

URBANIZATION IN TAIWAN, 1964-1975*

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ABSTRACT

Both the Western model and the urbanization thesis have been used to explain urban growth for the urbanizing countries of Asia. This paper examines levels and rates of urbanization in Taiwan and its ability to absorb a growing labor supply in its urban centers. Urban growth is concentrated in the Northern region and in large urban places. By 1975, half of Taiwan's population was located in places of 50,000 or more and 80 percent of the total population growth between 1964 and 1975 occurred in urban areas. Despite substantial urban growth and an even more rapid labor force growth, workers were absorbed into "urban" industries and occupations. Based on this ability to absorb, Taiwan does not appear to be overurbanized and seems to fit the Western model.

The populations of Asian countries are urbanizing at rapid rates. While this trend is part of a global pattern of increasing urban concentrations of people, rapid urban growth in many of the less developed countries is taking place at the same time that economic development is increasing. One of the central concerns of observers is the question of whether urbanization and economic development can be kept in balance. Two major attempts to explain urbanization are the Western model and the urbanization thesis.

The Western model is based heavily on the historical experience of industrialized nations. As Hirschman (1976) notes, the basic process by which population redistribution takes place is migration from rural to urban areas, a movement which is a response to shifts in the demand for labor. Increasingly complex technology and an escalating scale of economic organization are seen as producing the changing demands for labor. The industrial revolution accompanied urbanization in Western nations and tends to be viewed as inseparable from urbanization (McGee, 1971). Appropriateness of the Western model for Asian countries has been questioned (Hirschman, 1976; Goldstein, 1971; and Firebaugh, 1979), largely because of doubts about causal connections between urbanization and economic development. Firebaugh (1979), for example, presents evidence that Third World urbanization results from adverse rural conditions as well as from economic devel-

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opment.

In contrast with the Western model, the urbanization thesis says that urbanization in developing nations may be occurring independently of economic development and is taking place at a faster rate than the changing economic structure. Migration is seen as a response to rural overcrowding and poverty. Therefore, it is argued urban growth becomes an obstacle to economic development because cities can not absorb immigrants effectively.

This paper is directed toward two major aspects of the theoretical controversy, namely, shifts in the demand for labor and urban growth as an obstacle to economic development. The immediate objectives, however, are first to describe levels and rates of urbanization within Taiwan, Republic of China. Second, variations in urbanization will be related to region, size of place and population density. Finally, the ability of Taiwan to absorb a rapidly growing urban population and labor force will be examined. An adequate test of the competing models requires much more than can be accomplished here. Nevertheless, by taking a single nation, the nature and extent of urbanization in a developing country can be seen relative to the Western model and the urbanization thesis.

A brief note on background is in order. Chinese settlement of the island of Taiwan began as early as the 12th century, but it was not until the 17th century that large groups of Chinese crossed the Taiwan straits. When the Dutch invaded the island in 1624, Chinese settlers were estimated at about 30,000. By 1886, when Taiwan became a province of China, there were an estimated 2.5 million people. Taiwan was ceded to Japan in 1895, and 50 years later restored to the Republic of China. By 1950, the population of Taiwan numbered more than 7.6 million, which Davis (1972) estimated was 52 percent urban.

Taiwan's area of 35,961 kilometers (13,885 square miles) is one of the most densely populated in the world, with 395 persons per square kilometer in 1975, up from a density of 226 in 1952. These density figures fail to indicate the extent of population concentration adequately, since an estimated 64 percent of Taiwan is mountainous and contains relatively few people. Most of the population is concentrated along the coastal areas and nearby plains. The largest mountain range, running in a generally north-south direction, occupies half of the island. Population density in the older precincts of Taipei city ranges from about 10,000 to 60,000 per square kilometer.

DATA AND DEFINITIONS

Information for this study comes primarily from the Demographic Fact Books for Taiwan for 1964 and 1975. The time span is 11.5 years, from mid-1964 to year-end-1975.

Lesser detail in the 1964 and other pre-1975 reports limits certain lines of investigation, such as relationships between urbanization and changes in the occupational structure and growth of the female labor force.

The population of Taiwan is defined in three ways in the Demographic Fact Books. The Taiwan-Fukien Area is the largest because of its inclusion of the Kinma Area. Taiwan Province excludes the Taipei Municipality which is considered an independent administrative unit. The third area is identified as the Taiwan Area, which includes Taipei Municipality but not Kinma, and it is the Taiwan Area that will serve to set the boundaries for this study. Another source of possible confusion is the fact that county population figures do not include the populations of large cities (Keelung, Taichung, Tainan and Kaohsiung as well as Taipei). Thus, if one wants county population data comparable to that for the United States, city populations must be added to those for the respective counties in which large cities are located.

