

# Wage Discrimination and the Hukou System in China: Survey-based Analyses for Manufacturing Workers in Pearl River Delta

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## Abstract

This paper will focus on wage discrimination between migrant workers and workers who have urban household registration status in the Chinese urban labor market. It will take as a case study migrant workers who work in the manufacturing industry in the Pearl River Delta. The Chinese special household registration system, which is an important cause of wage discrimination, will be analyzed by using data from field surveys conducted by the author.

There are three objectives of this paper. The first is to show the current situation of manufacturing migrant workers in China. The second objective is to ascertain the factors that influence wage decisions; the Mincer equation and Blinder-Oaxaca decomposition will be used to test the effect of the Hukou status. The third objective is to advance policy suggestions as to how to solve this serious issue.

**Key words:** Hukou, Nong Min Gong, Wage Discrimination

## 1. Introduction

### 1.1 Chinese Household Registration System — Hukou System

China has a special household registration system called the Hukou system, implemented from the 1950s.<sup>1</sup> It is a very important system in China as various policies are related to it. Based on the Hukou system, Chinese people have been divided into two categories: rural registration Hukou and non-rural (urban) registration Hukou. Most of rural Hukou residents are farmers.

There are three major reasons for the Chinese government to have built the Hukou system. The first is historical: the shortage of food. The Great Leap Forward started from 1958, aimed to promote the Chinese economy with “Heavy-industry development strategy”. However, because of the lack of technology, most of grain and steel produced was wasted. Moreover, the amount of labor diverted to steel production and construction projects led to that much of the harvest was rot uncollected. When the Great Leap Forward collapsed in the 1960s, the devastating famine left at least 30 million Chinese

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people dead. The Chinese government had to manage the ration of food and the Hukou system made it easy to do so.

The second reason is an economic one: the lack of urban infrastructure. Migration from rural to urban areas continued from the 1950s. It affected not only the rural areas, but also the urban areas. Most importantly, the infrastructure of urban areas in China was not ready for the migrants. Therefore, Chinese government controlled rural-urban migration by using the Hukou system.

The third is a political reason: priority to urban areas. Because the Chinese government wanted to guarantee the supply of daily commodities such as food for city inhabitants and cheap agricultural products to the industrial sector, the policy of “rational low wage” was approved at the end of 1957. The price of agricultural products was set very low and rural people were tied to the land.

According to the Hukou system, the rights of ordinary Chinese citizens to choose their permanent place of residence, social services, and enjoy protection of the law, have been limited. Urban residents received preferential employment opportunities, favorable educational quotas, and old-age pensions, etc. Hukou status, and the accompanying right to these benefits, is inherited at birth. And unfortunately, it is difficult for rural residents to change Hukou status from rural-Hukou to urban-Hukou. Although some Hukou reforms have been taken in recent years, there are still some strict limitations.

From July 1985, the Ministry of Public Security (MPS) stipulated that people who reside for more than three months in urban areas have to apply for a Temporary Resident Permit. This marked the beginning of temporary migration and of the granting of permission to reside in urban areas.

From 1992, some local governments such as Guangdong, Zhejiang, Shandong, Shanxi province, started the Blue Stamp Hukou policy. Migrant people were permitted to earn an urban Hukou status by investing large sums of money in urban areas.<sup>2</sup>

From July 1997, the State Council of China (SCC) initiated an experimental program to allow rural migrants who have stable job (or a stable source of income) and stable place of residence in designated small towns and cities to obtain urban Hukou.<sup>3</sup> From 2001, this program was expanded to include all small towns and cities in China.

From December 2004, the SCC issued a directive to eliminate discriminatory measures that limit employment prospects for migrants in urban areas. However it is still difficult for farmers to change their Hukou status from rural to urban, especially in big cities.

Therefore, the Chinese labor market in urban areas has been split into dual markets according to the Hukou system. Compared with workers who have urban Hukou status, rural migrants have not been able to obtain fair treatment in urban areas. They have to face discrimination in employment, wage, social insurance and welfare, etc. In this paper, the relationship between wage discrimination and the Hukou system will be analyzed using a database collected in a series of field surveys conducted by the author in the Pearl River Delta.

## 1.2 Chinese Rural-Urban Migrant Workers-NMGs

China started its “Reforming and Opening” from 1978 and has made remarkable progress. According to the National Bureau of Statistics of China (NBSC, 2010), the Gross Domestic Product (GDP) grew 9.9% per year on average from 1978 to 2009, and the urbanization rate has risen from 18% in 1978 to 47% in 2009.

Petty-Clark’s Law states that with the process of economic development, labor force will move from the primary sector to the secondary sector, and then to the tertiary sector. These phenomena can also be seen in China. Because of the income gap between rural and urban areas, and the enormous surplus of the rural labor force, rural-urban migration increased rapidly, especially from 1989. An increasing number of farmers leave their hometowns to work in non-agricultural sectors in urban areas and earn income mainly from wages. They are called Nong Min Gong<sup>4</sup> (NMG), which in Chinese literally means “factory worker with rural-Hukou status”.

China cannot maintain the high-speed development without the great contribution of NMGs. According to NBSC, until 2008, the total number of NMGs was more than 140 million. In 2006, NMGs accounted for 46.7% of total employment in urban areas (Cai, Du and Zhao, 2007). Their main occupations were manufacturing industries and construction, accounting for nearly 30% and 23% respectively in 2004 (Research Office of the State Council, ROSC, 2006).

