand, access by land transport is based on paved, concrete or asphalt roads connecting paired regions. Data are from the Ministry of Public Works and Highways.

Language and Ethnicity. This variable reflects language and cultural similarities between regions. A dummy variable of i is used to indicate the presence of at least one common major dialect between regions, 0 otherwise.

Migrant Stock. The migrant stock variable is

$$MS_{ij} = \frac{Mij}{Pj} \times 1,000$$

where:

M_{ij} = number of persons born in i and living in j during t-i,

P_j = population of j at t-i.

SOME EXPLANATIONS ON FIRM LOCATION IN A DEVELOPING COUNTRY

Cayetano W. Paderanga, Jr.

Some analysts have doubted the applicability of the standard approach[1] to firm and industrial location to less developed countries (LDCs). In relation to this, this paper aims to adapt the standard model to LDCs somewhat along the lines suggested by some of these writers.[2] The main thesis is that in contrast to developed economies, LDCs are segmented into regional markets that interact rather minimally with each other. Because of problems in transportation and other infrastructure services, prices of products are often substantially different from one region to another, a fact that may also be true of the prices of production inputs. These and other differences have served to limit the applicability of the standard model to less developed economies.

Industrial Location in Less Developed Countries

As mentioned, for various reasons, practitioners have been dissatisfied with the standard model because of its failure to explain and predict the urbanization and spatial development patterns of less developed countries.[3] Among the patterns that do not seem to agree with conventional theory, for example, are the persistent attraction of the capital regions in LDCs despite the presence of cost advantages in the other regions and the increasing disamenities of congestion in the country's capital.

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[1] See for example Alonso (1968, 1970a and 1970b), Richardson (1979) and Myrdal (1957), among others.

[2] Especially Alonso, ibid.

[3] Even after the difference between actual observed spatial patterns and the expected patterns due to the inertia of firms in locating or transfering caused by the longevity of capital equipment, has been considered.

Several writers have shown increasing disappointment with the conventional approach and have presented reasons for its failure to provide an explanation for the actual patterns.

Richardson (1979), for instance, puts forward one of the more sweeping indictments against what he terms the "neoclassical model". According to him, the assumption of uniform prices and inputs and marginal adjustments in order to attain profit-maximization is so far from the realities of LDCs that the whole apparatus should be discarded entirely. He favors the use of the spiral-backwash effects model proposed earlier by Myrdal (1957). He has proposed the use of attraction and repulsion indices to make the approach operational.

Alonso (1968) attributes the failure of the standard model largely to the inattention of researchers to the influence of agglomeration economies and the perceived uncertainties present in locating in undeveloped regions (e.g., uncertainty as to the presence of *all* types of skilled labor). However, further research is needed before quantitative indications of the effects of these uncertainties could be made.

Miranda (1977) has formulated a model that explicitly incorporates the influence of "non-economic factors" in the industrial location decision. The difficulty of identifying these non-economic factors that systematically influence location decisions, coupled with the difficulty of determining how much weight to give to each factor, makes the model even less immediately operational than Alonso's explanation.

This paper attempts an adaptation of the standard model with the incorporation of two factors that may be mutually reinforcing:
   (a)   regional fragmentation in LDCs; and
   (b)   disparity of information about regions, with the resulting information edge in favor of the national capital region.
These additional aspects are not mutually exclusive and neither do they exclude the previous explanations. Rather, they provide further directions for the possible modification of location theories for adaptability to LDCs. Further, these aspects explicitly consider conditions in LDCs.

Conditions in Less Developed Countries

The main characteristics of most LDCs is inadequate means of transportation and communication among different regions of the country. The national economy is fragmented into several largely independent regional sub-markets which have minimal interaction with each other and which interact relatively more with the main metropolitan region regarding products that require a national market (e.g., cars and household appliances).

Demand and cost surfaces are not smooth over the whole national geographic space. Rather, these surfaces are akin to broken plates, corresponding to regions, that do not strongly interact with each other. Prices of products and inputs may be substantially different from one region to another.

