

# Urban And Rural Population Redistribution and Changes in Urbanization Process in Taiwan: Characteristics, Problems and Policy Implications

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## I Introduction: Statement of Problem, Purpose of the Study, Conceptual Framework, Data Sources & Problems, Definitions

### 1. Statement of problem and purpose of study

Taiwan has experienced a rapid urbanization for at least, one decade, but people in this island still do not have enough understanding about their own urbanization problems. The lack of comprehensive study in this area is the main cause of the gap between the real phenomena and people's understanding of these phenomena. Social researchers in this society therefore have the responsibility of investigating this problem now. The researchers who have an interest in demographic study have the responsibility of focusing their studies on demographic analysis of urbanization in this society.

A key relevance of demographic events to urbanization perhaps is the population distribution and changes in urban and rural areas. Demographic study in this area is therefore one basic and important work which should be done.

Since urbanization entails a population concentration to urban areas and since the characteristics of the moving population to urban areas in the urbanization process are generally different from that of non-migrating population in rural areas, the process of urbanization is related not only to urban population but also to rural population. Thus, a more comprehensive study on population redistribution and changes should cover not only urban population but also rural population. Unfortunately the only few studies on urbanization in

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Taiwan have not covered this wide range at all. Without studying redistribution and changes in both urban areas and rural areas, the whole picture of population distribution and changes through urbanization within the island can not be clearly seen.

One important research norm prevailing for all social scientists in Taiwan today is that research should be capable of being directly applied for solving a practical problem or for promoting national development. Keeping this norm in mind, the writer would present this study as a comprehensive description and problem analysis, but not as a theoretical test type.

Based on the situation mentioned, this study attempts to achieve a comprehensive picture of the characteristics and problems of population redistribution and changes in urban and rural areas, and to suggest effective policies for solving these problems.

## 2. Conceptual framework

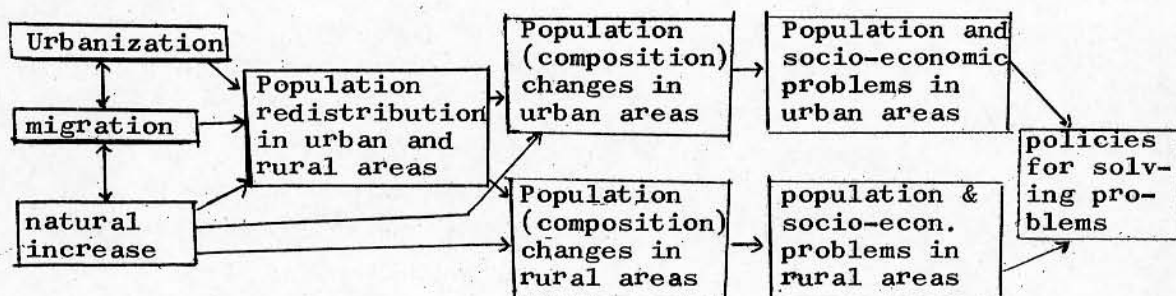
Urbanization as a process of population concentration to urban areas, of course, has great effects on population redistribution between urban and rural areas. One basic effect on this redistribution would be that urban areas gain population and rural areas lose population due to migration. Since migration is commonly selective in age, sex, education and other demographic characteristics, it must have a direct or indirect effect on changes in composition of urban and rural population. In addition to migration natural increase would be also one basic demographic factor for affecting the population redistribution and changes in urban and rural areas. Also, this factor is interrelated to migration. It seems reasonable to assume that population redistribution and changes would not absolutely provide entirely favorable effects for both urban and rural areas. Indeed, the population redistribution between urban areas and rural areas in Taiwan and the changes in population composition in these two types of areas have created some socio-economic problems in these areas. These problems, however, are expected to be solved by implementing effective population and development policies.

What are the important characteristics of population redistribution and changes in rural and urban areas in the urbanization process? What problems have been caused by these factors? What effective

policies or strategies can be used for solving these problems? All of these questions should be answered by demographic studiers in Taiwan, but they still have not been answered. The present study hopefully can answer these important questions, thus providing useful guildlines for the smooth operation of demographic change and social economic improvement on that island.

Based on the conceptual framework presented above, the following figure will illustrate the analysis to be followed in this study:

Figure 1. The Analytical Framework of Population Redistribution and Changes in the Urbanization Process in Taiwan.



### 3. Data source and problems

Demographic data for studying urbanization in Taiwan can be obtained from several kinds of sources: (1) official registration data published by the Taiwan Provincial Government and Ministry Of Interior; (2) the census reports, and (3) survey data collected by scholars. Among these kinds of data the registration data is one kind which has been commonly used by local scholars and foreign specialists. Scholars are interested in using this kind of data because it has been published annually. The household registration system in Taiwan provides continuous data on population size, age, sex, education, occupation and industry composition as well as birth, death and migration for each township and city. Scholars thus, can use these data for doing not only historical but also area analysis. It is quite safe to use the data outcoming from the registration system which has been evaluated by the

United Nations as one of the sixteen cases of virtually complete registration system in the world.

Survey data have been collected and used only occasionally by scholars who are not satisfied with either census data or registration data. Dr. Chen, Cheng Shiang is one of the scholars who did not trust urban population data reported by the registration system undertaken by the government. He argued that urban population classified by administrative units was not correct, since some population in cities are not urban population and some population in townships are not rural population. Therefore, in order to obtain more precise data for his study on urban population growth in Taiwan by 1958, Professor Chen used his own survey data. (1)

Chen's sincerity in using good data for his research is respectable but his survey work, which entails collecting data directly from every city and township, is too expensive. Thus, it can be only with difficulty imitated. In this study, the author will use registered data including annual reports from 1964 to 1974 as the basic source for his analysis. These data provide the possibility of studying not only rural and urban population distribution at a certain point in time during 1964-1974 but also the redistribution and changes in composition of rural and urban population in different years. Unfortunately, the data for different years is not very consistent. For instance, some information appearing in latter reports can not be seen in earlier reports. Thus, many aspects of population changes in urban and rural areas can not be achieved due to these inconsistencies and the lack of data in some years to be studied.

#### 4. Operational definitions:

Before proceeding further, the definitions of urban areas, rural areas, urbanization, and problems should be provided. Using different definitions for the terms, the result of analysis will be different. The terms rural and urban areas and the term of "urbanization" have been defined differently in different countries. Therefore the following operational definitions for these terms are given in order

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(1) Chen, Cheng Shiang, Taiwan Ti Chu ( A Geography of Taiwan), Taipei, 1959 pp 266-268.



to avoid confusion with the definitions used in other places.

(a) Urbanization

Urbanization is defined in various ways. Hope T. Eldridge defined urbanization as a process of population concentration. (2) According to Kingsley Davis, urbanization means rise in the degree to which the population of a nation or region is concentrated in towns and cities. (3) Goldstein and Sly, from demographic point of view, define it as pertaining to the level and tempo of change in the distribution of population between urban and non-urban areas. (4) Among various definitions the one that urbanization is the concentration of population seems the simplest and has been the most commonly used, I thus adopt it for the present study.

Scholars have distinguished urbanization from other terms such as city growth and urbanism. Kingsley Davis pointed out that the distinction between urbanization and city growth is that urbanization does not necessarily mean an extension of city growth. This means that once urbanization ceases, a city can still grow. In this case, the growth becomes a function of general population growth. The distinction between urbanization and urbanism can be recognized from comparing the definition of urbanization with the definition of urbanism given by urban sociologists or demographers. Wirth defined urbanism as a way of life. This definition is different from the concept of a population concentration process. Paul Meadows also has defined urbanism according to its relationship with two other variables. According to him urbanism can be seen as the function of technology and society on the one hand and also can be seen as the determinant of technology and society on other hand. (5) Urbanization could form and reinforce urbanism in the long run, but it could also reduce urbanism in urban areas in the short

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(2) Hope T. Eldridge, "The Process of Urbanization," Social Force, 20 (March 1942), pp 311-316.

(3) Kingsley Davis, World Urbanization 1950-1970, Volume II. Analysis of the Trends, Relationships and Development, 1972. p 47.