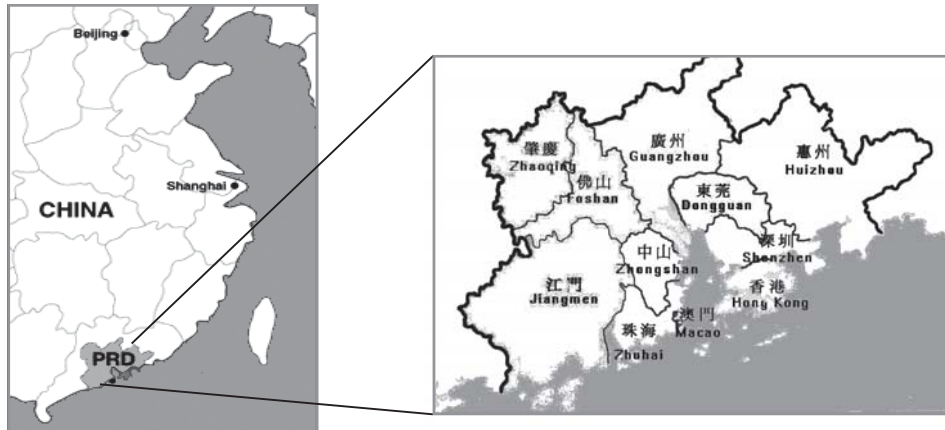
Nowadays NMGs are indispensable to China’s economy. However, they are a marginal and vulnerable group in the cities. They could not be treated as urban residents. They have to bear discrimination, including employment discrimination, wage discrimination, and social welfare discrimination. Their work can be described as 3D: Dirty, Dangerous and Demeaning. The governments in the cities usually set a limitation on the number of NMG that enterprises can employ. According to the field survey, which conducted by the author, the ratios for NMGs that have medical insurance, injury insurance, housing subsidy, unemployment insurance and pension are lower than that of urban-Hukou workers. A key factor leading to them being employed in such job is their rural household registration status.

## 1.3 NMGs in Pearl River Delta

Guangdong province, which is located in the southernmost part of China, is one of the most developed areas in China. From 1979, inside this area, Shenzhen, Zhuhai and Shantou cities were established to be Special Economic Zones (SEZ). According to NBSC (2010), the Gross Regional Product (GRP) of Guangdong in 2009 was 3908 billion RMB, representing 12% of the national GDP.

Also, Guangdong province receives the largest number of NMGs. According to the 6<sup>th</sup> National 1% Population Sampling Survey (1%NPSS) which was conducted in 2010, NMGs working in the Guangdong province accounted for more than 30 million people, and those coming from other provinces accounted for nearly 69% of the total. The ratio of NMGs working in the secondary and

Figure 1 The Map of Pearl River Delta



Source: The maps are edited by the author based on [http://www.google.com.hk/imgres?q=Pearl+River+Delta+Map&hl=en&newwindow=1&c2coff=1&safe=active&client=aff-cs-360se&tbm=isch&tbid=YcxEw7OkYD\\_3lM:&imgrefurl=http://www.hktrader.net/](http://www.google.com.hk/imgres?q=Pearl+River+Delta+Map&hl=en&newwindow=1&c2coff=1&safe=active&client=aff-cs-360se&tbm=isch&tbid=YcxEw7OkYD_3lM:&imgrefurl=http://www.hktrader.net/); and [http://www.google.co.jp/imgres?q=Pearl+River+Delta+map&hl=ja&lr=lang\\_ja&sa=X&tbs=lr:lang\\_1ja&tbm=isch&prmd=imvns&tbid=icxQQ72c2lWM:&imgrefurl=http://www.cityu.edu.hk/](http://www.google.co.jp/imgres?q=Pearl+River+Delta+map&hl=ja&lr=lang_ja&sa=X&tbs=lr:lang_1ja&tbm=isch&prmd=imvns&tbid=icxQQ72c2lWM:&imgrefurl=http://www.cityu.edu.hk/)

tertiary industries was 55% and 42% respectively in 2006 (SCC).

Within Guangdong province, there are 9 cities: Guangzhou, Shenzhen, Zhuhai, Foshan, Jiangmen, Dongguan, Zhongshan, Huizhou and Zhaoqing. Since 1994 these 9 cities have collectively been known officially as “Pearl River Delta” (PRD). Figure 1 shows the map of PRD. The area is 24437 square kilometers, representing less than 14% of Guangdong province. However, the per capita GRP was 67321 RMB in 2009, much higher than per capita GDP of China, 25575 RMB (NBSC 2010). More than 95% of the total of Guangdong NMGs is working in PRD. In Shenzhen and Dongguan city, the total population of NMGs accounted for 4 and 6 times of local workers respectively.

Since 2004, the “Lack of NMG” began appearing in PRD, then spread to other areas of China, and has continued until now. This can be attributed to two main reasons. The first is the low wage which have not rise in the past decade. In 2008, the average wage of NMGs was 1156 RMB, less than half of that of urban-Hukou workers, 2436 RMB. And the second reason is the efforts to reduce agricultural tax. Therefore NMGs chose either to transfer to other areas with a favorable employment environment or go back to their hometowns and continue farming work.

To attract enough NMGs, the Government of Zhongshan city instituted a “Point” system, and this system has been popularized to all over Guangdong province since June, 2010. By March 2011, 108 thousand NMGs had changed their Hukou status to urban status successfully. Of those 51% were from other provinces and 49% from within Guangdong province. The quota was set every year and distributed to each city. NMGs can apply for urban Hukou if they can obtain the necessary points, which were set by local governments, by calculating various criteria such as education, working skill, social security participation, and social contribution. However, the conditions for NMGs to obtain

enough points are very strict, especially for those who do not have professional expertise.

## 2. Literature Review

### 2.1 Models for Wage Discriminations

After the publishing of “Schooling, experience and earning” (1974) by Mincer Jacob, the Mincer Earnings function became the most widely used empirical equation in labor economics. Log earnings are modeled as the sum of linear function of years of schooling and a quadratic function of years of work experience.

The standard Mincer equation can be written as below:

$$\log W = \beta_0 + \beta_1 S + \beta_2 E + \beta_3 E^2 \quad (1)$$

where  $W$  denotes hourly wage,  $\log W$  is a logarithm of hourly wage,  $S$  means years of schooling,  $E$  denotes years of work experience,  $E^2$  is quadratic of years of work experience, and  $\beta$  are regression parameters.

Blinder-Oaxaca decomposition is a method developed by Blinder (1973) and Oaxaca (1973), which decomposed the wage gap between gender and race into differential factors and other (in general, discrimination) factors. The original model can be written as below:

$$W_A - W_B = \beta_A(X_A - X_B) + (\beta_A - \beta_B)X_B \quad (2)$$

where  $W_A - W_B$  means the wage gap between different groups.  $\beta_A(X_A - X_B)$  term is called “wage gap between amount of elements”, representing the wage difference due to differences in characteristics between two groups.  $(\beta_A - \beta_B)X_B$  term is called “wage gap between element prices”, representing the differences due to discriminations.