This modified explanation explicitly incorporates the market fragmentation of LDCs into the conceptual decision process. Because of the disjointedness of the regions comprising the national market, the location decision consists of two steps:

a) making the choice of the regional market to operate in given constraints, and

b) making the choice of a specific location within the regional market chosen in the first step.

This two-step process is formally shown in the following equation, with two subscripts explicitly introduced in the profit function:

$$(1) \pi_{ji} = R_{ji} - C_{ji} \qquad \begin{aligned} R &= \text{Revenue} \\ C &= \text{Cost} \end{aligned}$$

where j corresponds to the jth regional sub-market and i represents the ith location within the jth region. In our model, the j subscript signifies a different set of demand and cost surfaces for each j. The level of each surface may be radically different from the corresponding surfaces in the neighboring regions.

In the static version of the model, the decision-maker first decides over the j's before deciding over the i's. This consideration is graphically illustrated below, contrasting the case in DCs (Figure 1) from that in LDCs (Figure 2).
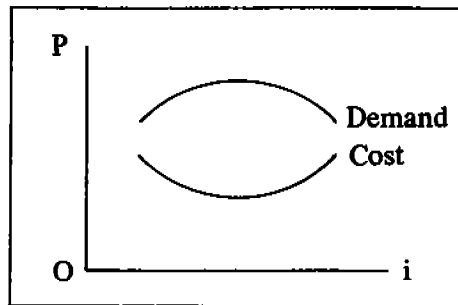
Figure 1. Demand and Cost Surfaces in Developed Countries*

*In models that emphasize only one side (e.g., transportation cost minimization), the other side may implicitly be assumed to be a horizontal line.
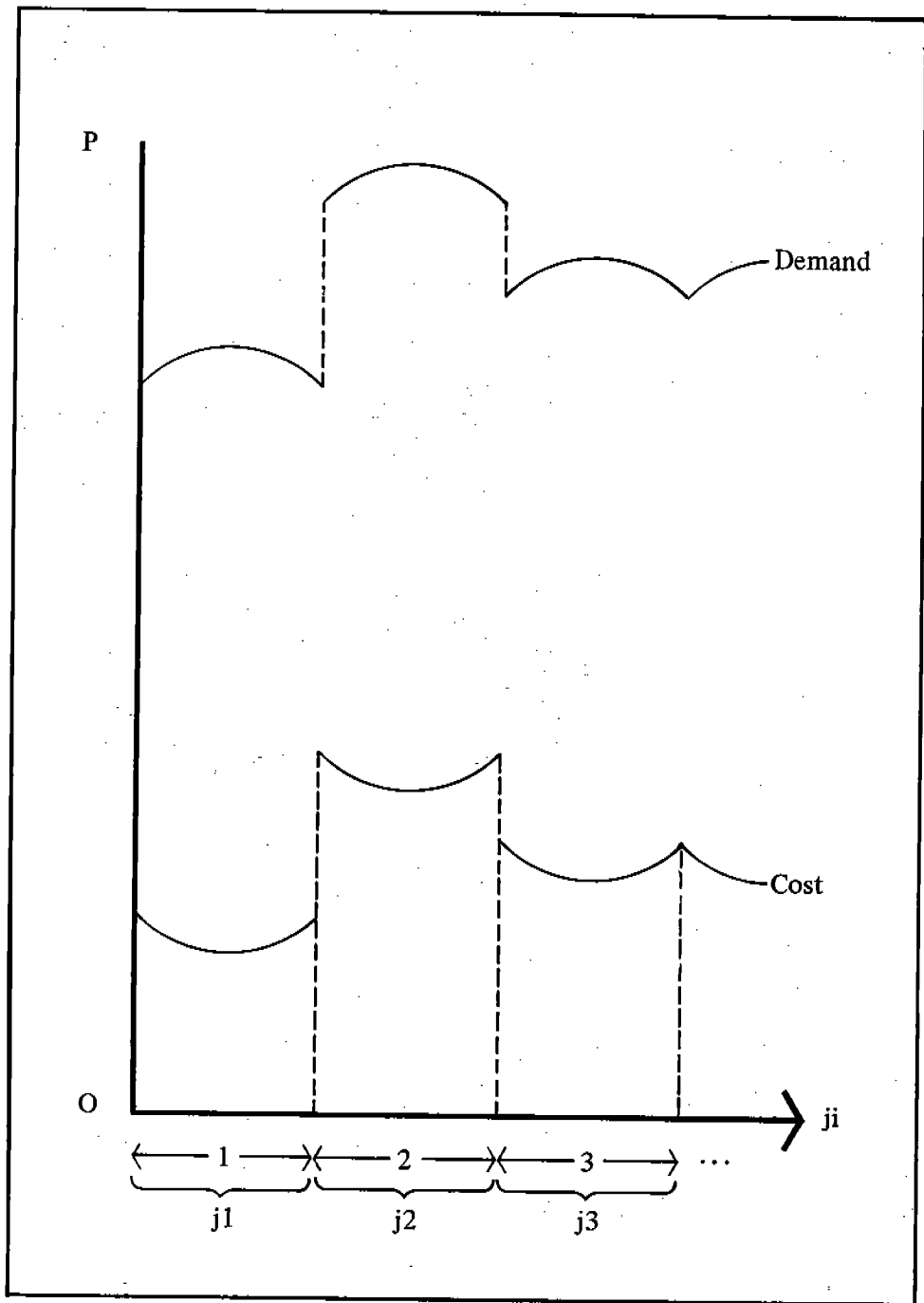
Figure 2. Demand and Cost Surfaces with Market Segmentation in LDCs

