

*Urban Labour Market Segmentation: Some Observations Based on Wuhan Census Data**

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Abstract

In the Chinese urban labour market, the *hukou* system has long been an important institutional barrier in preventing rural labour from taking up urban occupations. Most migrants can find jobs only at the lower end of occupation queues, and this results in a *hukou*-based segregated labour market. As market-oriented reform expands further to most urban industries, more and more jobs are open to both rural and local residents. The 2000 census data for Wuhan city indicate that outside workers are most active and more flexible with regard to industrial structural changes. The current segregation pattern has not been changed: outside and local workers are channelled into different industrial strata as before. There is still a long way to go in forming an integrated urban labour market and, consequently, an integrated society.

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Introduction

As an important part of the centrally planned economic system, the *hukou* system has long been a major means of protecting the urban labour market from being accessed by rural labour. Since the reform and opening to the outside world in 1978, the urban economy has been growing fast and has produced large volumes of new jobs. Urban workers benefited from the economic expansion first, and experienced upward job shifts, while unwanted vacancies for low-skilled jobs were left largely to rural migrants. At the same time, restrictions on the mobility of the population have been greatly reduced, which has made it possible for the huge surplus of rural labour to move in search of jobs. As a result, millions of rural labourers have poured into urban and coastal areas. Though many of them have settled down in their new locations, most of them do not acquire local *hukou* registration status, and they are becoming a rapidly growing special social group. This has drawn much attention from scholars.¹ Early research observed that large parts of the rural labour force had been channelled into the low end of the urban labour market along the *hukou* line, forming a segregated labour market with distinctly Chinese characteristics. Ding and Zhao found that some traditional industries and enterprises employed large numbers of rural labourers in key positions;² Yang found differentiated industrial distribution patterns of local residents and “temporary residents” on a national scale by using the census data.³ Other research has also shown that the costs of local labour are far higher than those for outside labour,⁴ and the wage determinants are remarkably different between urban labour and rural labour even in the same industry.⁵ Chan and Cai summed up the urban labour market as a two-circuit system.⁶

In recent years, the *hukou* system has been undergoing some reforms, and the quantity of rural labour in major urban areas has reached remarkable proportions. As a result, the role of outside labour and its influence on the urban labour market is becoming greater. The state-owned sector, or the protected labour market, has been shrinking steadily; on the other hand, the open labour market, which consists of non-state owned sectors and the self-employed, has been increasing rapidly. As Cai summarized the situation, the open labour market provides relatively equal chances for both local and outside labour to take up jobs, resulting in increased employment competition over a wide range of industries.⁷ Outside labour has become an important competitive force in certain industries.

Are the changes large enough to form a uniform urban labour market? This is the question on which this research note plans to throw some light, by using the latest Census microdata for Wuhan to which we have access. We will construct industrial/occupational distributions along *hukou* lines, based on a 1% sample of the 2000 Census data for Wuhan and analyse the degree of segregation in the urban labour market by use of a dissimilarity index.⁸ The article concludes with some policy implications.

Segmentation of the Urban Labour Market: Institutional Background

Under the previous highly centralized planned economy system in China, labour allocation among industries and regions was one of the key elements of national and regional economic planning. Free migration of individual labourers was highly discouraged or even suppressed. Peasants who moved into cities or other provinces on their own initiative were often considered a “blind flow,” and most of them were repatriated to the place of their *hukou* registration. The *hukou* and the planned economy system divided the whole society, including the labour market, into many parts, forming a multiple-segmented social unit. Some Western scholars even doubt if there was a labour market in China at all. But from the point of view of negotiating supply and demand for the labour force, a labour market existed everywhere, and planning and the market mechanism are both measure for doing this. Now based on different institutions, the segmentation of the urban labour market is described below.

One type of segmentation is based on *hukou* type and registration place. The *hukou* system is of relevance to the labour market in two respects: first, the system divides the population into the two major types of non-agricultural population (mainly in urban areas) and agricultural population (mostly in rural areas). Urban society is an isolated welfare society. Urban residents were provided with commodity grain, housing, full employment, health insurance, etc. until early 1990s while the agricultural population earned their own living on their own collective units, such as the People’s Communes. Change of *hukou* type must meet harsh conditions under the strict control of quotas. The labour force was supposed to be allocated within their own system. Second, the place of *hukou* registration fixed a person to his/her parents’ registration place: transfer from one place to another was subject to a strict application process. A person who

lived in a place other than his/her *hukou* registration location was (and still is) called a “temporary resident” and was not classed legally as a member of the destination community. As a result, the *hukou* system splits the whole population into two social groups with unequal rights and duties.