### 2.2 Applications in Chinese Labor Markets

For applications of the Mincer equation and/or the Blinder-Oaxaca decomposition in the Chinese labor market, previous studies and conclusions are reviewed below.

Yao (2001) mentioned that observed variables can explain most of the 135% wage gap between locals and migrants by using the data of Surveys on four villages in four different provinces in China. But for a local, the most important wage attributes are marital status and political affiliation, and for a migrant they are age, education and years in current job.

Meng and Zhang (2001) used the Shanghai Floating Population Survey and Shanghai Residents and Floating Population Survey conducted by Institute of Population Studies at Shanghai Academy of Social Sciences in 1995 and 1996. They proved that the return from education is higher for rural migrants than for urban residents; job training is important for urban residents but not for rural

migrants; and that marital status is positively related to rural migrants' earning but not to the urban residents'. A large portion (50.8%) of the earning gap is due to within-occupational factors that are unexplained, and is likely to be due to discrimination.

Yao and Lai (2004) used survey data for enterprises and rural migrants in Zhejiang province, expanded on the Mincer equation, adding gender and training as explanatory variables and found that wage difference between NMGs and urban-Hukou workers were mainly due to: the difference of human capital and enterprises, and hukou discrimination which NMGs have to face. The former can explain 70–80% of wage difference, while discrimination can explain 20–30%.

Deng (2007) calculated the wage gap by using the 2002 data of urban households and temporary households' survey which was conducted by the institute of economics research group, the Chinese Academy of Social Science (CASS). It was found that 40.5% of the wage difference between migrant workers and urban workers can be explained by individual characteristics, while 59.5% of that is because of Hukou discrimination.

### 3. Data

#### 3.1 Field Surveys

Two kinds of data will be used in this study: Firstly, statistical data collected and published since 1978 by the Chinese government. Secondly, primary data collected through field surveys.

Field surveys have been conducted twice by the author. The first survey was conducted from August to September, 2009; and the second survey was conducted from September to October, 2010, in the Pearl River Delta, mainly in Guangzhou, Shenzhen and Jiangmen city.

The main purposes of the field surveys were to clarify the real situation of NMGs and to demonstrate how the Hukou status influences NMGs. The questionnaire, which was made by the author, was distributed to both NMGs and urban-Hukou workers. Questions were divided into 4 parts: A. basic information, B. working and income information, C. information for NMG children's education, and D. urban workers' views of NMGs. The parts of the questionnaire relevant to this study, that is, A and B, are shown in the appendix I. Finally 468 valid questionnaires were collected including 365 NMGs and 103 urban-Hukou workers, representing 78% and 22% of the total respectively. Male workers represent 38% of the total survey respondents. Of the respondents, 58% are married. Furthermore, several follow-up interviews were conducted.

#### 3.2 Descriptive Statistics

Table 1 shows NMGs composition by Hukou registration location. It can be found that more than one fifth of NMGs working in PRD come from inside Guangdong province. Besides the Guangdong province, nearly 40% of NMGs come from Hunan, Guangxi and Sichuan province, representing 19%,

**Table 1 Nong Min Gong Composition by Hukou Registration Location**

Hukou registration	Pearl River Delta (%)	Guangdong Province 2005 (%)
Guangdong	22.5	27.8
Hunan	18.9	15.0
Guangxi	10.7	11.2
Sichuan	9.3	9.3
Chongqing	7.7	3.5
Jiangxi	7.4	6.1
Hubei	7.4	7.9
Guizhou	4.4	3.2
Henan	3.0	6.5
Others	8.8	9.4
Total	100	100

Source: Data of Pearl River Delta taken from the field surveys by the author; data of Guangdong province is calculated by the author according to the data of 5<sup>th</sup> National 1% Population Sampling Survey (2005)

11% and 9% respectively. The ranking of these four provinces is the same in 5<sup>th</sup> 1%NPSS which was conducted in 2005.

Table 2 shows the basic characteristics of manufacturing workers in PRD. It can be found that the ratio of male NMGs is only 33%, much lower than that of urban-Hukou workers, 56%. The reason for this is that normally female workers are needed for production line work and most of them are NMGs.

The average schooling years of NMGs is 9.9, meaning they have not finished the first grade of senior high school, while that of urban-Hukou workers is 12 years, meaning they have graduated from senior high school.

Five job categories are grouped in this study, including production-line work, support work (all of them are drivers), floor management, desk work, and research and development (R&D). The average age of NMGs is 27, five years younger than that of urban-Hukou workers. However, the average age of NMG and urban-Hukou floor managers is 35 and 32 respectively, which implies that NMGs have to spend more years working to be promoted.

Work experience, either experience of total or current work, only refers to the work experience in urban areas, not including that in rural areas. Current work experience of NMGs is 1.6 years, nearly half of that of urban-Hukou workers. This implies that work for urban-Hukou workers is more stable than for NMGs.

Although NMGs start working earlier than urban-Hukou workers, the total experience of NMGs is less than that of urban-Hukou workers. According to the interviews conducted by the author, one