The urban population of Taiwan is defined officially through four types of administrative units: Taipei Municipality, four big cities, county cities, and urban townships. County cities and urban townships are considered urban in character, and, in practice, all have populations of 10,000 or more. A few rural townships have populations of over 10,000 but are distinguished by characteristics more nearly rural than urban. For the period covered by this study, there were 87 urban places, including 69 urban townships, 13 county cities and 5 big cities.

Only one definitional change occurred between 1964 and 1975 that might influence results. The city of Taipei became a special municipality in July, 1968, absorbing six surrounding townships. For comparative purposes, the population of Taipei in 1964 was redefined for this study to include populations absorbed in 1968. There is no information that other areas were redefined or that boundaries were changed.

VARIATIONS IN LEVELS AND RATES OF URBAN GROWTH

Taiwan is among the more highly urbanized areas of the world and its urban growth continues. For the 1964-1975 period, the urbanization level increased from 59 percent to 64 percent, as shown in Table 1. The urban population increased by 45 percent, compared with an increased of 15 percent for the rural population.

As one might expect, levels of urbanization and urban growth are not distributed evenly across Taiwan. Regionally, the North is the largest in total and in urban population. The North also shows the largest growth rates for total and urban population. With Taipei and Keelung located in the North, this region had the largest proportion of urban population in 1964. However, the South, which includes both Tainan and Kaohsiung, contained

a larger fraction of the total population. The ascendancy of the Northern region is evident by 1975, when its total population also outnumbered that of the South. The Middle (actually middle and west) and East regions represent comparatively small fractions of both the total and urban populations, accounting for less than a fourth in either case. The Northern region contained almost half (44 percent) of Taiwan's urban in 1964, and its urban population grew by more than 50 percent from 1964 to 1975.

Table 1.—Total and Urban Population of the Taiwan Area,
by Regions, 1964 and 1975

Population	All		Region			
	Number (000's)	Pct.	North	Middle	South	East
<u>Taiwan Area</u>						
1964	12,280	100.0	35.9	20.0	39.7	4.4
1975	16,150	100.0	40.0	18.7	37.3	4.0
Change, 1964-75						
<u>Cities and urban townships</u>	3,870	31.5	46.6	23.5	23.4	17.9
1964	7,266	100.0	44.4	18.8	33.6	3.2
1975	10,364	100.0	47.9	17.2	31.8	3.0
Change, 1964-75						
<u>Percent urban</u>	3,098	45.2	53.8	30.6	35.2	36.8
1964	—	58.8	70.7	55.8	50.0	42.7
1975	—	64.0	76.8	59.0	54.7	49.5

Sources: 1975 Taiwan-Fukien Demographic Fact Book, Republic of China, Table 2, and 1964 Taiwan Demographic Fact Book, Republic of China, Table 1. Data in all following tables are derived from these sources unless otherwise noted.

CITY SIZE AND GROWTH

Growth of urban populations was concentrated in the large urban places from 1964 to 1975. Urban places of 50,000 or more in 1964 increased at higher rates than smaller-size places and the rural population, as shown in Table 2. By 1975, over half of Taiwan's population lived in cities of at least 50,000. Since no new cities were added during this period, redistribution of population is a consequence of (a) the slower rate of increase for the rural population, (b) cities moving to a larger size class, and (c) population growth among cities moving to a larger size class. Each of these three factors helps explain urban

growth. The rural population increase of 15 percent was about half the rate of increase for the Taiwan Area. Comparison of columns 2 and 3 in Table 2 shows the extent to which urban redistribution resulted from changes in size class. Column 2 shows the population distribution in 1975 by their 1964 size classes. Differences between columns 2 and 3 indicate the movement of cities into larger size classes. Overall, redistribution because of changing size class was relatively slight, as indicated by an index of dissimilarity which shows a difference of 6 percent between columns 2 and 3.

However, a few cities are responsible for a disproportionately large part of the urban growth, despite the apparent slight impact of cities changing size class. About three-fifths of the total urban population increase is accounted for by a few cities moving up in size class. Those cities that moved into a larger size class increased by 66 percent, as compared with the overall urban increase of 45 percent. The most notable instance of growth in numbers and movement among size classes is the city of Kaohsiung, which grew from 559,000 in 1964 to 999,000 in 1975.