The Effect of a Geographically Fragmented Market

An explicit consideration of the division of the national market into regional segments is needed for the conventional model to be useful for less developed countries. First of all, recognition of the importance of both sides of the profit equation implies that attention can no longer be focused on the point of minimum cost or maximum price alone. The incorporation of regional fragmentation further implies that in terms of regions, the optimal choice is not the highest demand surface or the least-cost surface region. Inattention to one term of the profit equation is no longer admissible, even as a rough approximation. The region with the maximum distance between the demand and cost surfaces has to be explicitly searched for.

Even the consideration mentioned above is not enough. The static view of looking for the absolute distances between the capitalized value of the revenue and cost surfaces is still wanting. In fragmented markets, the directions and magnitudes of change of the financial surfaces will vary from one region to another.[4] In some regions, the changes may be in the same direction for both revenue and cost; in others, the changes may go in opposite directions. Not only does the decision-maker have to look closely at the capitalized difference between revenue and cost (profit) for each region, he also has to gauge how the revenue and cost surfaces will change over time, because these changes may radically vary among regions. We formally show this by introducing a rate of growth in the current values of revenue and cost to the definition of the capitalized value of profit.

$$(2) \quad \pi_j = \int_O^T (R_{jt}e^{\beta t} - C_{jt}e^{\gamma t}) e^{-\alpha t} dt$$

where β = growth rate of revenue

γ = growth rate of cost; the i's are dropped for simplicity,

α = discount rate.

The explicit introduction of these growth rates emphasizes that more than normal care is given by the decision-maker in his appraisal of the region's

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[4] This is also true to some extent in developed economies; however, the differentials are greatly magnified in LDCs because changes in any region are confined there.

prospects in both sides of the profit calculus. β, for example, may be affected by the region's overall growth rate, expansion of the regional communication network and other factors. γ, on the other hand, may be influenced by the change in the region's cost advantages, among other things, as other firms move in by the agglomeration economies of having numerous firms in the same area. An explanation that ignores the effects of regional fragmentation on the movements of the demand and cost advantages for each region will not be able to explain the locational choice of firms that takes into consideration the effect of differential changes of the regions into their calculations.[5] Conventional theory, which appears to have explicitly neglected the treatment of this aspect, may have left out a substantial portion of the reality in LDCs.

This aspect is particularly important in the attempt to measure the impact of government policy on urbanization and spatial development. Too often, researchers and policymakers have considered only the direct impact of policies on industries. The indirect effects through differential changes among different regions have been neglected. For example, while some studies would assert that government macro-economic and growth policies favored the national capital region for firm and industrial location, the cumulative effects of all the infrastructure that are put in just to service the firms that are in place serve to make Metro Manila even more attractive to potential entrants. Increased prospects of new production further increase the expected growth of demand in the region, which, in turn, further increase the expected profits for the location. Because of regional fragmentation, the changes will be confined to the region. As a result, the attractiveness of Metro Manila persists and even widens over time.