Table 2 Basic Characteristics of Manufacturing Workers in Pearl River Delta

		Total (%)	Male (%)	Single (%)	Average age	Average schooling (years)	Average monthly wage (RMB)	Average hourly wage (RMB)	Experience of current work in urban areas (years)	Experience of total work in urban areas (years)	Work days/week in current work	work hours/day in current work	
Total		100	38	42	28	10.4	1392	7.3	1.9	5.8	5.5	9.3	
Hukou	NMG	78	33	44	27	9.9	1182	6.0	1.6	5.3	5.5	9.3	
	urban-Hukou worker	22	56	35	32	12.0	2136	12.0	3.0	7.5	5.4	9.0	
Gender	Male	Total	35	100	32	27	10.1	1288	6.8	2.4	7.0	5.4	9.2
		NMG	33	100	31	29	10.0	1169	5.7	2.2	4.3	5.8	9.5
		urban-Hukou worker	56	100	35	33	12.6	2375	13.3	2.7	7.9	5.4	9.0
	Female	Total	65	0	47	31	10.8	1560	8.2	1.7	5.2	5.6	9.3
		NMG	67	0	49	26	9.9	1188	6.2	1.4	3.2	5.4	9.3
		urban-Hukou worker	44	0	35	31	11.2	1829	10.2	3.3	6.9	5.5	9.0
Work place	Guangzhou	Total	12	53	20	30	11.0	1620	8.7	3.5	7.5	5.1	9.7
		NMG	62	53	15	29	10.5	1137	5.8	3.1	7.1	5.1	10.0
		urban-Hukou worker	38	52	29	31	11.9	2400	13.5	4.2	8.1	5.2	9.1
	Jiangmen	Total	34	58	28	31	9.4	1007	4.3	1.1	3.4	6.1	9.8
		NMG	81	58	32	29	9.3	993	4.2	1.0	3.2	6.1	9.8
		urban-Hukou worker	19	55	10	37	9.9	1061	4.5	1.6	5.9	6.2	9.7
Shenzhen	Total	54	23	56	27	10.8	1586	9.0	1.6	5.8	5.2	8.8	
	NMG	80	14	56	26	10.2	1310	7.3	1.4	5.4	5.3	8.9	
	urban-Hukou worker	20	59	53	30	13.4	2681	15.9	2.3	7.2	5.1	8.5	



Table 2 Basic Characteristics of Manufacturing Workers in Pearl River Delta (continued)

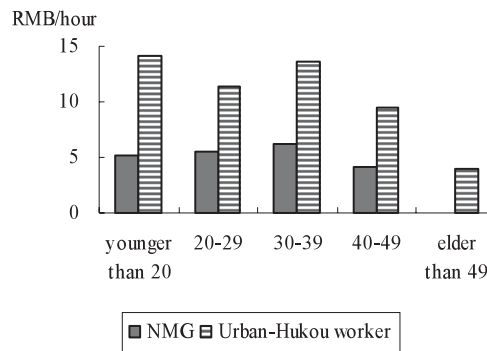
Job category		Total (%)	Male (%)	Single (%)	Average age	Average schooling (years)	Average monthly wage (RMB)	Average hourly wage (RMB)	Experience of current work in urban areas (years)	Experience of total work in urban areas (years)	Work days/week in current work	work hours/day in current work
Production-line work	Total	100	26	54	25	9.6	1114	5.4	1.2	4.9	5.4	10.0
	NMG	94	21	50	25	9.6	1108	5.4	1.2	4.8	5.4	10.0
	urban-Hukou worker	6	100	100	27	8.8	1218	5.5	2.1	6.2	5.4	10.4
Support work (driver)	Total	100	67	83	33	13.0	1789	10.1	4.5	9.5	5.3	9.0
	NMG	63	50	80	30	9.9	1460	8.0	3.8	9.4	5.3	8.9
	urban-Hukou worker	37	33	100	36	10.0	2267	13.9	5.1	10.8	5.0	8.2
Floor management	Total	100	44	88	32	9.9	1763	10.2	4.3	9.9	5.2	8.6
	NMG	50	67	83	35	12.7	1543	8.3	4.8	9.9	5.3	9.0
	urban-Hukou worker	50	67	83	32	13.3	2035	11.8	4.2	9.1	5.2	9.0
Desk work	Total	100	91	61	30	14.9	3255	19.2	2.5	7.2	5.1	8.5
	NMG	35	88	63	29	13.8	1851	10.3	2.0	7.7	5.3	8.8
	urban-Hukou worker	63	93	60	31	15.5	4003	24.0	2.7	6.9	5.0	8.4
R&D	Total	100	25	48	27	12.7	2109	12.4	2.6	5.9	5.2	8.6
	NMG	52	17	48	26	12.0	1760	10.0	2.6	4.9	5.2	8.8
	urban-Hukou worker	48	33	48	28	13.5	2491	15.1	2.6	7.0	5.1	8.3

Source: Field surveys by the author

**Table 3 Composition of Job Category**

Job category	NMG (%)	Urban-Hukou worker (%)
Production-line	75	16
Support work	3	11
Floor management	4	26
Desk work	12	37
R&D	5	11
Total	100	100

Source: Field surveys by the author

**Figure 2 Wage and Age**

Source: Field surveys by the author

reason for this lack of experience may be that NMGs usually return to their hometowns for marriage after several years working in urban areas. In particular, most female NMGs, prefer to go to urban areas again after their children are born.

The numbers of work days per week for NMGs and urban-Hukou workers do not differ much. However, workers in Jiangmen city have to work 6 days per week, one day more than workers in Guangzhou and Shenzhen city. Moreover, comparing work hours per day in current work, it can be found that normally work hours of urban-Hukou workers are less than that of NMGs, except in production-line work.

Table 3, showing the composition of job categories, it can be found that 75% of NMGs work on production-lines, while the ratio of that to urban-Hukou workers is only 16%.

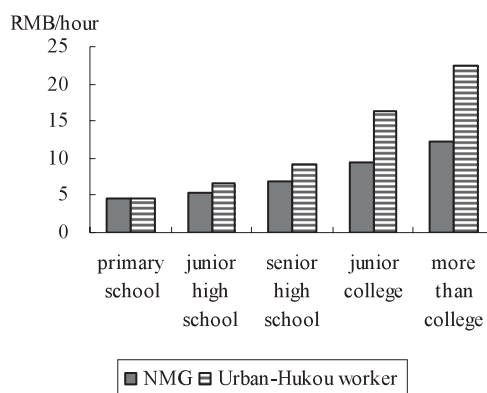
Figure 2 shows the relationship between wage and age. It can be found clearly that at each level, wages of urban-Hukou workers are much higher than that of NMGs.

Table 4 shows the composition of schooling level. The ratio of primary school is very low for both NMGs and urban-Hukou workers. More than 80% of NMGs have less than 12 years schooling, while

**Table 4** Composition of Schooling Level

Schooling level	NMG (%)	Urban-Hukou worker (%)
Primary school (3–6 years)	4	4
Junior high school (7–9 years)	57	19
Senior high school (10–12 years)	31	28
Junior college (13–15 years)	6	18
Higher than College (more than 15 years)	2	32
Total	100	100

Source: Field surveys by the author

**Figure 3** Wage and Schooling Level

Source: Field surveys by the author

40% of urban-Hukou workers have more than 13 years. In general, the quality of urban schools is better than that of rural schools. Therefore, NMGs are comparatively inferior in the labor market.

