China: A Unique Urbanization Model

*No other urban population in the world
has undergone such dramatic
fluctuations*

By G. Edward Ebanks and Chaoze Cheng*

In recent decades, many third world countries have been experiencing rapid rates of urbanization resulting in an explosion in the siae of their urban population. China, however, has been a striking exception to the general patterns. The Government of China has intervened in order to keep the process of urbanization under control. Since the founding of the People's Republic in 1949, the Government has taken measures to control gradually the rapid growth of population and to regulate by various means the increase of the urban population and the level of urbanization. The low level of urbanization in China has thus been well recognized in recent studies of the demographic,

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* The authors of this article are G. Edward Ebanks, Professor, Department of Sociology, University of Western Ontario, Canada, and Chaoze Cheng, a doctoral candidate at that University, who formerly was a lecturer in the Department of Economics at the Shanghai Finance and Economics University, Shanghai, China.

geographic, social and economic development of this country (Chen, 1973; Thompson, 1975; Chang, 1976; Chiu, 1980; Yeh and Xu, 1984; Chen, 1988).

This article examines the salient features of the urbanization of population in China since the 1950s. The central thesis of this study focuses on the uniqueness of the urbanization model in China: the unique patterns of urbanization and urban growth as compared with both the developing and developed countries; the unique measures and policies taken by the Government to restrain urban growth; and the unique future goals of national urban policies. It aims at gaining insights into a better understanding of how urbanization processes have been integrated with certain social, economic, political and natural factors. The authors suggest that elements of the Chinese urban population and urban growth planning approach may be transferable to third world countries if selected and modified to suit differing political, social, cultural, economic and administrative conditions of those countries. Since no one has studied China's urbanization model in such a way, this article more or less fills the gap.

This study attempts to shed light on the aforementioned topics by analyzing the data mainly from the largest of China's demographic censuses of 1953, 1964 and 1982, and the One-per-Hundred Sample Survey of 1987. Limitations in the information collected by those censuses are compensated for by information drawn from the *Population Yearbook* and some other sources published recently in China.

The methodology employed in achieving these goals centres on compiling population data for cities and on plotting the urbanization rates for different time periods. Comparisons, whenever necessary, are made among regions in this country, among cities, and with the situation in other parts of the world. In addition, some concepts and indices such as tempo of urbanization, Gini's concentration index, primacy index, and two-city and four-city primacy indices are used to show the changes in urbanization and urban growth from the 1950s to the late 1980s.

A variety of terms have been used by Chinese authorities to refer to China's urban population (Ma and Cui, 1987). Thus, as a prelude to the identification of China's urban population between the 1950s and the 1980s, attention should be given to defining urbanization. There are three commonly used methods of compiling statistics for the urban population in China: (a) the total population of cities and towns, i.e. the resident population (agricultural and non-agricultural population) of the organic cities (not including the counties under their jurisdiction) and towns; those residing in the cities (not including the counties under their jurisdiction) fall into the category of city population and those residing in towns are classified as town population; (b) the non-agricultural population of cities and towns (sometimes called the

Figure 1. Time path of percentage urban: comparison of China with other regions

+ = Developed country   ◇ = Developing countries

◻ = World   Δ = China
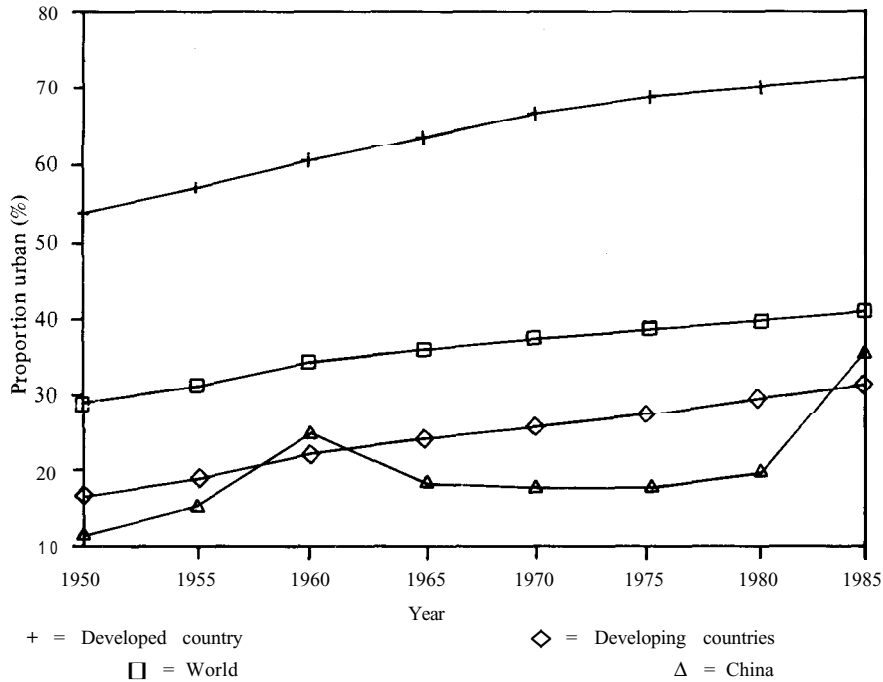
Sources: Compiled by authors from data provided by the United Nations, 1989; and and People's Republic of China. State Population Census Office and State Statistical Bureau, Department of Population Statistics, 1988.

population of cities and towns), i.e. the resident non-agricultural population of the organic cities (not including the counties under their jurisdiction) and towns; and (c) the non-agricultural population, i.e. the sum total of the non-agricultural population residing in organic cities and towns and in areas other than those cities and towns. In this study, only the first method is used (SSC, 1983).