The Effect of Information Scarcity

Another important feature of LDCs is the role that the capital region plays in the accumulation, processing and dissemination of knowledge and information. National newspapers and magazines are invariably based in the nation's capital, which is also the hub of communication facilities. More important, perhaps, is the fact that the main educational institutions are also found there. Consequently, the probability is high that most entrepreneurs would know intimately only two regions of the country: his native region and the national capital region. Because of the high cost of gathering

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[5] This is particularly important with regard to the national capital region which seems to enjoy a positive correction factor in the view of most decision-makers.

information in all aspects, the locational choice must often boil down to that between the two familiar regions,

$$\bar{\pi}_c \; \gtrless \; \tilde{\pi}_j$$

where   c = capital region

j = native region of the entrepreneur.

The probability that the investor will choose Metro Manila is positive in each case. This choice is repeated for investors from the other regions — and each time, Metro Manila receives a share of new firms inordinately larger than its objective attractiveness. As the location decisions are added up over all the regions (of origin of entrepreneurs), the national capital region starts to get a share of new business disproprotionate to its "objective attractiveness" (i.e., over and above the normal considerations which include agglomeration economies).[6] Any exploration of industrial or firm location that does not consider this information scarcity in LDCs will be incomplete in explaining the spatial development patterns observed in those countries. The interaction of the effects of information scarcity with those of market fragmentation results in the persistence of the national capital center's attractiveness for firm location in comparison with the other regions.

LDC Conditions and Government Policies

The two features of less developed economies discussed earlier provide the national capital region with built-in advantages over other regions. They also magnify the differential whenever an initial impulse is applied to the primate city. In LDCs, growth and trade policies during the past four decades have typically introduced a tendency for firms to locate close to the capital. Regional fragmentation has exacerbated the bias by containing the effects of these policies within the main region. The differentials build up over time and significant concentration of economic activities over and above their natural advantages accrues to certain regions.

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[6] In a static sense, this cannot happen. As firms agglomerate in a region, their number will be limited by the volume of output that will be optimal for production in that region. However, dynamically, the objective advantages of that region could persist if the regions' resources also expand in response to the increase in economic activity. The inflow of resources will, in turn, increase demand for some of the region's products.

The foregoing explanation is a partial account of the existing locational pattern in LDCs. It does not rule out the presence of other influences. Rather, it incorporates some spatial characteristics of LDCs and the persistence of the attraction of the national capital region in a consistent manner. It attempts to place the role of trade and growth policies in the context of spatial development. Helping initiate discussion in this direction may ultimately be the purpose best served by this paper.

ON THE RELATIONSHIP BETWEEN MIGRATION AND FERTILITY

Ernesto M. Pernia

Introduction

Most of the studies on internal migration and fertility conclude that migration leads to lower fertility. They show that urban in-migrants have lower fertility rates in comparison not only with rural stayers but also with native urbanites (e.g., Macisco, Bouvier and Weller 1970; Hendershot 1971 and 1976; Goldstein 1973; Ro 1976). Apparently, these findings have formed the basis for the belief that rural-to-urban migration is a good thing insofar as the national goal of fertility reduction is concerned.

The relationship between migration and fertility has been explained by sociologists in the context of the social mobility theory or the assimilation model.[1] Very briefly, the social mobility model posits that the process of rural-to-urban migration is selective of those persons in rural areas who have the aspiration and motivation for upward mobility; such aspiration is often coupled with the preparation and ability to bear the economic and psychic costs involved in migration, as well as cope with the demands of urban life. The assimilation model, on the other hand, assumes that urban in-migrants of average socioeconomic background gradually adapt to city life by acquiring urban characteristics, including the propensity for low fertility.

[1] These are also referred to as the selection or adaptation model, respectively. To my knowledge, there is no economic analysis yet of the relationship between migration and fertility, except Encarnacion's (1977) review of the subject (pp. 333-335).