(4) Sidney Goldstein and David, F Sly, The Measurement of Urbanization and Projection of Urban Population, Liege: International Union for the Scientific Study of Population, 1975.

(5) Paul Meadow and Ephrain Mizruchi, Urbanism, Urbanization and Change: Comparative Perspectives, Reading Mass. Addison-Wesley Publishing Co.

run if rural to urban migration has brought ruralism into the city.

(b) Urban and rural areas

Urban and rural areas may have different meanings in different countries. In most cases, an urban area indicates a city or a town where population is concentrated. Of course, the number of inhabitants in a city or a town will vary greatly. In this study urban areas are defined as same meaning as city areas. Urban areas in Taiwan refer to the administratively designated cities which include a national city, four provincial cities and 11 county cities in 1974 or 5 provincial cities and 8 county cities in 1964. Rural areas in this study include all townships where are not cities.

There are advantages and disadvantages resulting from this classification. One advantage is that this classification permits more detailed demographic data for urban and rural units to be directly obtained from registered data sources. But there is also a disadvantage in that city areas under this classification cover some rural population and non-city areas cover some urban population. This disadvantage can not be easily overcome unless we follow Chen's expensive method which attempts to collect data directly from every township and cities office.

The rural-urban classification used in this study is more reliable than the definition of urban and rural areas used by the UN and other foreign scholars. In these previous studies, urban population in Taiwan was defined to include people in urban townships. However, a so-called urban township in Taiwan actually include a market town and surrounding villages. But population in these towns and villages are relatively more rural than urbanized and thus should be defined as rural population, not urban population.

(c) Problems

"Problems" in this study, refer to disadvantages, unfavorable-nesses, disfunctions, unhealthy, misfits or abnormal situations. By analysing the problems of rural and urban population, it is implied that these population would result in some disadvantages for population itself or for social and economic aspects in these areas.

## II Level of Urbanization in Taiwan

Demographers have developed several techniques for measuring the level of urbanization of a country or a society. These techniques include (1) the percentage of urban population in the total population ( $U/T \times 100$ ); (2) the ratio of urban population to rural population within the country or society ( $U/R$ ); (3) the proportion of population living in urban areas to the population living in the whole country or society ( $U/T$ ). Among these measurements the  $U/R$  ratio has sometimes been accepted by demographers as a good method because it is less effected by the size of the total population than that of  $U/T$  or  $U/T \times 100$ . Since  $U/R$  ratio may not be comfortably used for a comparasion of data, therefore the author would not use this measurement to represent the level of urbanization of Taiwan. Indeed, he will use the most popular method, the percentage of urban population in the total population, to represent the level of urbanization.

Using this method, the level of urbanization in Taiwan in 1974 was 39.5%, ie. of total population about 40% in urban places. This level was about the same level as the world urbanization in 1975. According to data presented by Goldstein and Sly, the percentage of world urban population in total population was 39.3% in 1975. (6) Data in table 1 shows that the percentage of urban population in the total population in Taiwan was 28.7% in 1964 and 39.5% in 1974. The increase of urban population in this decade was much faster than it was before. During the two decades from 1943 to 1964 the percentage of urban population in the total population increased only from 21.3% to 28.7%. This change was much smaller than the change in the period 1964-1974.

Since the urbanization process had been taken place more radically in the last decade than in the early period, a study of identifying characteristics and problems of population redistribution and changes in urbanization process would be better to focus on this rapid urbanization period than on other stages of the urbanization process.

Kingsley Davis concludes that the recent trend in world urbanization can not have existed for every long in the past and

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(6) IBID

certainly will not endure long in the future. (7) Whether the second part of Davis' conclusion will hold Taiwan's experience can not yet be know, but the first part clearly can be supported by the Taiwan case. According to the data shown in Table 1, the recent rapid trend in urbanization in Taiwan has not existed very long. Although urban growth had taken place gradually since a long time ago, a more rapid growth had not existed until about ten years ago.

Table 1. Change of Level of Urbanization in Taiwan

Year	Total pop.	urban pop.	number of city	% of urban pop. in total pop.
1943	6,585,841	1,399,671	11	21.3
1956	-	-	-	25.8
1964	12,280,557	3,530,486	12	28.7
1965	12,654,223	3,681,850	12	29.1
1966	13,021,215	3,832,680	12	29.4
1967	13,362,725	4,096,048	13	30.7
1968	13,682,588	4,578,307	13	33.5
1969	14,096,294	4,806,492	13	34.1
1970	14,505,414	5,034,267	13	34.7
1971	14,835,394	5,326,041	14	35.9
1972	15,141,935	5,759,720	16	38.0
1973	15,426,936	5,959,907	16	38.6
1974	15,852,224	6,255,012	16	39.5

Source: Taiwan Demographic Fact Book 1964-1974

### III Population Redistribution in Urban and Rural Areas During the Period 1964~1974

#### 1. The Redistribution Between Urban Areas and Rural Areas

(7) IBID p 48



Based on the definition of rural area and urban area given in this study, a majority of Taiwan population in 1964 resided in rural areas and a minority in urban areas. The total rural and urban population in this year was respectively 8,750,071 and 3,530,486. The percentages of rural population in the total population was 71.3%, and the percentages of urban population in the total population was 28.7%. The urbanization process during the decade after 1964 finally resulted in a larger increase in population for urban areas than for rural areas. Consequently, the percentage of urban population in 1974 was higher than in 1964. During this period of rapid urbanization the population of urban areas had increased by 2,724,526, while population in rural areas had increased by only 847,141. By 1974, the percentage of urban population in total population had increased to 39.5% and the percentage of rural population had decreased to 60.5%. Table 2 shows the change of both absolute members and percentages of population in urban and rural areas during 1964-1974. The increase in urban population is about three times that of the increase in rural population.

Table 2. Urban and Rural Population Redistribution

Year	Total Population	%	Urban Pop.	%	Rural Pop.	%
1964	12,280,557	100	3,530,486	28.7	8,750,071	71.3
1974	15,852,224	100	6,255,012	39.5	9,597,212	60.5
Changing pop.	3,571,667		2,724,526		847,141	

Sources: Taiwan Demographic Fact Book 1964  
Taiwan Demographic Fact Book 1974

From the above table we also can observe the fact that the increase in urban population during this period represents 77.2% of urban population in 1964 and the increasing rural population during the period equals only 9.7% of rural population in 1964.

## 2. Characteristics of population redistribution among urban areas

Important characteristics of urban population redistribution during the 1964-1974 period can be observed by a comparison between urban population distribution in 1964 and this distribution in 1974. We can identify three important patterns for the distribution of urban population in this period: (1) the population of large cities increased more than that of small cities; (2) new cities grew faster than old cities; (3) County cities located in agricultural areas grew more slowly than other cities.

(1) Big Cities realized a larger population increase

The figures in column 5 of Table 3 show the fact that during the period 1964-1974 the increases in population for each of five large cities were in most cases larger than the increases in population for each of the smaller cities. There is only one exception. The increase for Keelung, the fifth biggest city, was smaller than the increase for San Chung, the city ranked at sixth biggest. The total increase for the five biggest cities during the period 1964-1974 was 1,730,834; that is 63.7% of total increase of urban population during the same period. Among the five biggest cities, the capital city, Taipei, and the second big city, Kaohsiung, showed a larger increase than the other three big cities. Taipei and Kaohsiung showed an increase of 1,351,609 that equals about half(49.8%) of total increase in population in all 16 cities.