Unique patterns of urbanization

The overall picture of change indicated by figure 1 shows that the process of urbanization on a significant scale began quite late in China, and the level is still comparatively low at present, at least compared with developed countries. The level of urbanization in today's developed countries began to

rise markedly in the middle of the last century; after more than 100 years, their urban population increased from about 10 per cent of the total population at that time to a little over 70 per cent in the middle-1960s (Davis, 1965). The process of marked urbanization in the developing countries, on the other hand, started in the 1920s. In 1920, their urban populations accounted for about 10 per cent of the total, but 60 years later they had increased to over 30 per cent (United Nations, 1989). Although this proportion is 57 per cent lower than that of the developed countries, it tends to increase at a faster speed. In China, however, urbanization on a notable scale began in the 195Os, a century later than in the developed countries and 30 years later than in the developing countries. In 1950, China's urban population accounted for 11.2 per cent of the total population in the country; by 1985 it had increased to 36.6 per cent, and by 1987 to 46.6 per cent. China has quickly caught up with those developing countries within a short space of time.

Such comparisons, however, do not tell us a great deal about the internal processes of development in the country. Obviously, in China's case, the overall growth figures conceal the fluctuations which are evident between historical phases (table 1). Taking, for instance, the 1950s: in the developing world as

Table 1: Total population of Chinese cities and towns, level of urbanization and growth rate (1950-l 987)

Year	Total urban population (millions)	Level of urbanization (%)	Annual growth rate (%)
1950	61.69	11.2	
1955	93.61	15.2	10.3 (1950-1960)
1960	163.48	24.7	
1965	130.45	18.0	-1.2 (1960-1970)
1970	144.24	17.4	
1975	160.60	17.5	2.9 (1970-1980)
1980	191.41	19.5	
1985	384.46	36.6	—
1986	441.03	41.4	
1987	503.62	46.6	14.6 (1980-1987)
Total			5.8 (1950-1987)

Note: The annual urban population growth rates are estimated by using the geometric growth model. The method assumes that the rate of growth is constant, but the changes which occur are periodic.

Source: China Population Information Centre, 1988, p. 159.

a whole, the annual urban growth rate was 4.8 per cent, whereas China's was a massive 10.3 per cent. In the 1960s and most of the 1970s China saw only a negative low growth; the rest of the developing countries as a whole experienced steady urban growth averaging around 4 per cent each year (United Nations, 1989). A feature of the era since 1977 has been renewed urban growth on a grand scale: the wheel has gone full circle. The annual urban growth rate was 14.9 per cent, in sharp contrast to 3.51 per cent in developing countries and 1.01 per cent in the developed countries between 1980 and 1985 (United Nations, 1989).

Further examination reveals that those distinct fluctuations in the growth of urban populations show a remarkable coincidence with the cycles of political movements in China which were interposed by the Chinese Government (figure 2). The urban policy of China before and after the death of Mao Zedong that has had a profound influence on its urbanization pattern can be subdivided into six phases: period of Rehabilitation (1949-1952); First Five-Year Plan (1953-1957); the Great Leap Forward (1958-1960); Economic Recovery and Adjustment and the Third Five-Year Plan (1961-1966); Cultural Revolution (1966-1976); and Economic Reform (1976-1985) (Buch, 1981).

The main explanation for the rapid increase in urban population during the first decades is the expansion of non-agricultural economic activities accelerated by the First Five-Year Plan and the Great Leap Forward. In the period 1952 to 1960, for example, the index of gross value of industrial output rose from 100 to 535.7, while the growth in agricultural output value was only about 5 per cent annually (TJNJ, 1983).

The events of the Great Leap Forward led to a strict application of measures designed to remedy the over-urbanization of the 1950s and to maintain China's aggregate urban population at a supportable level. During the entire period 1961-1976, there was a decline in the urban population's share of the total population owing to the economic recovery and adjustment, and the Cultural Revolution — taking it down from 19.7 per cent at the end of 1960 to a mere 12 per cent 16 years later. It is especially worth mentioning that during the Cultural Revolution (1966-l976), the Movement of "Re-education in Rural Areas" for school graduates and "Transfers to a Lower Level to Do Manual Labour in the Countryside" for cadres caused the cities and towns to loose tens of thousands of their population (Ma, 1988).

From 1977 to 1987, the major part of the urban increase is accounted for by the officially sanctioned return to urban areas of millions of persons removed during the previous periods and the newly launched four-modernizations campaign and economic reform (Goldstein, 1988). These include (a) all youths sent into rural areas during the years of the Cultural Revolution; (b) the cadres