Table 2.— Population Distribution and Growth by Rural and Urban Areas and Size Class of Cities, Taiwan Area, 1964 and 1975

Areas and size class (000's)	1964		1975		Percentage change, 1964-75 ^b
	1964	1964 cities ^a	1975	1975 cities	
Total population					
Number (000's)	12,280	16,150	16,150	16,150	31.5
Percent	100.0	100.0	100.0	100.0	—
Urban	58.8	64.0	64.0	64.0	45.2
1,000	10.7	12.6	12.6	12.6	56.0
500	4.6	6.2	12.8	12.8	78.7
250	8.2	8.7	6.8	6.8	40.9
100	6.2	6.7	2.1	2.1	41.3
50	15.8	17.6	17.6	17.6	45.1
25	12.4	11.2	11.2	11.2	18.5
10	0.9	0.9	0.9	0.9	30.2
Rural	41.2	36.0	36.0	36.0	15.0

a Cities by their size class in 1964.

b Change based on size class in 1964.

Changes in levels of urbanization can be seen also from the perspective of distribution of places by size and region, as shown in Table 3. The number of places with 50,000 or more population increased and the number of places of less than 50,000 decreased. In 1964, about 52 percent of all urban places had less than 50,000 population, whereas in 1975 only 40 percent of urban places were in this category. Places in the 100,000 or more class increased from 12 percent in 1964 to 22 percent in 1975. Urban places moved up in size class primarily in the Northern region, although all four regions showed some upward movement.

Table 3.— Distribution of Urban Places by Size Class for
Regions in the Taiwan Area, 1964 and 1975

Population size class (000's)	All	North	Middle	South	West
Number of places	87	32	20	29	6
			1964		
All	100.0	100.0	100.0	100.0	100.0
1,000	1.2	3.1	—	—	—
500	1.2	—	—	3.4	—
250	3.4	3.1	5.0	3.4	—
100	5.7	6.2	5.0	6.9	—
50	36.8	31.2	60.0	27.6	33.3
25	44.8	53.1	20.0	58.6	16.7
10	6.9	3.1	10.0	—	50.0
			1975		
All	100.0	100.0	100.0	100.0	100.0
1,000	1.2	3.1	—	—	—
500	3.5	—	5.0	6.8	—
250	3.4	6.2	—	3.4	—
100	13.8	18.8	10.0	6.9	33.3
50	37.9	40.6	55.0	31.0	—
25	34.5	28.1	25.0	52.7	16.7
10	5.7	3.1	5.0	—	50.0

As a means of summarizing stability and change in size class, Table 4 shows the size class of all 87 urban places in 1964 and 1975. Seven of these could not move into a larger class because they were in the open-ended largest class, and six could not move downward because they were in the smallest size class. None, in fact, moved down in size class. Among the 80 urban places that might have grown enough to move up in size class, 31 (39 percent) moved upward. The seven urban places with populations of 150,000 or more in 1964 increased to 13 places by 1975. All three places in the 100,000 class in 1964 moved up to 150,000 or more. By 1975, the 6 places in the 100,000 class were all new in the sense that they had moved up from smaller size classes. The number of places in the 50,000 class decreased slightly, but nearly half had moved to a larger size group and were replaced by smaller places that had grown enough to reach the 50,000 class. Only one of the six places in the smallest class (10,000) moved to a larger class. Thus, stability in the number of places in a size class is limited mostly to small cities. All of the 49 places remaining in the same size class had populations of less than 75,000.

Table 4.— Size Class of Cities and Urban Townships
(in 000's) in Taiwan, 1964 and 1975

Size class, 1964	Size class, 1975						
	All	150	100	75	50	25	10
All	87	13	6	8	25	30	5
150	7	7					
100	3	3					
75	3	1	2				
50	28	2	4	7	15		
25	40			1	10	29	
10	6					1	5

Some of the variations in urban growth can be attributed to differences in the allocation of total population growth. Most of Taiwan's total population growth (over 80 percent) took place in urban areas, as shown in Table 5, and half of the total growth is accounted for by places of 100,000 or more. The North's dominant role in urban growth is evident once again, not only by the fact that 46 percent of the total population growth occurred in the North but also by the fact that 22 percent of the total urban growth took

place in places of 100,000 or more in the North. Even cities of less than 75,000 in the North accounted for about as much of the total growth as cities of 150,000 or more in the South.