These two models notwithstanding, there are studies that have come up with conflicting results. Some studies on U.S. data show that urban in-migrants have higher fertility than native urbanites (Goldberg 1959, Duncan 1965, Macisco 1968). Others reveal that there is no significant difference in fertility rates between migrants and urban natives, as, for instance, in Chile (Tabah and Samuel 1962)[2] and in Peru (Alers and Appelbaum 1968); or that the fertility of migrants is higher than that of natives, as in Brazil (Iutaka, Bork and Varnes 1971). Zarate and Zarate (1975) suggest that these inconsistencies may be explained by: (a) the differences in research designs and procedures, (b) the non-use of historical or comparative contexts, and (c) the lack of a systematic framework or organizing scheme.

The purpose of this paper is to propose an alternative model of migration and fertility that may help disentangle the conflicting results of earlier studies. The next section presents such a model. Subsequently, the model is tested against Philippine data from the 1973 National Demographic Survey. The concluding section draws a couple of implications for policy and research.

An Alternative Model

We consider a "migration cycle" which may be defined as extending from the time before migration up to the time when the migrant family is already fully adjusted to the place of destination. Prior to migration, the fertility rate is relatively high (although perhaps generally lower than the rural average) and this would still be reflected on arrival at destination. After arrival, the migrant family (especially the wife) experiences dislocation and difficulties, both economic and psychic, which tend to hamper child-bearing. Later on, after the family starts to adjust to the new environment, childbearing becomes easier and the fertility rate goes up as the couple tries to attain its desired fertility.

This model implies that the relationship between fertility and migration status (or exposure to destination) is not linear but rather U-shaped, contrary to that denoted by the social-mobility (or selection) and assimilation (or adaptation) models. Figure 1 depicts the migration-fertility relationship of this alternative model and compares it with the sociological models.

In some sense, the logic of this model derives from the threshold model of fertility and income (education) developed by Encarnacion (1973).

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[2]By contrast, a later study by Elizaga (1966) shows that migrant women in Santiago, Chile have lower fertility than natives at practically all ages.
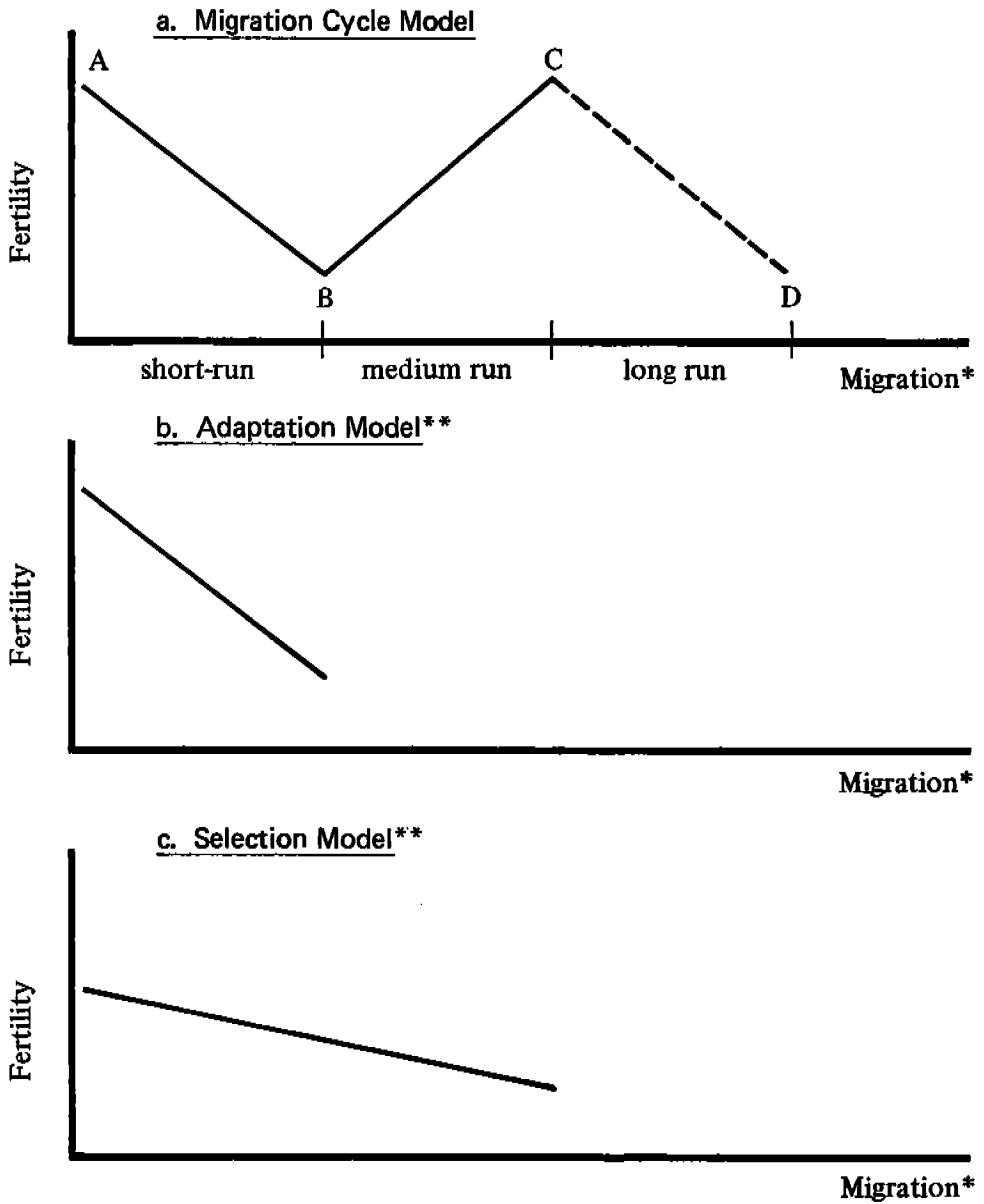
Figure 1.   Migration and Fertility Relationship