Figure 2. Urban total population growth in China, 1949-1985
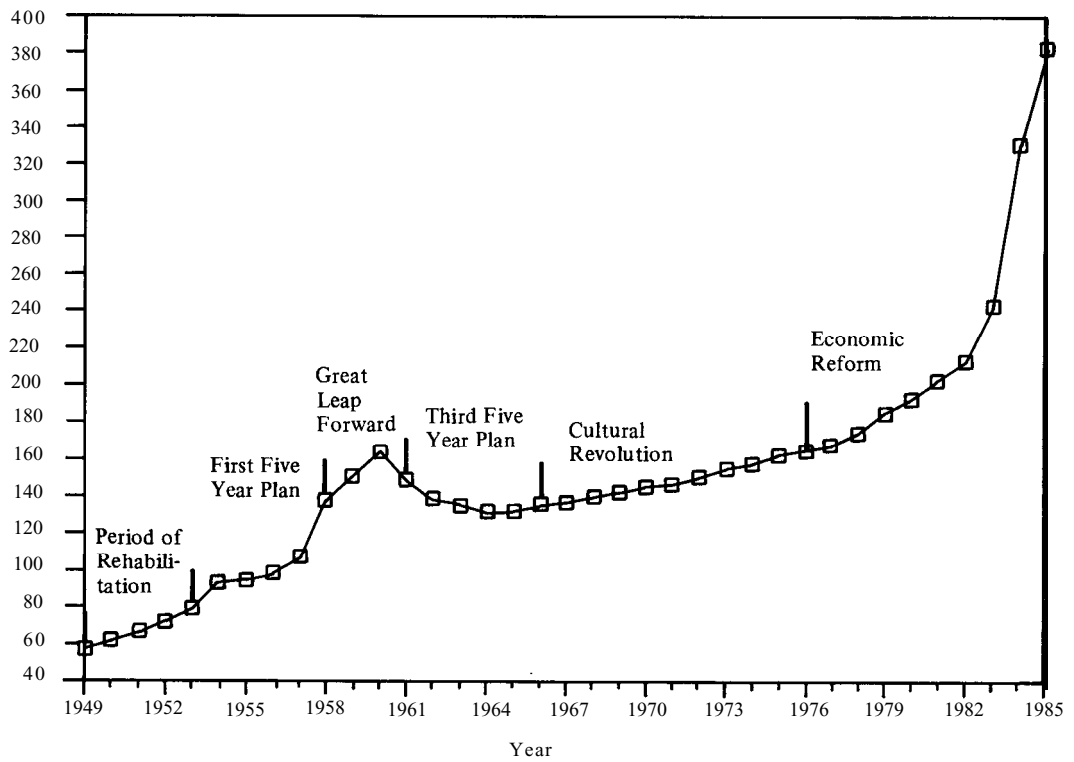
and professional personnel sent to the countryside; (c) legitimate recruitment of peasants owing to the expansion of higher education after the Cultural Revolution; (d) indirect but legal peasant entry into urban areas through the mobilization of the armed forces and, especially, (e) the expansion of the areas under the jurisdiction of the cities and towns as a result of the redemarcation of cities and towns since 1980.

The above examination clearly shows that no other urban population in the world has undergone such dramatic fluctuations, and that no other Government has shown the ability to reverse the migratory flow to the cities (Kirby, 1985).

It is also worth noting that, over the past 40 years, owing to the large base of the Chinese population, the absolute numbers of people involved were quite large in spite of the slow growth rate and low level of urbanization (see table 1). In 1985, for example, the total population of the cities and towns in China reached 384.5 million (China Population Information Centre, 1988), accounting for 19.1 per cent of the urban population of the whole world that year and 33.2 per cent of the urban population of the developing countries. China is one of the few big countries, the urban population of which is over the 100 million mark. In the 35 years from 1950 to 1985, the total population of the cities and towns in China increased by 322.8 million, accounting for about 27 per cent of the increase in the world's urban population, and about 35 per cent of the increase in the urban population of the developing countries as a whole in the corresponding period (United Nations, 1989).

The four years between 1984 and 1987 saw even larger numbers of population expand city and town populations. By 1987, the total population of cities and towns surprisingly increased to 503.9 million. This remarkable increase had been due mainly to the changes in town population since the new criteria for town establishment were put into effect in 1984. In order to carry out the policy of "vigorously promoting the development of small cities and towns", peasants were encouraged to provide their own capital and bring their daily supply of cereals with them when entering small cities and towns to engage in industrial or commercial activities (Ma, 1988). Since then the movement of population to cities and towns in particular has become increasingly active; the town population has increased by about 106.8 million, while the increase of city population was only 65.5 million (Guo, 1988).

It may be too soon to determine whether or not government policies are still effective since, as table 1 indicates, the percentage urban increased from 19.5 in 1980 to 46.6 in 1987. It is worth emphasizing that the level of urban population growth since the early 1980s has been exaggerated statistically. The authors argue that, although the contemporary Chinese rural population

is undergoing an historic phase of transition from rural to urban areas for residence and from being an agricultural rather than a non-agricultural population, the rapidly increasing city and town populations, to a large degree, are meaningful only statistically. By contemporary urbanization standards, the increasing urban and town populations are by no means to be taken as a typical urbanized population. If urban growth for the period 1980-1987 is decomposed into that caused by (a) new urban boundaries of existing cities; (b) the creation of new towns, (c) natural increase, (d) rural-urban migration, and finally, (e) the residual population, it would be found that the exact level of urban growth was much lower than that shown by the statistical data. In fact, the policy of urban development currently in force in China may be said to be a kind of policy having simultaneously both controlling and developing effects. Unfortunately, owing to a lack of data and information, we cannot precisely describe the effectiveness of government policy.

Unique measures and policies

Policies favouring the growth of smaller urban places

The growth of smaller urban places has been promoted in China at various times under different policies. The strategy emerges out of China's own experience and observation of the situation in other developing countries. After 1949, the country's large cities became a magnet for the population. Massive migrations from the villages deprived agriculture of its labour force, with catastrophic results during the labour-intensive periods of planting and harvesting. The growth of the urban population without a corresponding expansion in the available food surplus and in expenditures on the urban infrastructure and essential services presented a political threat. Perhaps the most important factor is that the Chinese Communist Party disparaged Western influence in urban life (Bradshaw and Fraser, 1989). The new Government officially adopted an urban policy based on the belief that cities were a negative influence: "Western-style and modern cities – notably the former treaty ports but increasingly most growing cities – were seen as soul-destroying, anti-peasant, and tilled with corruption, crime, hypocrisy, suffering, squalor, and pollution" (Murphey, 1988).