Ownership of enterprises is another important institutional arrangement that divides the urban labour market into segments. Jobs in the state-owned enterprises are mainly controlled by local governments. The state-owned enterprise sector is highly protected, while other sectors are more open and competitive. We can identify two labour markets with different operating mechanisms: one is the market with rigorous control of outside labour and high protection for local labour, represented by the state-owned sector. Access to it is strictly controlled, although it is becoming easier for employees to quit. It is a labour market with high stability and less competition, and the average wage level does not reflect the dynamic relationship of supply and demand of the labour force. Workers are usually over-paid. The other labour market is less affected by institutional barriers, and mainly consists of non-state-owned sectors and self-employment. This market is characterized by its openness and competitiveness.

Other institutional factors that have split the labour market include the administrative system. Professionals belong to the system of personnel administration, and ordinary labourers to the system of labour administration. Ordinary labour, even highly skilled, cannot transfer into the personnel system easily. In addition to the personnel and labour administrations, the work unit and its related system also have a strong influence on the urban labour market segmentation.

One of the most important changes to the *hukou* system in recent years has been that many small towns have relaxed the restrictions on *hukou* in-migration. Many towns have been fully open to the outside population in *hukou* migration. In some large cities too, restrictions on *hukou* migration for some kinds of population, such as those who with college or higher degrees, or those who invest in real estate and industry in the destination areas, have been removed. The reform measures have expanded space for the outside population, and the rapid growth of the non-state-owned economy has also produced more room for outside labour. These changes have generated a significant increase of in-migration to urban areas. Some researchers have argued that even with these changes, the *hukou* reforms have not dramatically changed the segmentation situation. We shall take Wuhan as an example with which to examine our hypothesis.

The Growth of Outside Labour and Changes of Employment in Wuhan

Wuhan has long been a major industrial city in China. Ever since 1949, Wuhan has received large-scale investment from central government in the heavy industry and infrastructure sectors. The city also has a good location, and a well-developed education sector. These factors turned Wuhan into quite a magnet for migrants. In the last century, the population of Wuhan grew steadily and reached 8.03 million in 2000. As the capital of Hubei province, Wuhan not only has a large population, but also certain particular characteristics, such as a large number of immigrant workers, a high proportion of SOEs and laid-off workers, and well-developed commerce.⁹

One important fact is that the population of “temporary migrants” (those without local *hukou*)¹⁰ in Wuhan has increased very rapidly over the past decade. The 1990 Census data show that the total population of temporary migrants was 350,000 in 1990, accounting for 5.94% of the total population, whereas the percentage had been only 1.89% in 1982 (Table 1). The growth was even more rapid in the 1990s, and by 2000 the number

Table 1: Population and Temporary Residents in Wuhan

	1990		2000		Growth rate(%) 1990–2000	
	Whole city	City proper*	Whole city	City proper	Whole city	City proper
Total population (thousand)	6903.14	3741.07	8037.40	4812.28	16.43	28.63
Temporary residents (thousand)	353.93	297.16	2200.04	1835.66	521.60	517.73
Percentage of temporary residents (%)	5.13	7.94	27.38	38.15	433.72	380.48
Total employment (thousand)	3937.68	2140.57	3740.83	2022.61	–5.00	–5.51
Labour participation rate (%)	57.04	57.22	46.54	42.03	–18.41	–26.55

* In Wuhan the city proper consists of 7 districts: Jiang'an, Jianghan, Qiaokou, Hanyang, Wuchang, Qingshan and Hongshan.

Source: Wuhan Statistical Bureau, 2002 & 1992, tabulations of Census 2000 and Census 1990 for Wuhan.

of temporary migrants had reached 2.20 million, accounting for 27.38% of the total population.