Table 3. Urban Population of Taiwan in 1964 and 1974

Cities	pop. in 1964	%	pop. in 1974	%	increase pop. 1964- 1974	%	% of increasing pop. in pop in 1964
Total	3,530,846	100	6,255,012	100	2,724,526	100	
Taipei	1,065,700	30.2	2,003,604	32.0	937,904	34.6	88.0
Keelung	266,745	7.6	340,692	5.4	73,947	2.7	27.7
Taichung	346,603	9.8	527,399	8.4	180,796	6.6	52.2
Tainan	388,252	11.0	512,734	8.2	124,482	4.6	32.1
Kaohsiung	559,123	15.8	972,828	15.5	413,705	15.2	74.0
San Chung	141,056	4.0	269,168	4.3	128,112	4.7	90.8
Ilain	62,930	1.8	75,394	1.2	12,464	0.5	19.8
Hsinchu	171,966	4.9	225,019	3.6	53,053	1.9	30.8
Changhwa	113,442	3.2	152,968	2.4	39,526	1.5	34.8
Chiayi	201,708	5.7	250,012	4.0	48,304	1.8	23.9

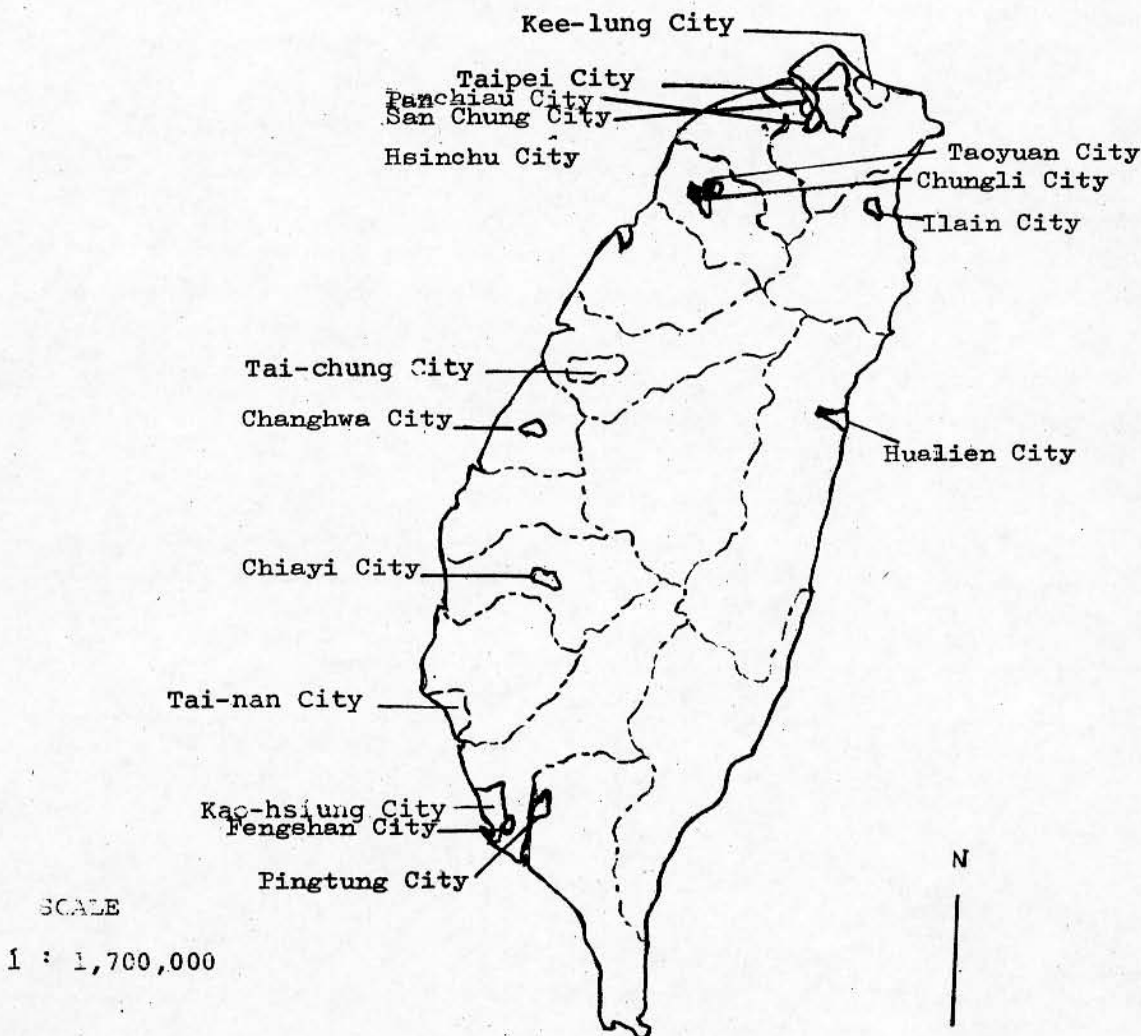
Pingtung	139,721	3.9	172,997	2.8	33,276	1.2	23.8
Hualien	73,240	2.1	99,416	1.6	26,176	0.9	35.7
Chungli	*91,936		157,679	2.5	65,743	5.8	71.5
Taoyuan	*75,308		137,285	2.2	61,977	5.0	82.2
Panchiau	*73,484		205,301	3.3	131,817	7.5	179.3
Fengshan	*68,855		152,516	2.4	83,611	5.6	121.5

\* Township population

Source: Taiwan Demographic Fact Book 1964, 1974.

Map 1: The Location of Cities in Taiwan

Map 1: Geographic Location For Cities In Taiwan



Theoretically big cities would have more births and more in-migrants than that of smaller cities. These factors caused a faster population growth in big cities than in smaller cities. The rapid growth of the Taipei population was caused by large numbers of births and in-migration. It was also caused by the extension boundaries. In 1968, when Taipei city changed its boundaries, it gained 318,745 or 20.2% of total population from the new districts.

Why do big cities absorb more migrants than of the small cities? Demographic reasons mentioned above may not be sufficient for answering this question. Better economic opportunities and social facilities in big cities are other reasons frequently offered. But why can economic opportunities and social facilities in big cities be better than those in other places? One important answer for this question may be that the concentration of political power in big cities, particularly in the capital city, influences the allocation of national economic and social resources usually with the result that these resources are distributed more in big cities than in small cities or rural areas. Indeed, Edward L. Ullman has pointed out that the political function has been a very important factor for primate cities in Southeast Asia, from colonia period to the present. (8) Furthermore, in R. Murphey's discussions on different functions between Western cities and Chinese cities he has suggested that Chinese cities were mainly administrative centers and maintained a remarkable degree of unity and a central power for a long time. (9) The importance of the political role of Asian cities and specifically Chinese cities on urban growth has also been noted by Kingsley Davis. The discussed characteristics of cities in Southeast Asia and China are also applicable to Taiwan.

Political force has strong influence not only on activities within the cities but also on population distribution between cities. The

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(8) Edward L. Ullman, *The Primate city and Urbanization in Southeast Asia: A Preliminary Speculation* SEA OAG papers on Problems of Development in Southeast Asia. No. 3, 1968.

(9) Rhoads Murphey, "The City as A Center of Change: Western Europe & China" *Annals Association of American Geographers*, Vol. 44, 1954.



concept of the capital being the symbol of the best the society has to offer has existed for a long time in the minds of political leaders of Taiwan. This political norm becomes an important factor for creating better economic and social conditions in the biggest city than in other places of this island. Consequently the biggest city has attracted more population.

(2) New cities grew faster than most of old cities.

During the period 1964-1974, Taiwan's number of cities grew with the addition of those that were originally the rural market centers. Among them Chungli became a city in 1967. Taoyuan grew up as a city in 1971 and Panchiu and Fengshan became cities in 1972. Population growth in these cities was faster than in most of the old cities. Column 7 in Table 3 shows the more rapid population increase for these new cities than for the others. The percentage increase for Panchiu and Fengshan was higher than 100. The percentage increase for Taoyuan is higher than that for most of old cities except for Taipei city. Chungli grew more slowly than only three old cities: Taipei, Kaohsiung and Sanchung, but faster than all of the other old cities. In comparison with other old cities, Sanchung is also a relatively new one, and its increasing percentage of population during last decade was also higher than that of all of the other cities. The fast growth rate in population of the new cities was partly caused by the initial small size of the cities in 1964 and partly caused by fast increase in industrialization and housing development to them.

Among these new cities, some are located near Taipei city and some are located near Kaohsiung city. Sanchung and Panchiu connect directly to the boundary of Taipei city. Fengshan joints directly to Kaohsiung city. These cities have played the important role of dispersing population from the two big cities in the population concentration process.

The rapid population growth in the new cities surrounding the bigger cities reflect also the rapid population expansion of the large cities. In these satellite cities, land price is cheaper than it is in large cities and thus new industries and in-migrants find them as attractive place for the future.