Figure 3 shows the relationship between wage and schooling level. Obviously, with the increasing in schooling years, wages will be higher for both NMGs and urban-Hukou workers, especially after senior high school. However, even at the same level of education, urban-Hukou workers can earn much higher wages than NMGs.

Table 5 shows the minimum monthly wage of the observed three cities from 2009 to 2011 and calculates the ratio of wage between NMG and urban-Hukou workers. Wage difference can be readily seen. The wage of NMGs is only slightly above the minimum wage. The average monthly and hourly wage of urban-Hukou workers is 2136 and 12 RMB, which is 181% and 198% of that of NMGs, 1182 and 6 RMB. The ratio is remarkably high for urban-Hukou male workers. Their average hourly wage is 235% of that of NMGs. Comparing the three observed cities, it can be found that although urban-Hukou workers can get higher wages in Guangzhou and Shenzhen, the difference was very small in

**Table 5 Wage and Minimum Wage**

Unit: RMB

		All	Male	Female	Guangzhou	Jiangmen	Shenzhen
Minimum monthly wage 2009					860	670	1000 <sup>5</sup>
Minimum monthly wage 2010					1030	810	1100
Minimum monthly wage 2011					1300	950	1320
Average monthly wage	NMG (1)	1182	1169	1188	1137	993	1310
	Urban-Hukou worker (2)	2136	2375	1829	2400	1061	2681
	(2)/(1)	181%	203%	154%	211%	107%	205%
Average hourly wage	NMG (3)	6.0	5.7	6.2	5.8	4.2	7.3
	Urban-Hukou worker (4)	12.0	13.3	10.2	13.5	4.5	15.9
	(4)/(3)	198%	235%	164%	233%	107%	219%

Source: Data of average wage was taken from field surveys conducted by the author; data of minimum wage was taken from each province's Bureau of Labor and Social Security.

Jiangmen city.

Appendix II, the table of cross correlation matrix for key variables, shows that age has a high correlation with schooling, marital status and experience, and that job category has a high correlation with Hukou status, schooling and wage.

#### 4. The Model

Expanded Mincer equation, the following equation will be used in this paper:

$$\log W = \beta_0 + \beta_1 S + \beta_2 E + \beta_3 J + \beta_4 G + \beta_5 H \quad (3)$$

where S denotes years of schooling, E is the total work experience in urban areas, G means gender, J denotes job category and H means Hukou status.

However, the quadratic of years of work experience is not included because of the high mobility of manufacturing workers. The average experience in current work for NMGs and urban-Hukou workers is 1.6 and 3 years respectively, and therefore the result is not significant.

The wage equations of urban-Hukou workers and NMGs can be written as follows by using Blinder-Oaxaca decomposition:

$$\log W_u = \sum \beta_u X_u \quad (4)$$

$$\log W_n = \sum \beta_n X_n \quad (5)$$

where  $W_u$  means the hourly wage of urban-Hukou workers,  $W_n$  means the hourly wage of NMGs,  $X$  means the variable of individual characteristic,  $\beta$  is regression parameter, subscript  $n$  and  $u$  denote NMGs and urban-Hukou workers respectively.

Equation (6) and (7) can be earned by calculating (4)-(5) as follows:

$$\begin{aligned}
 \log W_u - \log W_n &= \Sigma \beta_u X_u - \Sigma \beta_n X_n \\
 &= \Sigma (\beta_u X_u - \beta_n X_n - \beta_n X_u + \beta_n X_u) \\
 &= \Sigma [(\beta_u X_u - \beta_n X_n) + (\beta_n X_u - \beta_n X_u)] \\
 &= \Sigma \beta_n (X_u - X_n) + \Sigma (\beta_u - \beta_n) X_u
 \end{aligned} \tag{6}$$

where on the right-hand-side, the first term  $\Sigma \beta_n (X_u - X_n)$  can be explained as the wage difference belonging to the difference in characteristics between NMGs and urban-Hukou workers, the second term  $\Sigma (\beta_u - \beta_n) X_u$  can be explained by the discrimination of Hukou status.

$$\begin{aligned}
 \log W_u - \log W_n &= \Sigma \beta_u X_u - \Sigma \beta_n X_n \\
 &= \Sigma (\beta_u X_u - \beta_n X_n - \beta_u X_n + \beta_u X_n) \\
 &= \Sigma [(\beta_u X_u - \beta_u X_n) + (\beta_u X_n - \beta_n X_n)] \\
 &= \Sigma \beta_u (X_u - X_n) + \Sigma (\beta_u - \beta_n) X_n
 \end{aligned} \tag{7}$$

where on the right-hand-side, the first term  $\Sigma \beta_u (X_u - X_n)$  can be explained as the wage difference belonging to the difference in characteristics between urban-Hukou workers and NMGs, the second term  $\Sigma (\beta_u - \beta_n) X_n$  can be explained by the discrimination of Hukou status.

In this study, the author calculated the mean of both equations (6) and (7) in order to make the result more precise. The result is shown in table 9.

## 5. Regression Results

Table 6, 7 and 8 show the OLS regression result of Mincer equation for all workers, NMGs and urban-Hukou workers respectively.<sup>6</sup> Table 6 shows that education, total experience, Hukou and job category are positively related to workers' wages. Hukou status has a strong influence, more than education and experience. Workers in non production-line can earn approximately 20% higher wages than production-line workers. Moreover, job dummies for groups of non production-line work show that support work, floor management, desk work and R&D can earn approximately 15.4%, 8.6%, 22.2% and 34.1% higher wage than production-line work.

Comparing table 7 and table 8, it can be found from (An) and (Au) that the return from education is 2.6% for NMGs, lower than that for urban-Hukou workers, 5.1%. And the return from experience is 1.5% for NMGs, while there is no significant influence for urban-Hukou workers.