The consistent political ideology of eradicating the "three great contradictions" – the difference between workers and peasants, city and countryside, and manual and mental labour – of the Chinese Government before and after the revolution has led to a policy of balanced development in the urban and rural areas. This ideology was reinforced by the nature of the relationship between China and the Union of Soviet Socialist Republics (USSR). After abandoning the USSR model of economic development in 1957, the economic policy of "agriculture as the foundation and industry as the leading sector" was adopted;

it reached its peak in the Cultural Revolution, which also has had a profound influence on the urbanization pattern of China (Yeh and Xu, 1984).

Since 1949, the Chinese Government has incorporated the above policies into preferences for policies aimed at achieving spatially balanced and decentralized urban and economic development. Those sectors which are advancing too rapidly and those which are lagging receive special attention, and action is taken to make them fit more closely the overall norms of balanced development (Buck, 1981). The efforts to create balanced development have sometimes been framed in terms of coastal and inland regions, urban or rural areas, industrial or agricultural progress, technologically advanced or more primitive modes of production.

The stress on balance serves to check the growth of the largest centres where superior levels of industrialization, technological competency, education, state resources and political power would have led to growth rates which would have far outpaced the general norms in China (table 2). In 1955, 56.2 per cent (52.6 million) of the total population (93.6 million) of the cities and towns were concentrated in the coastal areas and the remaining 43.8 per cent (41.0 million) were in the vast inland areas. By 1970, the latter population had in-creased to 74.1 million, surpassing for the first time in history the total popula-tion of 70.1 million in the coastal cities and towns. In the period 1955-1985, the average annual rate of increase of the total population of the cities and towns was 3.4 per cent; the rate in the coastal areas was only 2.9 per cent, while in the inland areas it was 3.9 per cent. Owing to the higher growth rate of the population of the inland cities, the gap between the level of urbanization in these areas and that of the coastal areas dropped from 5 percentage points in 1955 to 1.4 percentage point in 1980.

Table 2: Total urban population and urban growth rates: China as a whole, coastal region and inland region, 1955-1983

Year	Total urban population			Year	Annual growth rate		
	Country	Coastal region	Inland region		Country	Coastal region	Inland region
1955	93.6	52.6	41.0	1955-1960	11.8	9.3	14.7
1960	163.5	82.0	81.5	1960-1965	-4.4	-4.0	-4.8
1965	130.5	66.9	63.6	1965-1970	1.8	0.8	1.7
1970	140.4	70.1	70.3	1970-1975	2.6	2.5	2.8
1975	156.1	77.6	78.5	1975-1980	3.6	2.9	4.4
1980	186.9	89.6	97.3	1980-1983	8.0	9.6	6.9
1983	237.0	118.0	119.0	1955-1983	3.4	2.9	3.9

Source: Wei, 1985.

Controls on migration to cities

There is a system of urban household registration that is perhaps more restrictive than any found elsewhere in the world. Each household has long been required to have a "permanent registration booklet". The registration system divides the entire population between those having "urban residence" and those having "rural residence". One of the purposes was to anchor people to their native places, and in particular to prevent unauthorized movement from the countryside to the cities. Temporary residence in urban areas is possible, but only with the sanction of the local officers and the necessary "letter of introduction" from the relevant unit. Even a person who marries someone who lives in a city cannot take up residence there, a policy that contributes to the not uncommon Chinese phenomenon of married couples living apart. The system of restrictions on urban migration and household registration seems to be fairly rigorously enforced, so that visits to a city are always possible but long-term illegal (i.e. unregistered) residence there is very difficult (Whyte, 1988).

The residence system is reinforced by registration of employment. Every employed person is issued with a small booklet containing his or her photograph and personal details, as well as the name of the employing unit. This is the "work identity document". In some periods, individuals from outside the city have been able to take temporary jobs in areas such as construction, but getting long-term employment or an urban household registration is another matter.

The restrictive registration system works as effectively as it does because so many of the necessities of life in urban areas are bureaucratically controlled and require urban household registration in order for one to have access to them (Whyte, 1988). Since the 1950s, a rationing system has been applied in urban areas which at various points has encompassed almost all foodstuffs and other consumables.

The administration of the rationing system varies from province to province, but in all cases it is dependent on the individual's possession of the urban household registration documents. To get the needed coupons to make such purchases, one needs to present one's household registration book to the local neighbourhood and police authorities and/or to one's work unit. Similar comments could be made about access to schooling, child care, health care and support of the aged   for these and many other services one needs to be registered in the city in order to be eligible to obtain the various benefits.

This system of urban household registration has a number of important consequences. It is not possible to decide at will to move into a city, and it is very difficult to arrange to be transferred to a city from a smaller place. It is impossible to live in a city for a long time without proper registration.

Rusticating policies

The measures preventing unplanned migration to the cities have been complemented by others designed to remove a substantial number of their existing inhabitants (Kirby, 1985). Early in the years after the formation of the Republic in 1949, city officials had adopted a benign approach to unwanted migrants from the villages. For instance, the authorities in Metropolitan Shanghai provided them with large discounts on railway tickets as an inducement to return home. Some peasants were given cash grants to enable them to resettle in their home areas and start small businesses. In April 1955, Shanghai expelled 43,000 peasants (Kirby, 1985).