A number of factors contributed to the increase in temporary migrants. Firstly, local employment policy and industrial structures were important determinants. Of the large cities in China, Beijing and Shanghai generally have more rigorous restrictions on population movements from outside, while other large cities, including Wuhan, are more open to outside labour. Local government also relaxed its employment policy, which had hitherto discriminated against outside labour by means such as introducing a quota system to control the number of rural workers which enterprises were permitted to take on in the early 1990s, and publishing a catalogue of occupations to protect certain kinds of jobs from being taken by outside workers. But as the decline of state-owned enterprises accelerated from the mid-1990s with the deepening of the reforms, more and more outside labourers were able to find jobs in the fast-growing competitive sectors or self-employment, and the restricted employment policy in fact had little effect on the employment replacement process. As a result, the number of city wards has kept growing steadily in the past decade, as more and more migrants come into the city seeking jobs in the industrial and service sectors.

Second, there has been a change in the method of collecting statistics: the duration of stay in the registration site has been reduced from one year to six months; and the population of intra-city migrants has been included in this census. We know from the census questionnaire that there are multiple choice questions that separate intra-city migrants from outside migrants (Table 2), and in this study those who moved within the same county (Question 6, item 3) or from another street in the same city (Question 6, item 6) will be identified as intra-city migrants. As shown in early research the scale of intra-city mobility was remarkable, with more than 40% of the “temporary migrants” in fact coming from within the same city.

Obviously, the intra-city movers are different from outside workers in many respects, and their social characteristics are actually similar to those of local residents. In this paper, we divide urban labour into three groups, the first is made up of local residents with local *hukou* registration, the second group contains those who have no local registration status but come from another street in the same city (i.e., Question 6, item 3 and item 6: this group is growing rapidly as the city expands and undergoes renovation), and the third group includes those who came from outside of the city and

Table 2: *Hukou* Registration Place of Temporary Residents in Wuhan in 2000

	Whole city	City proper
1. Another village in the same county	0.18	0.13
2. Another town in the same county	0.29	0.11
3. Another street in the same county	0.44	0.39
4. Another village in the same city	6.99	6.19
5. Another town in the same city	6.64	4.32
6. Another street in the same city	40.76	42.63
7. Another county or city proper	33.36	34.84
8. Another province	11.33	11.38

Note: The 8 items in the Table are from Question 6, long form of the Census 2000.

still retain their *hukou* in the original place. These are truly “outside labour” in the original meaning of the phrase. In the following context, outside labour refers only to the third group.

As the number of outside workers grows, another recent trend is especially worthy of attention. The census data show that total employment in Wuhan decreased in the 1990s. This is quite puzzling, considering the growth of the economy at the same time. Though the statistical methods are not exactly the same with regard to employment, total employment lost almost 118,000 jobs in the last decade. Examining the changes by sector, as in Table 3, one can see that the manufacturing sector lost 355,000 jobs, and it ranks first both in stock and change rate. Obviously, the sector accounted for most of the total employment losses. Other sectors which suffered employment losses include the construction sector, and the transportation and telecommunications sector. Employment in the commercial and catering sector gained nearly 183,000 jobs, but this cannot offset the huge losses in other sectors. Can the workers pushed out of the manufacturing sector shift into other expanding sectors? This is a question which has important policy implications in such a major industrial transition process, which is common in many parts of rapidly changing East Asia.

The interesting thing is that on the one hand, outside labour is pouring in; but on the other hand, total employment is actually decreasing. We can inevitably draw the conclusion that a large volume of local labour has exited from the labour market. As Table 4 shows, the average percentage of outside labour in the city proper has reached 27.26%, and in some sectors the rates are even close to 50%, so employment replacement by migrants certainly seems to be occurring. Two questions then arise: which industry does the outside labour go into? Does the decrease in employment

Table 3: Change of Employment by Sector in Wuhan in the 1990s

	Total employment in 2000 (thousand)	Total employment in 1990 (thousand)	Growth rate (%)
Agriculture	103.84	114.91	-9.63
Manufacturing	589.41	944.05	-37.57
Construction	103.61	160.32	-35.37
Geological prospecting and surveying	12.56	4.92	155.39
Transportation and tele- communications	138.58	150.91	-8.17
Commercial and catering	486.60	303.82	60.16
Monetary and insurance	37.35	15.87	135.39
Real estate and social service	199.38	101.44	96.55
Health, sports and social welfare	60.18	56.05	7.36
Education, art, broadcasting and television	146.69	147.03	-0.23
Research and technology	39.82	36.52	9.02
Administration, party and social groups	96.44	104.70	-7.89
Others	8.15	0.03	30085.19
Total	2022.61	2140.57	-5.51

Note: The industry division of Census 2000 is slightly different from that of Census 1990 and two adjustments have been made according to the divisions of Census 1990 in this table. The mining sector, and the electricity, gas and water supply sector are included in the manufacturing sector, and the social service sector has been combined with the real estate sector.