(Bn) and (Bu), (Cn) and (Cu) show that for NMGs, workers in non production-line can get

**Table 6 Regression Result for All Workers (OLS)**

		(A)	(B)	(C)	(D)
(Constant)		0.199*** (3.876)	0.330*** (6.711)	0.478*** (9.719)	0.534*** (10.553)
Schooling		0.050*** (11.227)	0.036*** (8.184)	0.020*** (4.219)	0.013*** (2.624)
Experience		0.019*** (6.069)	0.014*** (4.798)	0.008*** (3.125)	0.010*** (3.766)
Hukou			0.222*** (7.700)	0.160*** (5.817)	0.148*** (5.597)
Job 1				0.200*** (7.210)	
Job 2	support work				0.154*** (3.709)
	floor management				0.086* (1.742)
	desk work				0.222*** (7.200)
	R&D				0.341*** (7.764)
R square		0.423	0.536	0.618	0.655
Adjusted R square		0.419	0.531	0.612	0.645
F		89.529	93.709	98.025	64.918
df		244	243	242	239

Note: (1) Dependent Variable: Log hourly wage

(2) \*\*\*, \*\* and \* mean significant at the 1%, 5% and 10% level

(3) The numbers on the parentheses are the t- statistic values

(4)  $\log W = \beta_0 + \beta_1 S + \beta_2 E + \beta_3 J + \beta_4 G + \beta_5 H$

(3)

(5) For "Job" dummies, the base group is production-line work

approximately 19.7% higher wages than production-line workers, while the ratio for urban-Hukou workers is 29.5%; each ratio for urban-Hukou workers is higher than that for NMGs, except floor management, which has no influence for urban-Hukou workers.

The result when gender is added to analysis is that, for urban-Hukou workers, females and males are treated fairly, while for NMGs, the results, interestingly, show that the wage of male NMGs is more than 5% lower than that of female NMGs. One reason can be due to the specialization of the manufacturing industry. Female workers are preferred, whereas male workers are preferred in construction.

**Table 7 Regression Result for NMGs (OLS)**

	(An)	(Bn)	(Cn)	(Dn)	(En)
(Constant)	0.428*** (7.548)	0.614*** (10.924)	0.627*** (10.747)	0.614*** (11.084)	0.636*** (11.007)
Schooling	0.026*** (5.005)	0.006 (1.194)	0.004 (0.709)	0.007 (1.353)	0.004 (0.734)
Experience	0.015*** (4.838)	0.008*** (2.885)	0.010*** (3.477)	0.009*** (3.251)	0.011*** (3.667)
Job 1		0.197*** (7.310)		0.206*** (7.671)	
Job 2	support work		0.114** (2.516)		0.128*** (2.833)
	floor management		0.128** (2.131)		0.151** (2.503)
	desk work		0.242*** (7.422)		0.240*** (7.442)
	R&D		0.232*** (4.264)		0.267*** (4.789)
Gender				- 0.057** (- 2.541)	-0.055** (- 2.366)
R square	0.202	0.380	0.406	0.401	0.424
Adjusted R square	0.194	0.370	0.387	0.388	0.402
F	23.706	38.045	20.860	30.985	19.129
df	187	186	183	185	182

Note: (1) Dependent Variable: Log hourly wage

(2) \*\*\*, \*\* and \* mean significant at the 1%, 5% and 10% level

(3) The numbers on the parentheses are the t- statistic values

(4)  $\log W_n = \beta_{0n} + \beta_{1n}S_n + \beta_{2n}E_n + \beta_{3n}J_n + \beta_{4n}G_n$

(8)

(5) For "Job" dummies, the base group is production-line work

Some variables, which have been mentioned in the questionnaire, are not shown in all regression results because they are not significant, including gender, and experience of current work in urban areas.

Table 9 shows the result of Blinder-Oaxaca decomposition. The difference of logarithm hourly wage between NMGs and urban-Hukou workers is 0.36. One part, which is explained by workers' characteristics, including education, experience, job category and gender is 0.22, representing 62% of the total wage difference. However, the other part, which is unexplained can be due to discrimination is 0.14, representing 38% of the total wage difference.

**Table 8 Regression Result for Urban-Hukou Workers (OLS)**

	(Au)	(Bu)	(Cu)	(Du)	(Eu)
(Constant)	0.386*** (3.144)	0.396*** (3.552)	0.479*** (4.476)	0.403*** (3.614)	0.477*** (4.400)
Schooling	0.051*** (5.946)	0.033*** (3.517)	0.022*** (2.219)	0.03*** (3.032)	0.022*** (2.168)
Experience	0.01 (1.603)	0.007 (1.187)	0.009 (1.531)	0.006 (1.060)	0.008 (1.478)
Job 1		0.295*** (3.515)		0.305*** (3.619)	
Job 2	support work		0.337*** (3.540)		0.339*** (3.500)
	floor management		0.151 (1.506)		0.151 (1.482)
	desk work		0.301*** (3.660)		0.303*** (3.612)
	R&D		0.481*** (4.917)		0.478*** (4.758)
Gender				0.058 (1.086)	0.009 (0.169)
R square	0.417	0.527	0.649	0.537	0.649
Adjusted R square	0.395	0.500	0.606	0.502	0.599
F	19.278	19.671	15.381	15.098	12.932
df	54	53	50	52	49

Note: (1) Dependent Variable: Log hourly wage

(2) \*\*\*, \*\* and \* mean significant at the 1%, 5% and 10% level

(3) The numbers on the parentheses are the t- statistic values

(4)  $\log W_u = \beta_{0u} + \beta_{1u}S_u + \beta_{2u}E_u + \beta_{3u}J_u + \beta_{4u}G_u$

(9)

(5) For "Job" dummies, the base group is production-line work



**Table 9 Blinder-Oaxaca Decomposition for Wage Difference between NMGs and Urban-Hukou Workers**

	(1)	(2)	(3)	(4)	$\frac{(1)[(4)-(3)]+(2)[(4)-(3)]}{2}$		$\frac{(3)[(2)-(1)]+(4)[(2)-(1)]}{2}$	
	$\beta_n$	$\beta_u$	$X_n$	$X_u$	$\frac{\beta_n(X_n-X_u)+\beta_u(X_n-X_u)}{2}$		$\frac{(\beta_u-\beta_n)X_n+(\beta_n-\beta_u)X_u}{2}$	
(Constant)	0.614	0.403			0.00	0%	-0.21	-60%
Schooling	0.007	0.03	10.184	12.877	0.05	14%	0.27	75%
Current experience	0.009	0.006	5.315	7.459	0.02	5%	-0.02	-5%
Job 1	0.206	0.305	0.247	0.842	0.15	43%	0.05	15%
Gender	-0.057	0.058	0.259	0.552	0.00	0%	0.05	13%
Total					0.22	62%	0.14	38%

## 6. Conclusion and Suggestion

Nowadays in China, the unfair treatment that NMGs have to face in urban areas has become a serious social issue. NMGs are dissatisfied with this situation. They do not trust the bureaucrats or government, riots and labor disputes have occurred and public security has worsened.