### (3) Slow growth of the county cities located in agricultural areas

Some county cities located in agricultural areas which are far from the Taipei and Kaohsiung metropolitan areas had slower population growth than had other cities. Ilain, Chaiyi, Pingtung, Shinchu and Hualien are examples of such cities. Their relatively slow development in industries and business limits their ability to absorb a large number of in-migrants from surrounding townships and villages. Thus, people leaving these towns and villages move directly to large cities and small new cities in metropolitan areas. In fact, residents of these county cities also migrate to big cities. Taking Ilain as an example, this city received about two thousand in-migrants from other townships within the same county in 1974. However, there was even more out-migration from this city to other cities in the same year.

### 3. Population Redistribution Within a Big City

The general pattern of population redistribution within cities in developed countries has been well studied by human ecologists such as scholars of Chicago School. Burgess, Park and others had developed ecological process theories which were developed on the basis of population redistribution within the city. In this section the writer will not attempt to test any ecological theory, but only try to identify a general pattern of population redistribution in one big city selected.

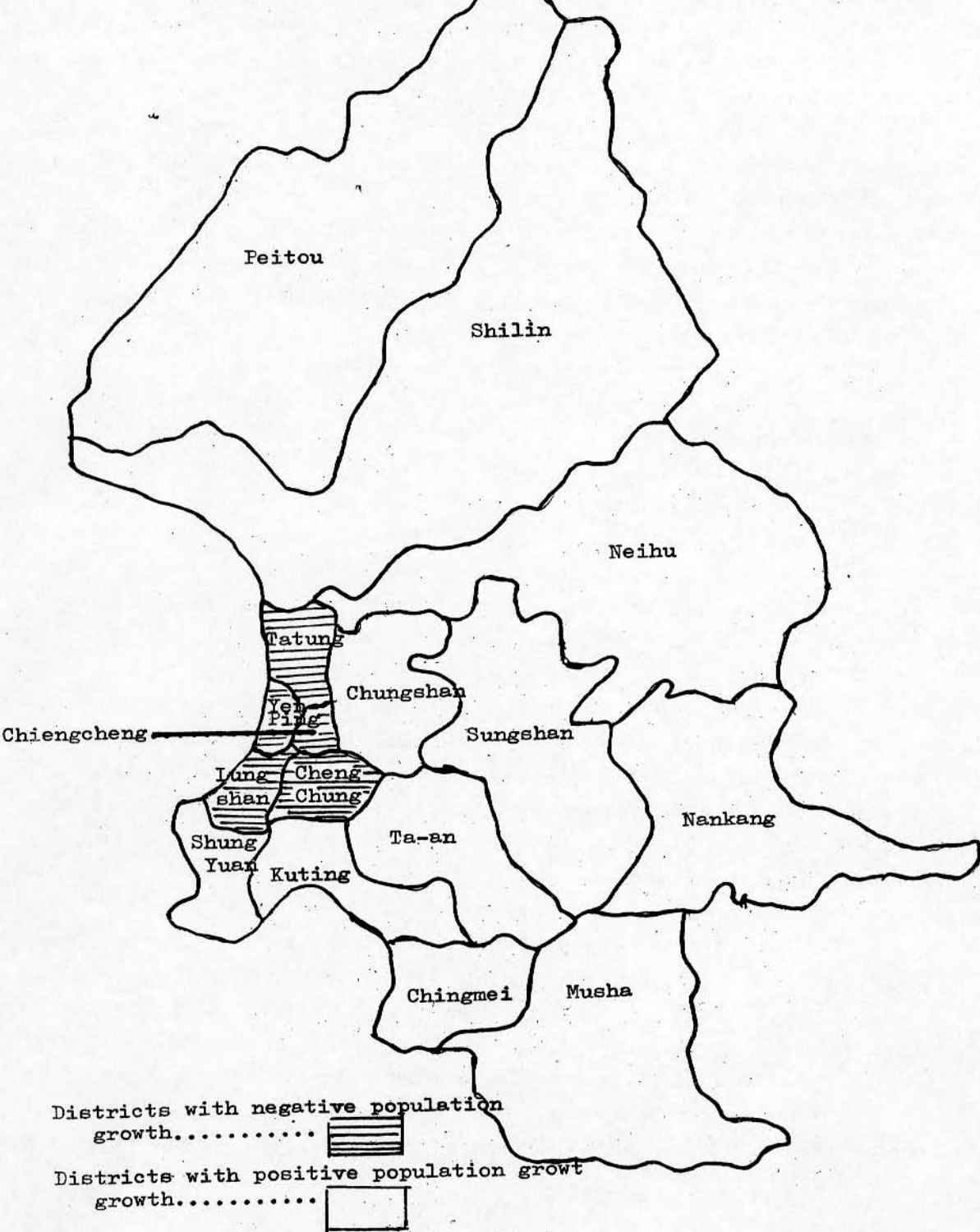
In the course of the urbanization process, population redistribution within Taipei city showed a clear pattern of population moving from central business districts(CBD) to outlying districts of the city. This resulted in a population decline in the CBD's and a population increase in outlying districts. The population increase in outlying districts was also caused by direct in-migration from other places outside the city. Table 4 Shows the population redistribution in different districts of the largest city in Taiwan.

Table 4 Changes of Population in Different Districts  
of Taipei City, 1964-1974

Districts	Pop. in 1964	Pop. in 1974	Increase pop. from 1964 to 1974	% of increasing pop.	average annual growth rates
Total	1,065,700	2,003,604	937,904	88.0	11.0
Sunshan	113,979	299,086	185,107	162.4	14.8
Ta-an	161,302	264,515	103,213	63.9	5.8
Kuŕing	144,698	176,062	31,364	21.7	1.9
Shuangyuan	96,171	145,302	49,131	51.1	4.6
Longshan	71,995	62,275	- 9,720	-13.5	-1.2
Chiengchen	78,112	68,131	- 9,981	-12.7	-1.2
Chengchung	57,628	47,600	-10,028	-17.4	-1.6
Yanping	61,010	52,895	- 8,115	-13.3	-1.2
Tatung	102,379	114,595	12,216	11.9	1.1
Chungshan	178,608	252,110	73,502	41.2	3.7
Chingmei	25,216	51,369	26,153	103.7	9.4
Musha	26,060	60,175	34,115	103.9	11.9
Nankang	34,231	62,493	28,262	82.6	7.5
Neihu	25,324	48,470	23,146	91.4	8.3
Shilin	75,554	170,287	94,733	125.4	11.4
Peitou	57,757	128,239	70,482	122.0	11.0

Source: Taiwan Demographic Fact Book 1964; Taiwan Demographic Fact Book 1974.

Map 2, Different Patterns Of Population Growth in Different Districts Of Taipei City During 1964-1974





From the above table we can observe some important changes of population in different districts of this city during the period 1964-1974. Shungshan, Ta-an, Chingmei, Musha, Nankang, Neihu, Shilin, and Peitou districts, which are located in outlying of Taipei city, had higher growth rates than these of inner districts. Longshan, Chengchung, Chiencheng, Yanping and Tatung districts which are part of major central business areas, had a negative population growth rate during the period 1964-1974. From this pattern of population redistribution we can identify that Taipei city experienced centrifugal drift in the last decade. The different patterns of population growth in different districts of Taipei city are shown in Map 2.

#### 4. Population Redistribution in Rural Areas

It is more difficult to identify the characteristics of population redistribution in rural areas than in urban areas. One reason is that the area under consideration is so extensive. Rural areas have more administrative units than urban areas have. In 1974 the total number of townships (rural administrative units) were 296, and the number of city (urban units) were only 16. Due to these difficulties, the writer will only identify a few key characteristics of population redistribution and change in rural areas.

(1) In rural areas, these townships surrounding large cities had larger number and higher rate of net in-migration.