The brunt of the post-Great Leap Forward crisis was borne by China's rural areas. The excessive urban "pull" of the first decade provoked the powerful "reverse push" of the 1960s and 1970s. As a result, the majority of residents were summarily ejected from the cities. The quite extraordinary reduction in China's total urban size was caused by the mass deportations of the early 1960s and of the years after 1968. From 1961 to 1964, about 30 million people were mobilized to go back to the countryside. The implied net migration loss in 1961 and 1962 was almost 20 million, around 14 million of which took place in 1962 alone. Additionally, the Socialist Education Campaign of 1963-1964 removed millions of people from the cities, most temporarily, but many permanently.

The most severe application of the policy of *shang shun xia xiung* (to the mountains and down to the villages) was yet to come. In 1968, the earlier admonitions to youth were re-emphasized by the leadership at Beijing, in asking young people to go to the countryside to be reeducated by poor peasants and those at the lower-middle economic strata (Bernstein, 1977). Over the next 10 years (1968-1978), around 17 million young people heeded the "great call". If an estimate for the urban population being about 125 million as of 1970 is reasonably accurate, it may be assumed that since the Cultural Revolution about 10 per cent of the urban population had been sent to the countryside under this programme (Bernstein, 1977).

The above numbers would be greatly increased if one takes into account the downward transfer of officials *(gan bu xia fang)*, the dispatch of urban medical workers starting before 1965, and the various dispersals of enterprises and their staff, skilled labourers, and criminal elements since 1949 (Cheng, 1987). For instance, the most successful *gan bu xia fang* in the city of Shanghai followed the Party changes of Spring 1955. On the national level, the major downward transfer of cadres in 1957 coincided with the "anti-rightist" crusade. In the winter of 1960/61, enormous numbers of officials were reported to have been removed to the countryside. Seven coastal provinces alone were able to claim the "sending-down" of half a million. It was the Cultural Revolution which brought *gan bu xia fan* to a completely new level.

Unique urban strategies since the 1980s

It is important to note that in the post-Mao era there have been sweeping changes in China's countryside arising from an official determination to make the shift from basically subsistence farming to a system of highly productive agriculture. The consequences involve the freeing up of several hundred million people from agriculture and traditional rural pursuits. The surplus force will total some 200 million before the end of the century. The *Beijing Review* (1985), quoting the *Guangming Daily,* calls for one-third (400 million) of China's people (both agricultural and non-agricultural) to be living in cities and towns by the year 2000. The big question is where to accommodate this burgeoning non-agricultural population without overburdening the urban sector, and without incurring the high economic costs associated with small-town industrialism.

The essence of the new urbanization strategy has recently been echoed by the Chinese policy makers that "strictly control the development of the large cities, rationally develop medium-sized cities, and vigorously promote the development of small cities and towns" (RMRB, 1980). In China, "large" cities are classified as those with a population of over 0.5 million; those with a population over 1 million are referred to as "extremely large" cities. The large cities were to be greatly encouraged to expand their economic role without significant growth of their population and land areas. With the development of four Special Economic Zones along the south-eastern coast, the strengthening of the Shanghai Economic Region, and the opening of 14 coastal cities to foreign trade and investment, the development pendulum indicates that big cities will continue to play a key role in China's modernization (Goldstein, 1988).

In the strategic urbanization formula put forward in the early 1980s, China's "medium-size" cities were defined as those with a population of between 0.2 million and 0.5 million (about 60 in number, which were singled out for "rational development". As in the case of the larger urban centres, the intention was, as far as possible, to limit the population growth of such cities by taking maximum advantage of their present economic structures in order to increase production. Further industrial development should emphasize the technological enterprises of existing plants, although completely new large-scale enterprises could be built where local conditions were appropriate.

However, one may well ask if the municipalities alone are able to cope with the previously described huge rural surplus labour force? In China, "small cities and towns" generally refer to those with a population of less than 0.2 million. They are large in number and occupy a vast area. They play an important role in enriching the economy of both the cities and rural areas. They help a large portion of the agricultural population to become non-agricultural, and they help to move a certain portion of the population

from the big cities to the small cities and towns. Despite their scale, they may already be the location of large industrial plants. For example, there are small cities and towns that are developed to the point of having their own special identity; some are mining and heavy industrial centres based on local raw material, other small cities are on a tide of rapid growth because of certain specific local factors, and still other small cities play a special role in the national transportation network (Wu, 1981). All these small cities serve to interrupt the flow of rural people who might otherwise migrate to very large cities and thus swell the population of the large cities. Also, because of the large number of small urban places, they help to maintain more balance in the urban system by promoting greater dispersal of the centres of economic growth and thus act as foci for development impulses in rural and lagging areas (Pannell, 1984).

In order to "vigorously promote the development of small cities and towns", several different patterns and roles have been suggested. If the county seats and the other towns grow to an average 50,000 population from their present national average of 15,000, they could accommodate over 110 million additional people. If each township were to add just 1,000 to 3,000 new residents, then 53-159 million extra persons could be accommodated. If only 20,000 of the 53,000 townships absorbed 10,000 people, over 200 million new residents could be accounted for. Were each to add 5,000 people, the total would be 250 million. If all the present townships grew to 10,000 by the end of this century, they could then hold 500 million of China's projected 1.2 billion total population. Along with the 110 million accounted for by the county seats and towns, over half of the population could thus be accommodated by sub-municipal locations (Wu, 1981; Shen, 1982; Cai, 1983).