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*This may be specified as urban exposure if migration is rural-to-urban, or simply exposure to the new environment of destination.

**Also referred to as assimilation and social mobility models, respectively. The curve of the selection model is drawn flatter on the assumption that fertility is already low before migration.

In that model, fertility rises with better health and nutrition (improved fecundity) occasioned by increasing income (or conversely drops with lower income) up to a certain threshold; thereafter, it starts to fall due, *inter alia,* to the rising opportunity costs of children.

In the present model, which may be called the "migration cycle" model, fertility declines as a result of the economic and psychic hardships caused by displacement, as denoted by segment AB of Figure 1a. This may be a short-run phenomenon lasting up to three or so years. Section BC illustrates the period of adjustment (medium term) to the new environment when childbearing starts to become easier, resulting in rising fertility. It is very possible that, in the long run, with further increases in income and education and fuller assimilation to the urban culture, fertility diminishes, following the usual argument, as indicated by the downward-sloping broken line CD.

It would seem then that sociological models of migration and fertility, such as the adaptation and selection models (Figure 1b and c capture only a segment of the migration cycle, namely, the short-run effect AB or the long-run effect CD (Figure 1a). They do not reflect the medium-run effect

Cost

S'

S

D

D'

O   number of children
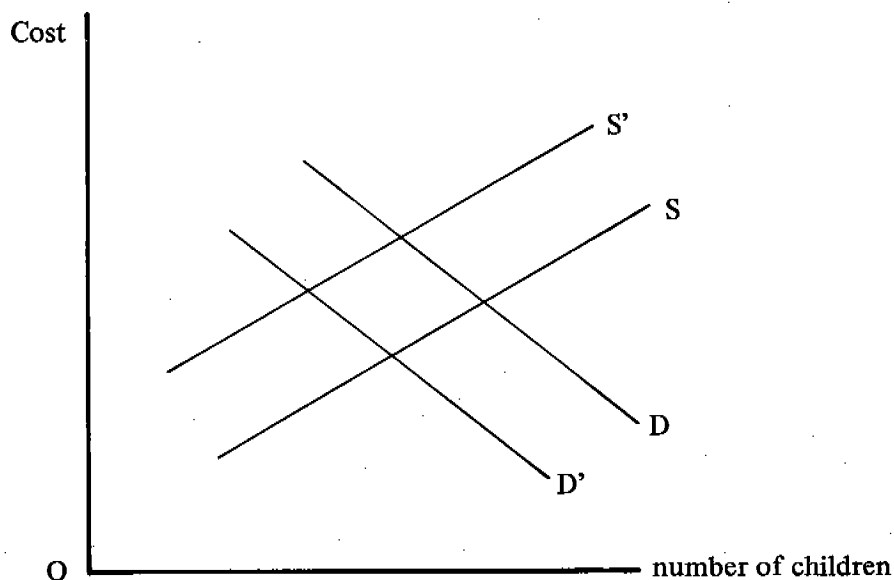
Figure 2

BC. Other studies that report higher fertility rates for migrants than non-migrants, as mentioned above, may well be referring to this medium-run effect.[3]

The migration-fertility relationship may alternatively be explained using the standard demand and supply framework, as in Figure B. Migration first shifts the supply curve of children upward to the left from S to S'. After some interval (period of adjustment), the supply curve shifts back downward to the right. In the long run, the demand for children may fall from D to D' as the household assimilates the urban culture and the opportunity cost of children rises.

Empirical Test

The model can be tested against Philippine data from the 1973 National Demographic Survey (NDS).[4] This data set offers us a unique opportunity for such a test because it includes information on place of residence at three points in time in addition to place of birth. This comes close to our definition of "migration cycle."

The relevant sample for the present study consists of single family nuclear-type households, with wife married once, and giving the needed information. These number 2,228 in all. We also test the model for rural/urban origin and destination using smaller sub-samples.