Source: Wuhan Statistical Bureau, 2002 & 1992, tabulations of Census 2000 and Census 1990 for Wuhan.

result from increasing replacement by outside labour, i.e., employment replacement of local labour by outside labour?

Segregation of the Labour Market: New Evidence

Studying the industrial composition of employment, we observed remarkable differences between local and outside labour. More than 40% of outside labour is in the commercial and catering sector, while local labour finds jobs in the manufacturing sector first. Another remarkable difference

Table 4: Industrial and Occupational Composition and Percentage of Labour in 2000 (%)
(Wuhan, City Proper)

	Composition			Outside labour as percentage of total labour
	I. Local resident	II. Intra-city mover	III. Outside labour	
By industry				
Agriculture	6.48	0.98	4.39	24.39
Mining	0.05	0.14	0.15	44.44
Manufacturing	29.00	25.72	26.90	26.35
Electricity, gas and water supply	2.07	2.10	0.48	7.90
Construction	3.88	3.47	7.60	42.96
Geological prospecting and surveying	0.78	0.76	0.02	0.88
Transportation and tele- communications	8.11	9.80	2.78	10.88
Commercial and catering	16.01	19.69	42.77	48.63
Monetary and insurance	2.13	3.44	0.35	5.03
Real estate	1.14	1.56	0.49	12.92
Social service	8.13	9.61	9.52	29.55
Health, sports and social welfare	3.53	4.01	1.02	9.52
Education, art, broadcasting and television	9.61	8.49	1.90	7.10
Research and technology	2.77	1.77	0.46	6.38
Administration, party and social groups	5.84	7.65	1.12	6.23
Others	0.47	0.79	0.05	3.61
Total	100	100	100	27.26
By occupation				
Administrative and managerial	5.90	6.70	6.80	29.61
Professional and technical	21.70	23.60	4.00	6.26
Clerical	14.50	16.20	4.10	9.30
Sales and service	21.30	24.70	49.30	45.41
Industrial workers	6.50	1.30	4.10	22.94
Farm workers	30.10	27.50	31.60	28.62
Unclassifiable	0.00	0.10	0.00	16.67

Source: Tabulation by the 1% sample of the Wuhan Census 2000.

exists in the service sector, where most outside labour is in the traditional service sectors like retail and catering, while local labour occupies more positions in the modern service sectors with a higher human capital threshold or policy threshold. Similar patterns are observed in occupation composition, and we believe these patterns clearly result from the current labour market segmentation.

From the above two tables, we conclude that Wuhan has experienced a major transition of industrial structure. With economic growth and further diversification of city activities, employment in manufacturing has been shrinking steadily and pushing large numbers of people out of this sector, while the service sector has expanded rapidly. Results from the above show that outside labour is more sensitive to the economic transition and has been responding positively to the changes in employment.

The growth of outside labour and the decrease of total employment have not changed the pattern of labour market segmentation. Below we use a dissimilarity index (DI) to compare the composition patterns of local labour and outside labour quantitatively. The index is as follows:

$$DI = \sum |x_i - y_i|/2$$

x_i and y_i are the industrial composition of labour, the sum of each separately is 100%, i.e., $\sum x_i = 100$, $\sum y_i = 100$. The value of the DI is between 0 and 100. Value 0 denotes that the two groups have identical patterns of composition, while 100 denotes that the two groups have contrary patterns. Ellis and Wright used this index to study the industrial division of labour among immigrants and internal migrants in the Los Angeles labour market and found it useful.¹¹

Applying the DI to all groups of workers in Wuhan by industry and occupation separately, we have the results in Table 5, which shows that the difference between type I and type II is negligible, while the differences between type III and both type I and type II are much higher. From the DIs, we conclude that local labour and intra-city movers belong to the same category, while outside labour is in another stratum regarding their employment structure. This is important evidence which supports the segmentation hypothesis.

We can also apply the DI to study the occupation structure of laid-off workers and compare them with other workers.¹² Of the DI's in Table 5, the largest one is that between outside labour and laid-off workers, while the other two DI's are relatively small. The index again confirms that the

Table 5: Dissimilarity Index of Industrial and Occupational Composition in 2000
(Wuhan, City Proper)

	I. Local residents		II. Intra-city movers		III. Outside labour	
	Industry	Occupation	Industry	Occupation	Industry	Occupation
I. Local residents	–	–	16.10	10.99	49.36	51.07
II. Intra-city movers			–	–	48.08	48.91
III. Outside labour					–	–
Laid-off workers		36.57		35.63		43.25

occupations of outside labour are quite different from the occupation pattern of laid-off workers.