These speculations indicate the magnitude of likely urbanization scenarios. A serious question arises whether the projections are rooted in reality. Close empirical studies of small towns have made the policy makers realize that more is required than simplistic plans which dwell optimistically on their potential powers of absorption of population. By the early 1980s planners began to pay more attention to the practical problems to be overcome if the small-town strategy was to be realized, e.g. avoiding poor living conditions, chaos in small-town management, shortage of capital for small-town development, problems of small-town enterprise viability (Kirby, 1985).

The policy priority given to the potential value of stronger linkages between rural and small urban places and the even broader networks into which such places fit are evidenced in the Circular of the Communist Party of China Central Committee, issued early in 1984 as Document No.1 on the topic of rural work (Goldstein, 1988). It called for various measures to improve the infrastructure for commodity circulation; stressed the construction of small cities and towns equipped with modern industrial transportation facilities, modern com-

Table 3: Total population and proportion of small towns in the total city and town population since 1982

Year	Number of small towns	Population of small towns (millions)	Proportion (%)
1982	2 664	61.91	29.30
1983	2 786	62.34	25.81
1984	6211	134.47	40.58
1985	7 511	166.22	43.23
1986	–	207.88	47.14
1987	11,103	241.31	47.92

Source: China Population Information Centre, 1988, p. 159; and Guo, 1988.

mercial facilities, and modern educational, scientific, cultural and sanitary facilities, so as to be the progressive base for changing the structure of the rural villages. It also recognized that large and medium-sized cities play a key role in rural development by providing free markets for peasants. Moreover, it emphasized that peasants will be allowed to settle in towns to engage in industry, business and service trades.

Between 1982 and 1983, there has been a total of 50 newly designated cities in China (*Zhongguo Renmin Gongheguo Xingzheng Quhua Jiansi*, 1984). Since the release of Document No.1, 2,900 new towns were established in different places in the country and a total of 10,000 towns are expected by the end of 1990 (RMRB, 1984). According to China's One-per-Hundred Sample Census of 1987, the proportion of the town population in the total city and town population of the country rapidly increased from 24.3 per cent in 1982 to 47.9 per cent in 1987 (table 3).

A successful government-intervention model

Using city and subregional data to construct a Gini Index, primacy index, and two-city and four-city primacy indices, it is possible to examine the efficacy of the Chinese urban policy which was aimed at keeping people out of cities and restricting the increase in the urban population.

One way to look at the distribution of cities by size is to compute and analyze the Gini concentration ratio. The Gini concentration ratio has been widely used for the measurement of concentration (Arriaga, 1975). Figure 3 shows the concentration curves (also known as Lorenz curves) of selected

Figure 3. Lorenz concentration curves for China, selected years
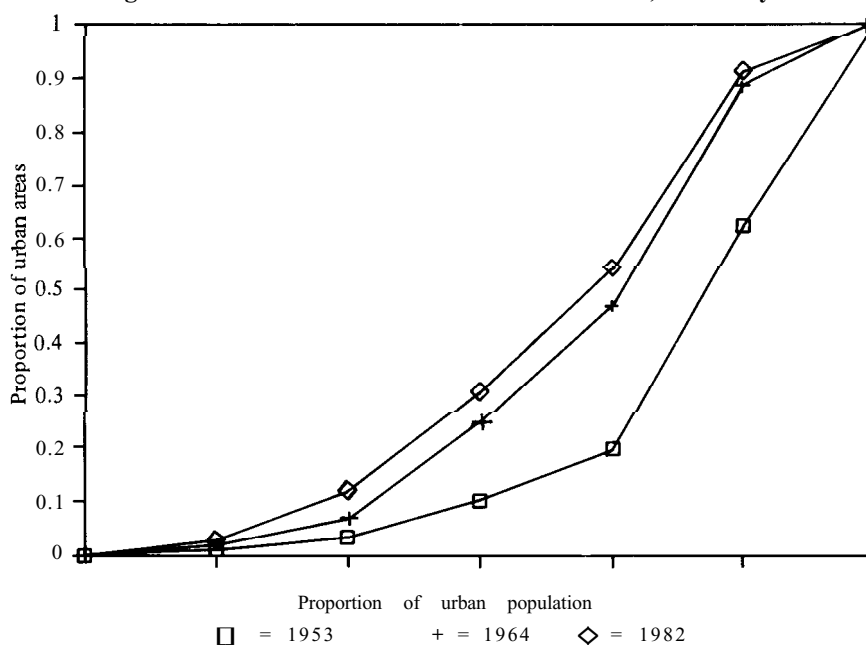
Sources: Compiled by authors from data provided from People's Republic of China. State Population Census Office and State Statistical Bureal, Department of Population Statistics, 1985; and Wei, 1985.

periods for China's urban population. The abscissa represents the cumulative percentage of the population, and the relationship of area and population would be a 45-degree line. A curve that coincides with the diagonal line indicates no concentration. The farther the curve is from the diagonal, the greater the concentration. In all the cases, the distribution of cities in 1953 shows the highest concentration. In contrast, the distribution in 1964 shows medium concentration and the distribution of cities in 1982 shows the lowest concentration. The Gini Index is the ratio of the area between the curve and the diagonal to the area of the triangle above the diagonal line. Thus, the index varies from zero, which is attained when populations are evenly distributed, to almost one, which is attained when the population is concentrated in a very small area (table 4).