The regression equation is specified as

$$CEB = f(AM, AGE_k, ED_n, YN, YX, MIG_m)$$

where:

CEB   = number of children born alive;

AM   age of wife at marriage;

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[3]It is interesting that Goldstein (1973) finds the fertility of lifetime migrants as not very different from that of non-migrants in destination, but that of five-year migrants to be considerably lower. The former would seem to correspond to point C and the latter to point B of Figure 1a.

[4]The 1973 NDS has been used in a number of economic-demographic studies. For a description of the survey, see, e.g., Pernia (1978).

AGE_k = 1 if wife is in age group k, O otherwise,

        k = 4 if age is 15-19 years
             5 if age is 20-24 years
             6 if age is 25-29 years
             7 if age is 30-34 years
             8 if age is 35-39 years
             9 if age is 40-44 years;

ED_n = 1 if wife has education level n, O otherwise,

        n = O if no schooling
             1 if 1- 4 years schooling
             2 if 5-7 years schooling
             3 if 1-3 years high school
             4 if high school graduate
             5 if 1-3 years college
             6 if college graduate;

YN = min (O, Y − 2.5);

YX = max (O, Y − 2.5);

MIG_m = 1 if family is migrant type m, O otherwise,

        m = O if non-migrant
             1 if 1970-1973 migrant
             2 if 1965-1970 migrant
             3 if birth-1965 migrant.

The expected sign of m = 1 is positive (corresponding to point A of Figure 1a), that of m = 2 negative (point B of Figure 1a), and m= 3 positive (point C of Figure 1a).

The regression results are presented in Table 1. The control variables (age at marriage, age, education and family income) turn out more or less as expected. At the same time, the migration variables bear out our hypothesis of a U-shaped migration-fertility relationship in all cases, except in the rural-rural case (although many of the t-values are insignificant). In this latter case, the relationship is monotonically upward sloping, which is actually

not surprising. For rural-to-rural migration would hardly involve an adjustment problem and the migrant family may immediately improve its lot.[5]

Conclusion

The implication of the model is rather intriguing because it challenges the common view that migration invariably leads to lower fertility. It seems that this supposed demographic benefit from migration is more apparent than real. If one views migration in a broader context (as a "migration cycle"), one finds that its relationship with fertility is not as straight-forward as often shown by previous studies. These studies usually considered only one migration interval, thus focusing on only one segment of the migration cycle.