According to available migration data in population registration reports, most of the 296 townships realized a net loss of population from 1970 to 1974 and only a few townships near large cities realized a net population gain in the same period. Hsinchung, Shilin, Hsientien, Yunggho, Chunggho, which are near Taipei city in northern Taiwan and Talio, Hsiaokang, Kangshan and Linyuan, which are near Kaohsiung city in southern Taiwan, are examples of such with a population increase. Chunggho, one of the most important example of these townships increased population by 78,422 or 210% in the period 1964-1974. Yunggho, the second most important such example, increased population by 73,015 during the same period. In these suburban townships of the largest city, net in-migration played a more important role than natural increase in population growth. Many of in-migrants to these townships were working in the large city

in the daytime and come back these townships in the evening.

(2) A large number of population migrated out from agricultural counties.

Out-migration had been taking place in almost all of agricultural counties in Taiwan in the period 1959-1974. Tainan, Chaiyi, Yunlin and Changhwa which are four most important agricultural counties had larger number of out-migration than that of other counties. Table 5 shows the fact of this migration characteristic. During the period 1959-1974 Tainan, Chaiyi, Yunlin and Changhwa counties had 171.5 thousands, 169.2 thousands, 156.0 thousands and 159.2 thousand out-migrants respectively. Penghu, an agricultural and fishing county had highest out-migration rate among all counties.

Table 5 Migrants and Migration rates in Different Counties

Counties	Migrants 1959-74 (thousands)	Pop. in middle time of the period	average annual mig. rates
Taipei	375.2	1,133,740	20.7
Ilain	- 57.5	391,538	- 9.2
Taoyuan	48.8	618,900	4.9
Hsinchu	- 20.4	544,325	- 2.3
Miaoli	- 84.5	497,456	-10.6
Taichung	- 62.2	714,836	- 5.4
Changhwa	-159.2	1,024,355	- 9.7
Nantou	- 63.9	484,767	- 8.2
Yunlin	-156.0	777,741	-12.6
Chaiyi	-169.2	820,170	-12.8
Tainan	-171.5	900,445	-11.9
Kaohsiung	28.9	745,350	2.4
Pingtung	- 84.8	773,915	- 6.8
Taitung	- 21.3	272,655	- 4.9
Hualian	- 29.8	313,133	- 5.9
Penghu	- 35.0	114,455	-19.1

### III Changes in Population Compositions in Urban and Rural Areas

As population redistribution in urban and rural areas took place population compositions in these two areas also changed. The changes of population composition in an area can be studied in many aspects, but this study will only look at the changes in age and sex composition, due to the lack of available data in other aspects of the compositions.

#### 1. Changes in population composition in urban areas

##### (1) Changes in age composition

Comparing the age composition of urban population in 1964 with the age composition of urban population in 1974 we found four important characteristics of the change of age composition for urban population: (1) proportion of children population aged 14 and below in the total population become smaller; (2) the proportion of youth population aged 15-29 in the total population become greater; (3) the proportion of young adult aged 30-34 in the total population remained about the same; (4) the proportion of middle age adults aged 45-60 and old population aged 60 and over become greater. These changes were caused partly by age selectivity of in-migration and the decline of natural increase in urban areas as well as in whole island. Natural increase for whole island was 28.3 per thousand population (33.9 per thousand BR and 5.6 per thousand DR) in 1964 and 19.7 per thousand in 1974 (21.8 per thousand BR and 5.6 per thousand DR). The natural increase for the capital city was 26.5 per thousand in 1964 and 18.3 per thousand in 1974. This decrease of natural increase, particularly the decline of fertility, caused the proportion of children population in the total population to be lower and the proportion of old population to be higher.

A very precise effect of migration on the change of age composition in urban areas can not be easily measured because of lack of complete data of the age of in-migrants to urban areas. Speare's study, one of the most comprehensive study on migration of Taiwan, provides only a very general picture of age selectivity of migrants. According to his study, the highest migration rate in 1969 were generally found between the age groups of 20-29.<sup>(10)</sup> However the high selectivity of

(10) A.J. Speare, The Determinant of Rural to Urban Migration In Taiwan, University of Michigan, Ann Arbor, 1969. pp47-68.

migration in young ages resulted in an increase in percentage of young population aged 15-25, during the period 1964-1974. Table 6 shows these remarkable changes in age composition of urban population.

Table 6, Percentage Distribution in Different Age Groups of Urban Population in Taiwan, 1964-1974

Age groups	Year	0-14	15-29	30-44	45-59	60 and over
All urban areas	1964	43.4	23.3	19.6	10.1	3.7
	1974	35.4	29.0	18.5	12.7	5.7
Taipei city (the capital)	1964	40.5	23.4	21.0	11.2	3.6
	1974	33.2	29.1	18.1	14.0	5.3

Source: Taiwan Demographic Fact Book 1964;

Taiwan Demographic Fact Book 1974.

#### (2) Change in sex composition

In the urbanization process between 1964-1974, sex composition for all urban population had only a little change, but for some particular age groups had a great change. The sex ratio for all urban population in 1964 was 111.7 that was slightly higher than the sex ratio for the population of whole Taiwan at that time. In 1974 the sex ratio of all urban population slightly dropped to 110.8. The high sex ratio of urban population in Taiwan is obviously caused by the high sex ratio of in-migrants from Mainland China after the end of World War II. During 1964-1974 period the sex ratio for age groups from 20-24 to 40-44 became lower and the sex ratio for age group 45-49 and over became higher. This variation of change of sex ratio in different age groups indicates that the proportion of females in young age groups became larger and the proportion of males in old age groups also became larger. This changing pattern was mainly caused by low sex ratio of in-migrants in young age groups between 1964-1974. Table 7 shows the characteristics of different changes in different age groups of urban population during the period.



Table 7. Sex Composition by Age, Urban Population in Taiwan, 1964-1974

Ages	0	1-4	5-9	10-14	15-19	20-24	25-29
1964	108.0	107.1	106.9	105.8	105.8	97.0	96.6
1974	107.7	106.1	106.7	107.4	105.6	94.3	94.6
	30-34	35-39	40-44	45-49	50-54	55-59	60-64
1964	112.4	132.2	149.3	152.7	151.4	128.9	110.2
1974	98.3	98.6	133.1	173.7	172.9	156.8	138.9
	65-69	70-74	75-79	80-84	85+ over	all ages	
1964	89.9	90.4	54.3	35.8	-	111.7	
1974	110.2	90.5	69.8	52.1	35.1	110.8	

Source: Taiwan Demographic Fact Book 1964 and 1974.

The low sex ratio of migrants in young age groups can be seen more clearly under a cohort analysis. The sex ratio for the cohort of 10-14 years old in 1964 was 106.2. To the same cohort the sex ratio was only 94 in 1974. The sex ratio for the cohort of 15-19 years old in 1964 was 105.8 and it was only 94.4 in 1974. The remarkable decreases of sex ratios in these two 5-year cohorts reflect that there were more females than males in urban in-migrants in these two cohorts. Using cohort analysis we also can find the fact that male dominated in-migrants in urban areas existed in cohorts of age groups from 20-24 to 45-49 in 1964.

## 2. Changes in population composition in rural areas

### (1) Changes in age composition

In some aspects the characteristics of changes in age composition of rural population were not much different from the pattern of change in age composition of urban population. Important characteristics of the changes are: (1) the proportion of children in the total population decreased; (2) the proportion of youths in the total population increased; (3) the proportion of young adults in the total population

remained the same; (4) the proportion of middle age and old population increased. These pattern of change is clearly caused by an important factor that natural increase played a more important role than migration in effecting the change of age composition. However, the effect of migration\* in over all period still can be seen from the decrease of the percentage of young adult aged 30-34 and 35-39 in the total population. The decreases of percentages in these two groups were mainly due to a significant number of out-migration in these two age groups. The changes of percentage of every five-year age group in the total rural population are shown in table 8.

Table 8. Distribution of Age Composition of Rural Population

Ages	0	1-4	5-9	10-14	15-19	20-24	25-29
1964	2.9	13.3	15.0	13.4	8.6	8.1	6.1
1974	2.1	9.4	12.2	13.1	12.5	10.6	6.2
	30-34	35-39	40-44	45-49	50-54	55-59	60-64
1964	6.4	5.9	4.6	3.7	3.4	2.6	1.8
1974	6.2	5.3	5.2	4.9	3.9	2.9	2.5
	65-69	70-74	75-79	80-84	85+ over	all ages	
1964	1.2	0.7	0.5	0.3	-	100	
1974	1.7	1.1	0.6	0.2	0.1	100	

Source: Taiwan Demographic Fact Book 1964 and 1974.