Another method of evaluating urban primacy is to compute indices of primacy for different time periods. The urban primacy index values have been

Table 4: City population concentration measured by the Gini Concentration Ratio for population living in urban areas of China, 1953,1964 and 1982

Size of urban area	1953		1964		1982	
	No. of urban areas	Popu-lation	No. of urban areas	Popu-lation	No. of urban areas	Popu-lation
Over 2 million	4	13.97	7	25.80	13	43.76
1 - 1.99 million	5	7.05	9	12.97	25	31.62
0.5 - 0.99 million	16	11.29	34	25.10	47	33.21
0.3 - 0.49 million	10	3.96	30	11.96	48	18.52
0.1 - 0.29 million	68	11.95	69	13.19	89	16.74
Below 0.1 million	63	4.27	19	1.37	22	1.40
Total	166	52.48	168	90.39	244	145.25
	Gini R = 0.591		Gini R = 0.529		Gini R = 0.523	

Sources: Gini Concentration Ratio for 1982 was compiled by authors from data provided by the State Population Census Office and State Statistical Bureau, Department of Population Statistics, 1985, p. 55. The ratios for 1953 and 1964 were computed from the data of Wei, 1985.

Table 5: Index of urban primacy, 1953-1987

Year	Index
1953	0.28
1970	0.23
1977	0.22
1980	0.19
1982	0.17
1987	0.16

Sources: Indexes for 1953, 1970, 1977 were derived from Pannell (1981, p. 106) and 1980 from Pannell and Ma (1983, p. 238). Index for 1982 was computed from data provided by the State Population Census Office and State Statistical Bureau, Department of Population Statistics (1985, p. 58), and index for 1987 was computed from data provided by the China Population Information Centre, (1988, p. 162).

Table 6: Forty Chinese cities with populations over half a million, 1953, 1957, 1970, 1982 and 1987

City	1953	1957	1970	1982	1987
Shanghai	6,204,417	6,900,000	7,000,000	6,320,829	7,220,000
Beijing	2,768,119	4,010,000	5,000,000	5,597,955	6,710,000
Tianjin	2,693,831	3,220,000	3,600,000	5,142,560	5,540,000
Shenyang	2,299,900	2,411,000	2,800,000	4,003,405	4,370,000
Chongqing	1,772,500	–	2,400,000	2,634,492	2,890,000
Guangzhou	1,598,900	1,840,000	2,500,000	3,148,281	3,420,000
Wuhan	1,427,300	2,146,000	2,560,000	3,251,591	3,570,000
Harbin	1,163,000	1,552,000	1,670,000	2,542,832	2,710,000
Nanjing	1,091,600	1,419,000	1,750,000	2,134,198	2,490,000
Qintao	916,800	1,121,000	1,300,000	1,173,872	1,300,000
Chengdu	856,700	1,107,000	1,250,000	2,466,515	2,690,000
Changzhun	855,200	975,000	1,200,000	1,757,083	2,000,000
Xian	787,300	1,310,000	1,600,000	2,196,556	2,580,000
Dalian	766,400	1,508,000	1,650,000	1,478,978	2,280,000
Taiyuan	720,700	1,020,000	1,150,000	1,774,731	1,980,000
Kunming	698,900	880,000	1,100,000	1,425,779	1,550,000
Jinan	680,100	862,000	1,100,000	1,338,107	2,140,000
Wushun	678,600	985,000	1,080,000	1,192,814	1,290,000
Changsha	650,600	703,000	825,000	1,076,413	1,230,000
Zhengzhou	594,700	766,000	1,050,000	1,428,316	1,580,000
Hangzhou	589,000	784,000	960,000	1,191,582	1,290,000
Anshan	548,900	805,000	1,050,000	1,214,571	1,330,000
Tangshan	693,300	800,000	950,000	1,338,296	1,440,000
Wuxi	581,500	613,000	650,000	812,610	880,000
Fuzhou	553,000	616,000	680,000	1,129,251	1,240,000
Shuzhou	474,000	633,000	730,000	673,308	740,000
Benxi	449,000	–	600,000	792,401	860,000
Jilin	435,400	568,000	720,000	1,079,332	1,200,000
Nanchang	398,200	508,000	675,000	1,061,497	1,260,000
Lanzhou	397,400	699,000	1,450,000	1,416,371	1,420,000
Shijiazhuang	373,400	598,000	800,000	2,066,332	1,220,000
Shuzhou	373,000	676,000	700,000	779,289	860,000
Qiqihar	344,700	668,000	760,000	1,224,113	1,330,000
Huenan	286,900	370,000	600,000	1,025,077	1,110,000
Guiyang	270,900	504,000	660,000	1,319,432	1,430,000
Nanning	194,600	264,000	550,000	862,732	1,000,000
Zibo	184,200	806,000	850,000	2,196,556	2,370,000
Hefei	183,600	304,000	630,000	821,812	930,000
Loyang	171,200	–	580,000	975,764	1,090,000
Baotou	149,400	650,000	920,000	1,070,481	1,130,000

computed on the basis of the population of the largest city (Shanghai on all six dates) as a percentage of the total population of the 10 largest cities (Arriaga, 1975). Table 5 shows that Shanghai's position as a primate urban centre has consistently and rapidly declined since the 1950s. In 1953, the population of Shanghai accounted for one-third of the total of the 10 largest cities and by 1987 it was one-sixth. Its substantial decline from 1953 to 1987 reflects the Government's policy of spreading growth to other regional centres in the system in spite of the fact that Shanghai remains the most efficient city in terms of industrial productivity in China today (table 6).

Since the early 195Os, with little transport linkages and poor trade relations, several neighbouring provincial capitals have almost simultaneously become cities of over one million population in recent years. Such growth is exemplified by interior cities such as Zhengzhou, Chong-qing, Xian, Teiyuan and Lanzhou. The population of Lanzhou, for instance, has increased three times as fast since 1949 as prior to that time. Table 6 also clearly indicates that there appeared to be substantial containment of growth in the very largest cities (Shanghai, Beijing and Tianjin).