In this study, one of the most important issues, wage discrimination between NMGs and urban-Hukou workers has been analyzed by using a database compiled by author's field surveys in the manufacturing industry in the Pearl River Delta.

There are two main reasons for wage discrimination. The first is social characteristics difference between NMG and urban-Hukou workers, such as education attainment, job experience. The second is discrimination due to different Hukou status. The results show that the former can explain 62% of the total wage difference, and the latter can explain 38%.

For all manufacturing workers, schooling years, total experience in urban areas, job category, and Hukou status have significant influences on earnings. While for urban-Hukou workers, total experience in urban areas and gender has no significant influence. Although the results of schooling are not significant for NMGs in table 7 except in (An), the reason is that job category has a high correlation with schooling as appendix II shows. Normally it is difficult for workers with low level of education to gain high income. Therefore, one important method to increase income of NMGs is to improve their education level.

Urban-Hukou workers can get approximately 15% higher wages than NMGs who have the same social characteristics according to Table 6 (D). Moreover the coefficient of job1 (the base group is

production-line work, Table 6 (C)) shows that production-line workers earn approximately 20% lower wages than other workers. According to Table 4, 75% of NMGs are working in production-lines, while 84% of urban-Hukou workers are working in other job categories: support work, floor management, desk work or R&D. The numbers imply that it is difficult for NMGs to get non production-line work due to their rural-Hukou status. Therefore, real wage discrimination is compounded and even greater.

Policy implications for reducing wage discrimination between NMGs and urban-Hukou workers can be grouped into three spheres.

Firstly, this study proved that social characteristics, including level of education, working experience and so on, have a significant influence on earning. Therefore, central and local governments should increase investment in rural areas in order to enhance the comparative capability of NMGs in the labor market. Due to the importance of education, priority must be given to improving the quality of schools in rural areas.

Secondly, government should continue reforming the Hukou registration system, eliminate various restrictions for NMGs migration, employment and so on. For example, there is a practice of asking enterprises in some cities to give priority to employ urban-Hukou workers, and only to employ NMGs when enough urban-Hukou workers cannot be found. Moreover, unfair fees should be abolished. Enterprises should not have to pay the NMG management fee or pay into an NMG management fund as these fees increase the cost of employing NMGs.

Thirdly, not only government, but also enterprises should pay more attention to NMGs, decrease or eliminate discriminatory practices due to different Hukou status. More opportunities should be supplied to NMGs such as good job category, job training, and promotion.

In a word, China should accelerate these improvements in order to unify the labor market, otherwise NMGs and urban-Hukou workers cannot compete fairly.

## Appendix

### (I) Field Survey Questionnaire (Parts)

#### A. Basic information

A1. Gender:

1. Male
2. Female

A2. Birth date:

 Year  Month

A3. Years of schooling:

 Years

A4. Marital status:

1. Single
2. Married

A5. Housing:

1. Company's dormitory
2. Rented housing
3. Purchased commercial house
4. Others \_\_\_\_\_

A6. Your current working place:

A7. Location of your Hukou registration:

 Province  City

A8. Your current Hukou status:

1. Rural-Hukou status
2. Urban-Hukou status

#### B. Working condition and Income information

B1. Job categories:

- 1 production-line
- 2 support work
- 3 floor management
- 4 desk work
- 5 research and development (R&D)

B2. Your total working experience in urban area (including working experience in other cities', except the time of job hunting):

 Years  Months

B3. Your working experience in current job:

 Years  Months

B4. The number of times you have been made redundant or have quit of your own accord:

1. Have been made redundant  Times
2. Quit of your own accord  Times

B5. How long did you spend in order to find current job:

 Years  Months

B6. Do you think it's difficult to find a job now?

Very easy 

1	2	3	4	5
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 Very difficult

B7. How long is the current contract?

1. A half year
2. 1 year
3. 2 year
4. 3 year
5. Others \_\_\_\_\_

B8. Basic salary/month in current job:  RMB

B9. Overtime payment on average per month in current job:  RMB

B10. Other subsidy or allowance in current job:  RMB

B11. How many days do you work per week now?

1. 5 days
2. 6 days
3. 7days

B12. How many hours do you work per day on average now?

1. 8 hours
2. 9 hours
3. 10 hours
4. 11 hours
5. 12 hours
6. Others (\_\_\_\_\_ hours)

B13. Do you think the overtime work is too much?

Very few 

1	2	3	4	5
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 Too much

B14. What are the main factors that you care about the job, ranking in terms of importance?

1 <sup>st</sup> -	2 <sup>nd</sup> -	3 <sup>rd</sup> -
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1. Job location
2. Salary
3. Labor intensity
4. Working time
5. Whether the work stable or not
6. Whether the work environment is safe or not
7. Relationship with work colleagues
8. Benefit to future career or not
9. Others ( )

B15. Have you experienced late payment of wages or delays in payment?

- 1. Never
- 2. Several times
- 3. Always

B16. Do you have medical insurance?

- 1. No
- 2. Yes
  - 2-1. company bought it
  - 2-2. joining the rural medical insurance
  - 2-3. bought by myself
- 3. Others \_\_\_\_\_

B17. Do you have injury insurance?

- 1. No
- 2. Yes

B18. Do you have old-age pension?

- 1. No
- 2. Yes

B19. Do you have unemployment insurance?

- 1. No
- 2. Yes

B20. Do you have housing subsidy?

- 1. No
- 2. Yes

B21. Are you satisfied with your current income?

Not satisfied at all 

1	2	3	4	5
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 Satisfied very much

B22. Are you satisfied with your current job?