In a high out-migration rate county, Tainan, the percentage of the population for ages 25-29 and ages 30-34 in the total population was respectively 6.9% and 6.4% in 1964 but respectively only 5.9% and 5.2% in 1974. Not only the percentages for these two groups decreased but also the absolute number of population in these two groups decreased. In 1964 the population for age groups 25-29 and 30-34 were respectively 59,919 and 55,632. In 1974 the figures decreased to 48,697 and 50,556 respectively. The decrease of the population in these two age groups

in this county was clearly affected by a large number of out-migration in these working ages.

Although data of age selectivity of out-migration from rural areas are insufficient, the result of cohort analysis still can show the effect of out-migration on change of age composition in these areas. Table 9 shows the result of a cohort analysis on the age selectivity of out-migration from Tainan County.

Table 9. Change of population in high migration cohorts, Tainan County, 1964-1974.

	Ages	10-14	15-19	20-24	25-29
1964	No. of pop.	122,819	76,637	68,357	60,071
	ages	20-24	25-29	30-34	35-39
1974	No. of pop.	100,554	55,428	48,697	50,556
Changing No. pop.		-17,265	-21,209	-19,660	-9,515
	%	-14.1	-27.7	-28.7	-15.8

Source: Taiwan Demographic Fact Book 1964 and 1974.

Data in the above table shows that during the decade population in four high migration cohorts decreased by a large number as well as a high percentage. Since mortality in these cohorts was low the decrease of population were mainly caused by out-migration.

#### (2) Change in sex composition

The changing pattern of sex composition of rural population during the decade 1964-1974 was different from the changing pattern of sex composition of urban population. During 1964-1974 the overall sex ratio of urban population became lower but the sex ratio of rural population became higher. In 1964 the sex ratio of rural population was 107.9, it increased to 110.2 in 1974. Comparing sex ratios of rural population by age group in 1964 and 1974 some important changes are:

(1) sex ratio in age group 25-29 increased remarkably; (2) sex ratio for age groups 30-34 and 35-39 decreased; (3) the sex ratio for age groups from 40-44 to 60-64 increased. In 1970 these ratios were higher than 100; (4) the sex ratio for age groups 65-69 and over increased, in 1974 the ratio for these groups were lower than 100.

These different changes of sex ratio in different age groups reflected not only the different sex selectivity in different age groups of out-migration but also the decrease of male mortality of old ages in the urbanization process. The increase of sex ratio in age group 25-29 was mainly caused by female dominated out-migration from rural areas in the later years of the period under study. The decrease of sex ratios in age 30-34 and 35-39 were mainly affected by male dominated out-migration in early years of the period 1964-1974 and a few years before 1964. The increase of sex ratio in age groups from 40-44 to 60-64 were mainly caused by the settlement of veterans in rural areas during the decade of 1964-1974. The increase of sex ratio in age groups 65-69 and over was also partly caused the settlement of veteran and partly caused by the decline of male mortality of these old groups in rural areas. Table 10 shows these different changes of sex ratio in different age groups of rural population in Taiwan.

Table 10 Sex Ratio of Rural Population in Taiwan, 1964-1974

ages	0	1-4	5-9	10-14	15-19	20-24	25-29
1964	105.5	105.3	104.9	104.9	106.4	113.3	109.5
1974	107.0	105.9	105.3	104.8	104.5	112.2	115.2
	30-34	35-39	40-44	45-49	50-54	55-59	60-64
1964	113.2	119.3	117.8	120.2	118.8	109.1	101.1
1974	110.8	109.9	124.9	139.6	130.6	122.9	113.2
	65-69	70-74	75-79	80-84	85+ over	all ages	
1964	90.3	77.2	63.2	44.7	-	107.9	
1974	97.9	86.8	72.2	59.7	43.8	110.2	

Sources: Taiwan Demographic Fact Book 1964-1974.



In comparing sex ratios in some high migration cohorts in two different point of time we find that males dominated out-migration in early years of the period under study has resulted in the decrease of sex ratio for the cohort of age 20-24 in 1964. The females dominated out-migration in later years of the same period has resulted in the increase of sex ratios for the cohorts of age 10-14 and 15-19 in 1964. The sex ratio for the cohort of age 20-24 in 1964 was 113.3 in 1964 and 110.8 in 1974, and the sex ratios for the cohorts of age 10-14 and 15-19 in 1964 was respectively 104.9 and 106.4 in 1964 and respectively 112.2 and 115.2 in 1974.

## **V Problems Caused by the Population Redistribution and Changes in Urban and Rural Areas**

There are many characteristics of population redistribution and changes in urban and rural areas, and each characteristic involves not only demographic but also socio-economic problems. The discussion in this section will cover only some more serious and salient problems. All these problems are classified into two categories: problems related to urban-rural population redistribution and problems related to changes in age and sex composition of urban and rural population. Under each of category problems associated with specific characteristics will be identified.

### **1. Problems Related to Urban-Rural Population Redistribution**

#### **(1) Population explosion problem in large cities**

Our previous presentation indicated that the population increase in large cities is greater than in small cities. Taipei, the largest city in Taiwan, increased by almost one million, or 88%, from 1964 to 1974 and Kaohsiung the second largest city increased by a little more than four hundred thousand, or 74.0% in the same period. Taking the increase in population in suburban areas into account, the population explosion in these two metropolitan areas become more serious. The large number and high rate of population growth in these two metropolitan areas may have benefited the national economy, but it also caused many problems to the society as a whole. some serious



problems within the two metropolitan areas and other large cities are housing shortage, transportation congestion, water shortage, environmental pollution, land and housing speculation, unemployment, food supply manipulation, squatter settlement, and slums. Some implicit but also serious problems include political and social conflict among migrants with different backgrounds, prostitution among young female in-migrants, political corruption, business trickery, and crime. To discuss all these urban problems requires extensive study. In this study, I will focus only on the problem of squatter settlement and slums as an example.

Squatter settlement and slums in the large cities in Taiwan was mainly caused by poor and disorganized new migrants. Although the government of Taipei has worked hard to overcome the problem by settling the poor in squatter settlements in new housing arranged by the government, squatter settlement still exists in the city today. Most of these settlements exist on public land such as banks of rivers, spaces under the bridges, and areas reserved for green land or parks within the city.

In the process of overcoming the problems of squatter settlement, some political tension arose. Many squatter settlements, were built up by veterans. Their persistent resistance created difficulties for the city government. The city could not implement urban renewal project very successfully. One form of political tension exists between the poor inhabitants of the squatter settlements and the policemen who maintain the social order in squatter settlements and slums. Squatter settlements, so called "the cancer of city," are nevertheless well-controlled in big cities in Taiwan at present time. This problem may arise for those new growing cities, if the urban planning is not well engineered.

## (2) Problems related to fast growth of new developing cities

Most of the problems the new cities are facing, or will face, are similar to problems existing in old big cities. Population growth in some of these cities is faster than the growth of old cities, and the public facilities may not be able to keep up with the growth. Water shortage is one example of a problem that is more serious in these new cities than in old cities. Fast growing population requires more water

supply, but fewer of these cities are unable to find new water resources. Most of these cities share water resources with the old cities near them. Water supply in these new cities become more difficulty than it is in the old large cities because the distance from these new cities to the water supply station is longer than the distance from any place within the boundary of old city to the water supply station. This problem becomes more serious in Summer than in Winter.

Another serious problem in these new cities is industrial pollution. Almost all of these new cities are industrial cities. Thus, industrial pollution is more serious in these new cities than in most of the old cities, except Kaohsiung.

### (3) Problems related to low growth of county cities

Some county cities such as Ilain, Sinchu, Changhwa, Chiayi, Pengtung, and Hualian have grown not as fast as the growth of large cities and new small industrial cities. These cities may keep away from problems caused by fast growth of population. But the relatively slow growth of population reflects the problem of limited condition for development.