Table 5.— Distribution of Population Change by Urban and Rural Places and Regions for the Taiwan Area, 1964-1975

Urban places by size (000's) and rural places	Population change				
	Region				
	All	North	Middle	South	East
All	100.0	53.0	14.9	29.6	2.5
Urban	80.8	45.6	10.8	22.1	2.2
150	43.6	22.3	5.2	16.1	—
100	5.5	3.5	1.1	0.9	—
75	4.6	3.7	0.9	—	—
50	18.5	10.0	2.9	3.6	2.0
25	7.3	5.1	0.6	1.5	0.1
10	1.3	1.0	0.2	—	0.1
Rural	19.2	7.4	4.1	7.5	0.3

POPULATION DENSITY AND GROWTH

The extent of urbanization and variations in urbanization within Taiwan are evident further on the basis of population density. Table 6 shows the distribution of all places, urban and rural, by population density in 1975. With an overall density of 395 persons per square kilometer, urban areas showed a density of 1,092. About a third of all places had densities of at least 800. When all 318 area units are included, the Middle region turns out to be the most densely populated region, with more than half of its places having densities of 800 or more, and many Middle region places are basically rural and agricultural. The most densely populated places tend to be in the North and in the South. The comparatively sparse density in the East probably reflects its isolation from the rest of Taiwan, at least until recent years when modern rail and air transportation helped to overcome its mountain and Pacific borders.

Table 6.— Distribution of Urban and Rural Places by
Region and Population Density, Taiwan Area, 1975

Density class, 1975	Region				
	All	North	Middle	South	East
All					
Number	318	89	61	139	29
Percent	100.0	100.0	100.0	100.0	100.0
6,800	1.6	4.5	—	0.7	—
3,200	3.8	7.9	1.6	1.4	3.4
1,600	5.3	5.6	9.8	5.0	—
800	20.7	14.6	41.0	19.4	3.4
400	32.1	24.7	27.9	43.9	6.9
200	15.1	25.8	8.2	12.9	6.9
100	9.1	6.7	6.5	5.0	41.4
Under 100	12.3	10.1	4.9	11.5	37.9

Dependency of urban growth on both density and size of place presents a J-curve pattern. The top panel of Table 7 shows urban growth and density by size of place. If the 75,000 size class is combined with the 50,000 class, the pattern represents a J-curve, with places of 10,000 having a higher rate of urban growth than places of 25,000, above which growth rates tend to increase. This J-curve pattern is more evident in the lower panel, where growth rates are related to density class. This evidence implies that density and size of place may serve as alternative indicators of level of urbanization and that urban growth is related to each indicator in similar ways.

URBAN EMPLOYMENT

Given the level and pace of urban growth in Taiwan, and the generally conceded rapid economic development, there is a question of whether (and how) Taiwan has been able to absorb its fast-growing population into its urban labor force. The answer seems to be largely positive. Expanding urban centers have provided jobs in nonagricultural industries and done so quite effectively. Between 1965 and 1975, Taiwan's labor force increased by about 3 million, an increase of 78 percent, as shown in Table 8. Unemployment rates

Table 7.— Growth of Taiwan's Urban Population, 1964-1975,
by Population Density and Size of Place, 1964

Size of place and density class, 1964	Number of places, 1964	Persons per square km., 1964	Percentage change in population 1964-1975
Size of place (000's):			
All	87	1092	45.2
150	7	3241	57.4
100	3	2680	54.3
75	3	1617	72.4
50	28	830	42.3
25	40	580	18.5
10	6	216	29.6
Density class:			
All	87	—	45.2
2500 or more	9	—	74.8
2000	7	—	41.4
1500	5	—	29.6
1000	13	—	14.3
500	33	—	21.2
Under 500	18	—	25.3

have remained fairly stable at slightly over 3 percent, despite the rapidly growing work force. The shift away from agricultural work is evident from changes in both industry and occupation composition. Employment in farm occupations increased by 40 percent and in agricultural (primary) industry by 48 percent. In contrast, workers in white-collar occupations increased by 67 percent and in blue-collar occupations 98 percent. Industry-wise, workers in secondary industries increased by 92 percent and in tertiary industries by 138 percent. Thus, the expanding work force has shown its greatest growth in largely "urban" kinds of work.

Table 8.— Changes in Employment Status and in Occupation
and Industry of the Employed, Taiwan, 1965 to 1975

Item	1965		1975		Percentage change, 1965-75
	Number (000's)	Percent	Number (000's)	Percent	
Persons, 15 and over	6,654	—	10,449	—	57.0
Pct. of total population	—	53.7	—	64.7	—
In labor force	3,760	100.0	6,685	100.0	77.8
Employed	3,633	96.6	6,466	96.7	78.0
Unemployed	127	3.4	219	3.3	72.4
Occupation		100.0		100.0	
White-collar	874	24.0	1,460	22.6	67.0
Blue-collar	1,085	29.8	2,144	33.1	97.8
Farm	1,675	46.1	2,349	36.3	40.2
Other	—	—	513	7.9	—
Industry					
Primary	1,595	47.3	2,367	36.6	48.4
Secondary	795	23.6	1,523	23.6	91.6
Tertiary	1,080	32.0	2,574	39.8	138.4

Source: Social Affairs Statistics for Taiwan, No. 31, 1977; and Taiwan Demographic Fact Book, 1975.