Not satisfied at all 

1	2	3	4	5
---	---	---	---	---

 Satisfied very much

**(II) Cross Correlation Matrix for Key Variables****Table 10 Correlations (Pearson, 2-tailed)**

	Hukou	Schooling	Hourly wage	Gender	Age	Marital status	Total experience	Current experience	Job 1
Hukou	1	0.339***	0.430***	0.197***	0.298***	0.075	0.230***	0.296***	0.515***
Schooling		1	0.600***	0.136***	0.031	-0.073	0.101	0.236***	0.594***
Hourly wage			1	0.053	0.024	-0.076	0.333***	0.382***	0.708***
Gender				1	0.260***	0.160***	0.208***	0.154**	0.281***
Age					1	0.587***	0.648***	0.457***	0.367***
Marital status						1	0.486***	0.284***	0.112*
Total experience							1	0.497***	0.309***
Current experience								1	0.469***
Job 1									1

Note: (1) \*\*\*, \*\* and \* mean significant at the 1%, 5% and 10% level

(2) For "Job" dummies, the base group is production-line work

**(III) Differential Marginal Contribution of Schooling on Earning****Table 11 Regression Result for NMGs (OLS)**

	(An)	(Bn)	(Cn)	(Dn)	(En)
(Constant)	0.750*** (4.131)	0.555*** (3.382)	0.484*** (2.929)	0.614*** (3.751)	0.532*** (3.230)
Schooling	-0.035 (-1.063)	0.018 (0.580)	0.032 (1.040)	0.007 (0.233)	0.025 (0.792)
Schooling square	0.003* (1.866)	0.000 (-0.378)	-0.001 (-0.929)	-0.000 (0.000)	-0.001 (-0.673)
Experience	0.014*** (4.561)	0.008*** (2.889)	0.010*** (3.500)	0.009*** (3.242)	0.011*** (3.675)
Job 1		0.201*** (6.996)		0.206*** (7.245)	
Job 2	support work		0.115** (2.546)		0.128*** (2.841)
	floor management		0.141** (2.281)		0.159** (2.584)
	desk work		0.252*** (7.328)		0.247*** (7.248)
	R&D		0.254*** (4.282)		0.281*** (4.701)
Gender				-0.057** (-2.505)	-0.053** (-2.270)
R square	0.217	0.381	0.409	0.401	0.425
Adjusted R square	0.204	0.367	0.386	0.385	0.400
F	17.174	28.438	17.989	24.654	16.744
df	186	185	182	184	181

Note: (1) Dependent Variable: Log hourly wage

(2) \*\*\*, \*\* and \* mean significant at the 1%, 5% and 10% level

(3) The numbers on the parentheses are the t- statistic values

(4)  $\log W_n = \beta_{0n} + \beta_{1n}S_n + \beta_{2n}S_n^2 + \beta_{3n}E_n + \beta_{4n}J_n + \beta_{5n}G_n$

(10)

(5) For "Job" dummies, the base group is production-line work

**Table 12 Regression Result for Urban-Hukou Workers (OLS)**

	(Au)	(Bu)	(Cu)	(Du)	(Eu)
(Constant)	0.928*** (3.506)	1.107*** (4.783)	1.011*** (4.711)	1.090*** (4.586)	1.014*** (4.637)
Schooling	-0.055 (-1.163)	-0.108** (-2.567)	-0.086** (-2.161)	-0.105** (-2.444)	-0.086** (-2.141)
Schooling square	0.005** (2.289)	0.006*** (3.419)	0.005*** (2.807)	0.006*** (3.205)	0.005*** (2.774)
Experience	0.012* (1.894)	0.008 (1.555)	0.009 (1.661)	0.008 (1.477)	0.009 (1.642)
Job 1		0.343*** (4.413)		0.345*** (4.394)	
Job 2	support work		0.395*** (4.315)		0.394*** (4.241)
	floor managment		0.175* (1.853)		0.176* (1.837)
	desk work		0.332*** (4.268)		0.331*** (4.180)
	R&D		0.456*** (4.947)		0.458*** (4.842)
Gender				0.02 (0.397)	-0.005 (-0.100)
R square	0.469	0.614	0.697	0.615	0.697
Adjusted R square	0.439	0.584	0.654	0.577	0.647
F	15.608	20.653	16.123	16.286	13.824
df	53	52	49	51	48

Note: (1) Dependent Variable: Log hourly wage

(2) \*\*\*, \*\* and \* mean significant at the 1%, 5% and 10% level

(3) The numbers on the parentheses are the t- statistic values

(4)  $\log W_{it} = \beta_{0it} + \beta_{1it}S_{it} + \beta_{2it}S_{it}^2 + \beta_{3it}E_{it} + \beta_{4it}J_{it} + \beta_{5it}G_{it}$  (11)

(5) For "Job" dummies, the base group is production-line work



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**Note**

- 1 On July 16th, 1951, the Chinese government approved *Interim Provisions of City on the Administration of Residence Registration*, which was implemented by the Ministry of Public Security. This was the beginning of the Hukou system. The main purpose at that time was to maintain public safety, protect citizen's safety and allow their free migration. It was not intended to control the mobility of the people. However, from January, 1958, *Residence Registration of the People's Republic of China*, promulgated and implemented by National People's Congress, led to migration and mobility being limited strictly, especially from rural areas to urban areas. It was the beginning of the current Hukou system.
- 2 In August 1992, the Ministry of Public Security drew up *Notification on the Implementation of Valid Local Urban Hukou System*, started the valid local urban Hukou. Because the booklet was blue color, it was called Blue Stamp Hukou. It was a transitional measure of Hukou reform.
- 3 In July 1997, the State Council of China approved *On the Small Town Household Registration System Reform Pilot Program* made by the Ministry of Public Security.
- 4 In general, there are broad and narrow definitions of Nong Min Gong. The broad one includes not only the narrow sense which was mentioned in the main text, but also those who work in secondary and tertiary sectors in rural areas.
- 5 There were two kinds of minimum wages in Shenzhen city in 2009. The number in Table 3 shows the minimum monthly wage inside the SEZ, including four wards: Luohu, Futian, Nanshan and Yantian; while that of outside SEZ, including two wards: Baoan and Longgang, was 900 RMB. From 2010, the standard was unified.
- 6 Appendix III, the table of differential marginal contribution of schooling on earning, shows the regression results for NMGs and urban-Hukou workers, adding the variable of schooling square.

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