### (4) Problems related to outward growth of the biggest city

The outward growth pattern in metropolitan areas of the United States caused many problems for central cities and suburbs. Zimmer points out many of these problems caused by centrifugal drift. This drift has (1) left minority group, the poor, the old and other disadvantage groups low in education and occupation skill in the central cities; (2) Increased segregation; (3) increased unemployment in central cities; (4) reduced the table resources of the central city; (5) caused the CBD to decline in manufacturing and selected sales; (6) created school crises in suburbs and central cities; (7) resulted in demands on the city; (8) increased the cost of manucipal service in the central city.<sup>(11)</sup> The decline of population in central business districts and increase of population in outlying districts in Taipei city resulted in some problems for CBD and for outlying districts of the city. These

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(11) Basil G. Zimmer, "The Urban Centrifugal Drift," Manuscript, Brown University, pp 81-84.

problems are not very similar to the problems in the United States mentioned above. In Taiwan, high social-economic class people are not residents in outlying districts, but poor people live in these areas. Conversely, not many poor people remain in the central districts of the city, but the owners of business companies do remain there. One similar problem between the Taiwan case and the American case may be that outward population growth of the city caused the increasing cost of municipal services and the heavy demand for outlying districts. The municipal government in Taiwan often fails to sufficiently provide for the increasing demand in shopping centers, water resources, recreation facilities and schools in these outlying districts.

The population growth in townships surrounding the big cities creates many problems for agricultural administrative agencies within the local government or outside of the local government. The farmers' associations have lost membership and financial sources. Agricultural extension workers faced a more difficult task in organizing 4-H club and promoting other extension projects. Urbanization in these suburban townships resulted in unemployment among people who used to work in agricultural institutions. Land speculation in these areas is also a very serious problem now. As we can observe, many pieces of agricultural land have been wasting due to speculative investment in this land. Businessmen buy land not for utilization but because the potential increase in land price in these high urbanized townships is greater than in central cities and outmigrating rural areas.

(5) Agricultural labor shortages and its related problems in out-migrating areas.

Since most out-migrants from agricultural counties were agricultural laborers, a large out-migration from these areas has resulted in a shortage in agricultural labor, particularly during planting and harvesting seasons. Labor shortage in rural areas has caused high cost and low profit for agricultural business, and thus it has become a serious problem in most parts of rural areas in Taiwan since about 1968. The agricultural labor shortage has changed the farming system extensively, and consequently the growth of agricultural product has become slow. In the bad years, such as 1969, the growth

rate of agricultural production was negative. The serious out-migration from agricultural areas also resulted in family disorganization and community psychological and economic depression in these areas.

2. Problems Related to Changes in Population Composition in Urban and Rural Areas.

(1) Youth problems in cities

When the percentage of young population in the total population in cities becomes higher, the problems related to young people in cities becomes more serious. Youth from rural areas confront problems of maladjustment. More urban youths also require more special needs, such as jobs and recreation. But government and society can not often provide sufficient opportunities or facilities to meet their needs. In 1973-74, when a world economic depression occurred, many young in-migrant lost their jobs and returned to the villages.

A higher proportion of young population in the cities could also account for the increase of the crime rate in the city. Most cases of the delinquency in cities have been attributed to the young population.

(2) Problems related to low sex ratio of young age population in cities.

The low sex ratio of city population aged 20-24, 25-29, 30-34 and 35-39 implies that young women have problems regarding marriage, unemployment, etc. Although most of young urban females are engaged in employment, study, or house works quite a few of them are unemployed or working in the sector called "special profession - prostitution or semi-prostitution. Young females who make living on this kind of job may create problems for themselves as well as for their families and society. The increase in young females in urban areas also resulted in a "bride drain" problem in rural areas.

(3) Problems related to the increase in proportion of old age people in rural areas.

The increase in percentage of old population in the total rural population is associated with many new social and economic problems in rural areas. As the percentage of old population in total population increases, the number of family units including only old



people also increases. The farming burden of these old people becomes heavier, and their life becomes more unhappy. Agricultural and community development in rural areas thus becomes more stagnant.

(4) Problems related to high sex ratio of young age groups in the rural population.

The larger number of female out-migration than male out-migration from rural areas in recent years has resulted in a high sex ratio for these young age groups of the population in rural areas. In most rural areas the sex ratio for marriage age groups is higher than 100. Sex ratio for the age group 25-29 among all the rural population was high: 115.2 in 1974. This high sex ratio creates a marriage problem for young males staying in rural areas. The uneven male-female sex composition of ages 25-29, and the effect of this uneven sex composition in this age upon the marriage problem, is more serious in aboriginal communities than in other places. The sex ratio for the age group 25-29 among all the 30 aboriginal townships in 1973 was 149.1. This indicates that among every three males in of marriagable age, about one cannot find a bride. In one of the most uneven aboriginal townships, Chungjih, the sex ratio in age group 25-29 was as high as 193.2 in 1973. Since a large portion of the young females who migrate out from aboriginal areas marry males in plain areas, leaders of aboriginal people thus worry very much about the race crisis they are now facing.

The male marriage problem exists not only in aboriginal areas but also in ordinary rural areas. This problem discourages young people in rural areas from selecting agriculture as a career.

## V Policies for Solving Problems

As the writer has stated problems caused by population redistribution and changes in urbanization have been many. This seems to imply that there is no single policy which can solve all of these problems effectively. Since all of these problems are basically caused by population concentration in big cities and new small industrial cities, one of the most effective ways to solve these problems may be



to disperse population from these population-congestive cities. In this section, our discussion will start by presenting the goal and strategies of this basic policy and then will list and discuss other policies which might solve the urban and rural population and social-economic problems caused by the population redistribution and changes.

### 1. Population Dispersion Policy

Since many problems which have occurred in the urbanization process are basically caused by the concentration of population in Taipei and Kaohsiung metropolitan areas, the goal of the population dispersion policy should perhaps emphasize the decentralization of population from these two metropolitan areas. This does not necessarily suggest a cessation of all urbanization in Taiwan in the future. A slow urbanization has probably not disadvantages for the national development. However, the population dispersion from Taipei and Kaohsiung metropolitan areas to small county cities and towns will have many advantages. These advantages are: (1) it can release population pressure and reduce social-economic problems in these two large city areas; (2) it can promote the development of the small county cities and towns; (3) it can affect the population distribution to cause it to be more balanced among different regions; (4) it can make the modernization of rural society smoother. Now, one key question is how can effective dispersion from Taipei and Kaohsiung metropolitan areas to county cities and towns in different regions occur? Since migration is one important factor for transferring population from one place to another, population dispersion from Taipei and Kaohsiung metropolitan areas will be heavily dependent upon redirection of migration. As many migration experts have pointed out, income expectation is one key factor which will affect migration, and income achievement is highly related to job opportunities. Population dispersion policy can hardly be successful if there is a lack of effective strategies to increase job opportunities in these small cities and towns, or to decrease job opportunities in metropolitan areas. There are many strategies which might achieve these objectives. Sunquest's study on population dispersion policies in European countries can provide many examples for Taiwan. All of these strategies can be classified into two groups: the strategies

related to influencing job opportunities in the places where population is expected to move out and the strategies related to influencing job opportunities in the places where population is expected to move in. The summary of these strategies are listed below:

- A. Strategies related to job control in congestive metropolitan areas:
  - a. to restrict the construction of new manufactural factories and official buildings.
  - b. to move out governmental and educational institutions.
  - c. to apply decentive policies to industrial and commercial construction and tertiary employment.
- B. Strategies related to job increase in small cities
  - a. to provide various incentives, including subsidies, tax free and low interest loans to new industries and businesses.
  - b. to increase investment in public facilities.
  - c. to provide welfare and services for in-migrants.

All of these strategies should be initiated and implemented by all levels of goernments.

Unfortunately, the population redistribution policy in Taiwan today still seems to emphasize the development of the Taipei and Kaohsiung metropolitan areas. According to the most recent news from Taipei, the government is now planning to develop a few satelite cities near Taipei and Kaohsiung. This satelite city development plan indicates that government has seen the population pressure on Taipei and Kaohsiung at the being time, but has not seen the population problem in these places in the future. Since those places selected to be developed as satelite cities are close either to Taipei or Kaohsiung, this new plan will bring a more serious population problem and social-economic maladjustment to these two metropolitan areas in the future. The government should give up the existing plan and adopt the policy of dispersing the population from the two metropolitan areas to small county cities and towns which are far from these two most concentrated population centers.