It would seem that, after offering a temporary relief of the fertility problem, migration tends to aggravate the problem. Although this may not be considered a sufficient argument against migration, what this implies for policy is to hasten the period of adjustment (or shorten the medium term) for migrants so that sustained fertility decline can occur sooner than otherwise. This is no controversial prescription since government-sponsored social services (e.g., education, health and family planning services) should be provided the poor, which include most migrants.

Finally, an obvious implication for further research is to test the model with longitudinal data[6] so that it can become more predictive. Likewise, testing the model against data on other countries should strengthen or weaken our confidence with the model.

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[5] Some support for this conjecture is lent by Oey's (1975) study of Javanese migrants to Lampung (as cited in Encarnación 1977).

[6] In this case, the fertility variable will not be defined as CEB but fertility rate per a given time period.

Table 1.   Regression Results of Migration Cycle Model: Philippines NDS 1973

Variable	All Cases	Rural-Urban	Urban-Rural	Urban-Urban	Rural-Rural
AM	−0.2618	−0.2323	−0.2776	−0.2256	−0.2781
	(−28.0052)	(−14.5966)	(−20.6338)	(−11.9287)	(−20.5045)
AGE_5	1.4030	1.6157	1.4537	1.1780	1.3342
	(7.1328)	(4.4636)	(5.3144)	(2.7220)	(5.2534)
AGE_6	3.0376	3.1571	3.0398	2.8370	3.0167
	(15.5958)	(8.8216)	(11.1716)	(6.5469)	(11.9912)
AGE_7	4.5493	4.5254	4.7135	4.0961	4.6565
	(22.9532)	(12.4637)	(17.0730)	(9.3585)	(18.1239)
AGE_8	5.6049	5.2362	6.0081	4.6702	5.9885
	(26.2364)	(13.4361)	(20.0000)	(9.9506)	(21.5644)
ACE_9	6.5596	6.8063	6.6610	5.9619	6.6415
	(26.7558)	(15.3218)	(19.4514)	(10.8722)	(20.5308)
ED_1	0.0566	−0.0657	0.2399	0.3512	0.0718
	(0.4146)	(−0.2500)	(1.4131)	(1.1902)	(0.4235)
ED_2	−0.0451	0.0670	0.0385	0.2419	−0.0248
	(−0.3414)	(0.2625)	(0.2342)	(0.8358)	(−0.1501)
ED_3	−0.1910	(0.0018)	−0.2022	0.3456	−0.2866
	(−1.2385)	(0.0063)	(−0.9538)	(1.0863)	(−1.3421)
ED_4	−0.3970	−0.3074	−0.4602	0.1272	−0.3305
	(−2.3754)	(−1.0538)	(−1.7209)	(0.3932)	(−1.2714)
ED_5	−0.2243	−0.1942	0.0660	0.0440	0.0144
	(−1.0362)	(−0.5267)	(0.1780)	(−0.1138)	(0.0354)
ED_6	−0.3631	−0.4093	0.1244	−0.2470	0.0573
	(−1.8433)	(−1.2225)	(0.3571)	(−0.6902)	(0.1748)
YN	0.1225	0.0721	0.1298	0.1114	0.1470
	(2.7790)	(0.8937)	(2.1384)	(1.2644)	(2.4930)
YX	−0.0296	−0.0074	−0.0544	−0.0132	−0.0654
	(−1.5612)	(−0.2376)	(−1.8799)	(−0.4208)	(−2.2031)
MIG_1	0.1969	0.1947	0.4655	−0.2833	0.1258
	(1.5837)	(0.8955)	(1.7647)	(−1.2028)	(0.4871)
MIG_2	−0.0934	−0.0451	−0.0446	−0.6139	0.2171
	(−0.9242)	(−0.2588)	(−0.2287)	(−3.0702)	(1.0228)
MIG_3	0.3827	0.2439	0.3302	−0.0919	0.5973
	(4.8864)	(1.8326)	(1.8449)	(−0.4492)	(5.0140)
Constant	5.5339	4.8792	5.6132	4.9380	5.7796
$\bar{R}^2$	0.4994	0.4404	0.5433	0.4277	0.5376
N	2,228	760	1,035	563	1,144

Note: t-value are in parentheses under regression coefficients.

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