Employment shifted away from primary industry to secondary and tertiary industries during the five-year period ending in 1976. Workers in secondary industries increased, not only in the large cities but also in county cities and urban and rural townships, as seen in Table 9. Taiwan's answer to the problem of absorbing a growing work force thus is two-fold: increased employment opportunities outside of agriculture, and increased employment in non-agricultural jobs in all types of communities. The five big cities and county cities both lost in their proportional representation of secondary industries, but because of their larger population base showed important numerical increases.

Table 9.— Employment in Major Industries, by Residence,
Taiwan Area, 1972 and 1976

Area	All	Percentages employed		
		Primary Industry	Secondary Industry	Tertiary Industry
		1972		
Taiwan Area	100.0	40	20	40
Five cities	100.0	10	27	62
County cities	100.0	13	29	58
Urban townships	100.0	42	21	37
Rural townships	100.0	63	12	25
		1976		
Taiwan Area	100.0	35	26	39
Five cities	100.0	9	32	59
County cities	100.0	13	35	52
Urban townships	100.0	37	27	36
Rural townships	100.0	57	19	25

DISCUSSION AND CONCLUSIONS

In summary, Taiwan's population, already more urbanized than most Asian populations by 1964, has become even more highly urbanized. Average levels and changes in urbanization, however, tend to conceal internal variations in urban growth and levels of urbanization. Two of the four major regions, especially the Northern region, tend to dominate urbanization. Two cities, Taipei in the North and Kaohsiung in the South, set the pace for urban growth. The urban population is outgrowing the rural, and larger cities are growing more rapidly than smaller ones. Of the total population growth, urban places account for 80 percent during this period.

Recent studies in Southeast Asia fail to support the Western model as an adequate means of explaining urbanization. By comparison, Taiwan appears to come closer to the Western model than such places as Thailand, New Zealand or Malaysia. Taiwan and Thailand (Goldstein, 1971) show rapid rates of urban growth, but Taiwan has a higher degree of urban population concentration and proportionately more workers in nonagricultural jobs. New Zealand (Gibson, 1973) is about as urbanized as Taiwan, but lacks a major

metropolitan center. Malaysia (Hirschman, 1976) has experienced rapid urban growth and is almost as urbanized as Taiwan, but the rural population has grown about as fast as the urban population. Apparently opportunities in urban areas have not been so great nor have the rural conditions been so poor as to push significant numbers to the cities of Malaysia.

Based on the criterion of ability to absorb a rapidly growing labor force, the over-urbanization thesis does not fit Taiwan. The ability to absorb a growing labor supply in the growing urban centers is quite remarkable, since the labor supply has increased faster than the population. A major factor in the larger labor supply is the increased participation of women, especially in urban centers. Although trend data on the employment of women are hard to come by, there are a number of indications that women have already entered the urban labor market in substantial numbers.

In broad terms, the economic development of Taiwan parallels its urban growth. Mueller (1977) concludes that employment, exports, investments and technology have all registered marked advances in Taiwan over the past 20 years. While Mueller is concerned with questions other than urbanization, her findings are consistent with the Western model. Despite such concomitant variations, the question of causal direction between economic development and urbanization remains unanswered.

As a final note, there is general agreement that urban growth, especially rapid urban growth, is accompanied by a multitude of problems—energy, water, health, housing, transportation, and so on. It is by no means clear that nations in the Third World have the capability to solve the many problems associated with urbanization (Beier, 1976). Thus far, Taiwan seems to have handled some of the problems of urban growth by accommodating its growing labor force.

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台灣的都市化，1964—1975 *

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西方的模式以及有關都市化的論文都曾被引用來解釋亞洲國家都市的成長情形。本文檢視台灣的都市化程度、速度及其吸收勞力的情形。台灣的都市化現象集中在北部地區及幾個大的都市區。在 1975 年時，有半數的台灣人口居住在 50,000 人以上的城市裡，而 1964 年至 1975 年間 80 % 的人口成長發生在都市地區。雖然勞力有快速的成長，大量的勞工還是被都市的各行各業所吸收，基於這種吸收的能力，台灣還未達到所謂過度都市化的程度，能符合西方的模式。

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