## 2. Other Policies Related to the Urban Sector

Population dispersion policy probably can gradually solve

part of urban problems in the long run, but cannot solve all other problems, which already exist, in the short run. In order to solve many other problems in urban areas other urban social-economic and population policies are needed. Among those policies, the facilities-improvement policy and migrant service policy are more important ones.

#### (1) Facility-improvement policy

The major goal of this policy is to improve public facilities in newly-developed cities and new districts of old cities. The public facilities include schools, green land, shopping centers etc. Serious problems confronting this policy will be the lack of land space and financial insufficiency. Therefore, to acquire land from private owners and to form an effective budget control will be important strategies in implementing this policy.

In order to avoid conflict with the population dispersion policy, the facility - improvement policy should only refer to the adequate facilities needed, but not to encouraging inflow of migrants.

#### (2) Migrants service policy

Migrants in cities are facing many problems and are thus in need of help by the government. The help programs should be able to meet migrants' needs and to solve their problems. Since most of the migrants are young, proper service programs should include those which can solve their problems and facilitate their development. These programs at least include job training and placement, unemployment relief, housing improvement and marriage and psychological counseling.

Better services for migrants in urban areas can encourage more migrants into these areas. This effect may again conflict with the population dispersion from the big cities, if it is not handled very carefully. The government should emphasize this policy in small county cities which are expected to receive new population under the dispersion policy. The service program in Taipei and Kaohsiung probably should only be applicable to those migrants who have already been there, and not to new migrants.

### 3. Rural Life Improvement Policy

Urban and rural problems caused by migration will not be easily solved if migration continues to take place from rural areas to

urban areas. In order to solve rural problems, which include agricultural depression, the young male mating problem, and the elderly people frustration problem, migration from rural areas should be slowed down. But migration from rural areas will not slow down if rural life can not be significantly improved. It is a misguided policy to control the out-migration without making an improvement in rural life. Thus, this society should have a rural life improvement policy to solve the rural problem and improve the misfortune of rural people in the urbanization process. The effective strategies for achieving these objectives are: (1) to allocate manufactories near villages; (2) to rationalize agricultural price; (3) to provide social welfare and services.

(1) To allocate manufactories near villages

Manufactories located near villages can provide job opportunities and wealth for rural people without migration. Rural people can effectively increase their income if they have sufficient job opportunities. The mating problem of rural population can also be improved when manufactories near villages can induce young rural females to stay in the villages.

Manufacture near villages may also have negative effects on rural life improvement. The more serious negative effects are the effect of population on crops and natural resources and the competition with agricultural labor during the planting and harvesting seasons. Therefore, the pollution control and labor balance between farms and factories become an important consideration for the settlement of factories near villages.

(2) To rationalize agricultural prices

Most rural people are living on agricultural business, and therefore agricultural improvement is still an important strategy for improving rural people's life. Past experiences tell us that for the purpose of improving rural people's life, the improvement of agricultural price is more effective than the improvement of agricultural production. Improvement of agricultural production could have the effect of encouraging urbanization, but the improvement of agricultural prices will not have this effect. Of course, this recognition does not suggest that the government should not encourage farmers to increase production.



Since the government and farmers have already expended much effort on agricultural production, the possibility of improving production has become very limited. For the future, the possibility of improvement of farmers' life will be highly dependent on raising prices for their products.

(3) Rural social welfare and service strategy

Many rural problems, such as elder people's disappointment and rural family and community disorganization caused by out-migration of young people, can not be easily solved by economic policy. These problems can be more effectively solved by social welfare and service. To offer this service may be one important moral goal which the government and society should pursue at the present time.

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# 台灣都市化過程中都市與鄉村人口的再分配 及變動：性質、問題及政策上的含義

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## 中文摘要

鑒於在過去短期間內台灣地區都市化進行快速，又在都市化過程中都市及鄉村人口的數量及所占的比率呈再分配的現象，其人口的組合也發生重大變化，但迄未有詳細的研究，本文乃先進行探究都市與鄉村人口再分配及組合性質的變遷，進而分析城鄉人口再分配及人口變遷所引起的各種社會經濟問題。末後再建議政府採行可以有效解決各種問題的對策。本研究概括期限在1964年至1974年的十年內。所用資料來自台灣人口統計。

在未討論城鄉人口再分配及變遷之前，本文曾就過去學者對都市化水準所下定的各種不同概念與定義加以介紹，進而選用一種最常用且合適的概念，即都市人口占總人口的百分比以做為界定台灣都市化水準的基礎。

在本研究所包含的時間內，本省都市化快速進行，人口大量並快速集中都市。在人口集中都市的過程中，都市地區人口的再分配顯出幾個重要性質：(1)大都市的增加量較小都市的增加量多；(2)新興都市人口增長率及較舊都市的增長率高；(3)農業區域內的縣轄市成長速度較其他都市的成長速度緩慢；(4)在最大都市範圍內的商業中心地區的居住人口有向四週圍新興市區及郊區鄉鎮外移的現象。另一方面在鄉村地區人口重新分配的情形也現出兩個顯明的特性，即(1)圍繞大都市的鄉鎮人口淨移入量多，淨移入率也高；(2)農業縣份人口則呈大量移出。

再觀都市及鄉村地區人口組合的變遷，則發現幾種重要現象，將之略述如下：在都市地區人口年齡組合的重要變化是(1)十四歲以下小孩人口所占比率減少；(2)十五歲至二十九歲青少年人口所占比率大增；(3)三十歲至三十四歲壯年人口所占比率大致不變；(4)四十五歲至六十歲的後期壯年人口及滿六十歲以上的老年人口所占比率也增加。再看都市地區人口性比率的變化，則發現全部人口的性比率下降，尤以二十歲至二十四歲與四十歲至四十四歲年齡層的青壯年人口為然，而四十五歲至四十九歲年齡層人口的性比率則呈增加現象。以上各種變化係由鄉村移入都市人口的某些特質所致成。這些特質是移動人口中青少年所占比率偏高，且這組容易移動人口中女性移動者所占比率也很高。

在鄉村地區人口組合變化的重要性質是：(1)小孩人口所占比率減少；(2)青年人口所占

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比率略為增加；(3)壯年人口所占比率維持不變；(4)中年及老年人口所占比率增加。這些現象顯出在鄉村地區一方面屆生育年齡青壯年人口移出致使小孩人口所占比率減少，另一方面則由於過去二十餘年前出生率上升致使在研究所包括期間內青壯年人口雖大量移出，但其占全人口的比率仍有增無減。可見鄉村人口受自然增加的影響較之受移動的影響有過之而無不及。鄉村人口在性別組合方面的重要變化是，在不同年齡層人口的性比率的變化不同。其中二十五至二十九歲人口性比率增加，三十至三十四歲及三十五至三十九歲人口性比率則減少。此反映出在不同年齡層外移人口的性別選擇性的程度各不相同。其中青年移出人口中女性所占比率尤高，致使停留鄉村的青年人口中性比率提高。

鄉村與都市人口重分配及人口組合的變遷引發若干人口、區位及社會經濟問題。在都市地區由於人口快速增長連帶引發房屋短缺、交通擁擠、用水缺乏、失業率較高、環境污染、土地投機、食物供應受操縱、違章建築及社會衝突等問題。此外新都市的設施供不應求，農業地區內發展緩慢及最大都市內舊市區人口外移也引起若干問題。在鄉村地區由於人口移出及人口組合變化所引起的較嚴重問題則包括季節性的勞力短缺及青年男子求婚困難的問題等。

面對上述由於都市化所引起的人口區位及社會經濟問題，筆者在本文末後建議政府宜採行人口分散化政策，期使全省各地人口成長趨向均衡，並減少由人口集中所引起的諸種問題。此外也建議政府經由改善農產價格、推行農村工業化、發展農村居民的福利以改善農村生活條件，以便有效改善由都市化所引起的種種問題。