The two-city and the four-city indices for 25 provinces seem also to attest to the above findings (table 7). Both the two-city and the four-city indices are related to the rank-size rule. In terms of the former, the largest city is equal to the population contained in the second-ranked cities. The two-city primacy index measures the population of the largest city divided by that of the second largest city. The greater the index values, the greater the concentration in the largest city (Arriaga, 1975). Other comparisons between the largest city and the next three largest cities can also be made. The four-city index is the proportion of the largest city divided by summation of the second-, third- and fourth-ranked cities. This procedure may give a better measure of the primacy of the largest city since more cities are included. With regard to the primacy index for four cities, again, the greater the quotient, the greater is the concentration of the population in the first city in relation to the next three cities.

According to table 7, in 1953, there were 13 out of 25 provinces with a four-city index considerably above 1. In sharp contrast, only six provinces retained that status in 1982. For those provinces, there is a consistent trend in the two-city index. During the period 1953-1982, almost all provinces underwent a substantial decline in both the two-city and four-city primacy indices. This fact once again indicates that the Government's policy of spreading growth to other regional centres in the system had some success.

Further examination leads to the finding that in 1982, the high four-city primacy characterizing those provinces was related to their less developed

Table 7 : Two-city and four-city primacy indices for 25 provinces in China, 1982

Province	Two-city Primacy Index		Four-city Primacy Index		Population growth rate of capital city
	1953	1982	1953	1982	
Hebei	1.856	1.089	0.867	0.742	0.80 (Shijiazhuang)
Shanxi	3.154	1.834	1.431	0.949	1.83 (Taiyuan)
Inner Mongolia	1.007	1.442	-	0.830	0.69 (Huhehot)
Liaoning	1.799	2.707	0.915	1.030	2.71 (Shenyang)
Jilin	1.964	1.628	1.249	0.696	1.63 (Changchun)
Heilongjiang	3.373	2.077	1.811	0.910	2.08 (Harbin)
Jiangsu	1.876	2.962	0.764	1.696	2.63 (Nabjing)
Zhejiang	2.933	1.076	1.223	0.349	2.54 (Hangzhou)
Anhui	1.134	1.247	0.423	0.558	1.80 (Hefei)
Fujian	2.465	2.213	1.338	0.852	2.21 (Fuzhou)
Jiangxi	4.038	1.154	1.559	0.634	2.09 (Nanchang)
Shandong	1.348	1.668	0.970	0.580	1.14 (Jinan)
Henan	1.988	1.464	0.928	0.684	2.36 (Zhengzhou)
Hubei	12.918	7.524	5.012	2.923	7.53 (Wuhan)
Hunan	2.768	1.097	1.192	0.541	2.79 (Changsha)
Guangdong	5.702	3.631	2.749	1.574	9.40 (Guangzhou)
Guangxi	1.226	1.474	0.469	0.681	1.47 (Nanning)
Sichuan	2.069	1.068	1.233	0.613	0.94 (Chengdu)
Guizhou	–	1.584	–	1.118	0.63 (Guiyang)
Yunnan	3.56	4.340	1.826	1.844	5.94 (Kunming)
Shaanxi	6.052	4.416	2.828	1.727	5.82 (Xian)
Gansu	4.781	7.596	1.897	2.970	17.40 (Lanzhou)
Qinghai			–	–	9.99 (Xining)
Ningxia	–		–	–	1.19 (Yingchuan)
Xinjiang	1.300	1.742	0.615	0.913	5.67 (Urumqi)

Sources: Index for 1953 was computed from data provided by SSB, 1988, pp. 40-79; index for 1982 was compiled from data provided by the State Population Census Office and State Statistical Bureau Department of Population Statistics, 1985, pp. 64-85.

condition. Chang (1976) found that "primacy increased in less developed provinces". The three provincial capitals, namely Lanzhou (Gansu), Xining (Qinghai) and Kunming (Yunnan), with a primacy index greater than 10 (more than 10 times the size of the second city), were all located in inland provinces.

Conclusions

The level of urbanization in China is low in comparison to many developing countries and all developed ones. The rate of urbanization has fluctuated at relatively low levels but overall in a positive direction. The total urban population of China is massive. Where China's experience of urbanization is unique rests on the Chinese Government's uncompromising command over human resources which has enabled over-urbanization to be temporarily overcome.

Since 1950, there have been many policy and programme initiatives explicitly addressing the urbanization process in China. Our evidence consistently indicates that the Chinese Government has succeeded in its policies and measures aimed at keeping people out of cities and restricting the increase in urban populations. These have been instrumental in keeping the urbanization processes under control and hence avoiding some of the urban nightmares that have been associated with the exploding urban centres in most third world countries.

The example of China shows clearly that accelerated, uncontrolled urbanization is not a necessary evolution determined by the level and pace of development, and indicates that central planning can work in controlling demographic processes. However, on the other side of the coin, China's restraint of urban growth has not been without costs. During the 1960s and 197Os, sending so many urban people to the countryside — many in unproductive employment — constituted "over-ruralization".

However, China has no alternative to monitoring closely its population and urban situations. The adoption of measures and policies consciously or unconsciously to control population migration has obviated the alternative mass miseries epitomized by shanty-town existence, unemployment, hunger and disease. Indeed, in the particular case of China, the benefits appear to outweigh the costs.

We believe that because of its uniqueness, the experience of China's urbanization model needs to be shared with other developing countries. At the same time, it could be beneficial for the third world to look closely and carefully at China's urbanization process. There is much to be learned.

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