Discussions and Policy Implications

This empirical study has analysed the segmentation in the urban occupational structure and evaluated the degree of competition for jobs between migrants and locals by using the latest census data and dissimilarity indexes. Our research shows that the scale of outside labour is now considerable, and economic reforms have substantially reduced rural/urban segregation by relaxing the controls on labour migration, while urban segregation still exists between labour migrants and urban native residents. The *hukou* system is not just a system of population registration, it is also a social and economic system of differentiated treatment. From our analysis of cross tabulations and dissimilarity indexes, it is clear that the 2000 Census data show obvious differences between the composition and distribution patterns of local residents and outside workers. More outside workers are finding jobs in newly established industries, as some other studies have indicated, and outside labour is in a different employment strata.¹³

Harris and Todaro noticed the fact that rural labour continues to flow into the cities steadily, despite high urban unemployment rates in the urban labour market in developing countries.¹⁴ The situation in Wuhan has a similar appearance but is different in nature. According to the dual labour market theory, the presence of the segmentation between labour migrants and local residents in large cities is caused by a shift in the industrial functions of large cities, which in turn generates demand for cheap migrant labour to serve the city elites. In China, segmentation has a more institutional significance, In the Chinese urban labour market, the *hukou* system has played an important role in channelling labour into segmented labour

markets. Most rural labour can only find jobs at the low end of the occupation queues in the urban labour market, forming a *hukou*-segmented labour market. As the market-oriented reforms expand further to most urban industries, more and more jobs are open to competitors among both rural and local residents. Employment conflicts also emerge in the transitional urban labour market.

Though *hukou* and other institutional factors are special to China, other factors, include gender and human capital endowments, are also important in determining migrants' employment status and wage level. Our earlier research in Wuhan has shown that the gender variable has a significant effect on the wages of all groups.¹⁵ One possible explanation is that women are discriminated against simply on the basis of their gender; it is also possible that low-skilled jobs, which often involve some work using physical strength, tend to pay men better because of that. With respect to the human capital variables which affect wages, the effect of education level is significant. It could be that in the low-skilled competitive sector, skills and experience are more important than education for the jobs. Training is also significant. Those with training, of any sort, are able to earn higher wages.

We also noticed similar structural changes in other major cities in China.¹⁶ Employment replacement occurs not only between local and outside labour in cities, but also between the coastal and the central regions. As labour-intensive industries boom in the coastal regions in the process of economic globalization, the newly-produced employment opportunities will replace the existing employment in the central provinces, resulting in job losses in the region. With the further deepening of China's reform and opening to the outside, it is impossible to avoid the large-scale reallocation of labour resources. A great number of rural labourers will move out of traditional agriculture, leave their villages and move to large cities where the jobs are. This will further intensify the competition in urban labour markets. Regional disparity and employment conflicts will be among the most important and pressing problems in the next few years.

The growth of outside labour in the urban labour market is important in improving the efficiency of the urban labour market, and strengthening the comparative advantage of productive factors. But the fast-growing open labour market may also be detrimental to the benefits of local residents. As a solution, the central government may consider a policy of gradually creating a uniform and competitive open urban labour market. In the short run, in order to maintain urban social stability, it may be

necessary to implement certain limited protectionist measures. But from a long term perspective, this type of approach at the sector level may not be the most desirable, as it may stifle competition in the labour market at the expense of efficiency. Protection often invites more protection. Alternatively, China may want to consider a policy of gradually creating a uniform labour market while at the same time setting up comprehensive social security measures (such as unemployment insurance) to deal with labour adjustment problems in the market-oriented transition.

Notes

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7. Ibid.
8. The microdata is a 10% sample drawn from the original long form data of Wuhan Census 2000 based on a fixed-distance rule. As the long form covers 10% of the total population, our dataset is roughly 1% of the total population of Wuhan.
9. Yang and Chan (Note 5).

10. Including the population which stayed put for over one year while away from their *hukou* registration place; and the population which stayed at their destination for less than one year but were away from their *hukou* registration places for over one year. See Note 3 for details.
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