

Migrants, Employment Discrimination and Income Inequality in Urban China

: A Case Study of Shenzhen

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This paper examines the income inequality among households in Shenzhen, the city designated as the first Special Economic Zone in China, focusing on the influence of the rapid increase of domestic migrants. We find that the Gini coefficient of income inequality measured by the *2006 Shenzhen Household Survey* data, which covers both the Shenzhen HUKOU households (permanent resident households) and migrant households, is about 47% higher than the figure given by the official statistical data, which covers Shenzhen HUKOU households only. By decomposing the Theil index of overall income inequality into four components: inequality within Shenzhen HUKOU households, inequality within urban migrant households, inequality within rural migrant households, and inequality between the three types of households, it is clear that the combined share of migrant-related components (the latter three) has remarkably exceeded the share of inequality within Shenzhen HUKOU households, indicating the significant influence that the rapid increase of migrants has had on the rise of income inequality in Shenzhen. The results of econometric analysis confirm that HUKOU is an important factor affecting the income of the working population in Shenzhen, while other individual factors (human capital) including Years of schooling, Age (working experience), Years of living in Shenzhen also have significant (positive) effect on the income of the working population in this city.

I. Introduction

Rapid economic growth in China since the late 1970s has been accompanied by the rise of income inequality, which was relatively low during the era of the planned economy. Although there has been a large volume of scholarly work on China's urban income distribution, the impact of migrant households who mainly come from the rural areas has tended to have been ignored (CDRF, 2005). This is largely due to the lack of statistics on the income of migrant

households who have not obtained urban Hukou (i.e. urban registration status or urban citizenship) in their current place of residence. Under China's HUKOU system (registration system), migrants from rural areas have almost no chance to get urban registration status. Similarly, unskilled migrants from small cities and towns also have difficulty obtaining urban registration status in larger cities. Instead, they are treated as temporary residents, no matter how long they have been living there. Despite such kinds of regulation, with the high

growth of the Chinese economy and the strong labor demand from urban industry sectors, migrant laborers from rural areas or small cities and towns have been rushing into the large coastal cities in recent years (Sakamoto and Dai, 2004; Dai, 1996). With the rapid rise of the share of migrants in the total urban population, if migrant households are neglected in the studies of urban income inequality, obviously the real situation in urban China can not be grasped.

Regarding the influence of migrant households on urban income distribution, some researchers argued that the influence is not large because the members of migrant households are mainly young laborers and their per capita income level may be not lower than those of urban-registered households (Hussain et al., 1994). By contrast, the World Bank (1997) indicated, "the problem of this omission (of migrant households) is serious". However, none of these statements is based on empirical studies. Even today, because of the data limitation, the influence that increasing migrants and register discrimination in the labor market may have on income inequality in urban China is still unclear.

This paper is therefore a case study of Shenzhen, the city with the highest income level and first Special Economic Zone in China. Two types of household income data, the data from the 2006 *Shenzhen Household Survey*, which was

conducted by a Japan-China joint study team (including the author) in 2006, and the official data of the yearly household survey conducted by the Shenzhen Statistics Bureau (SSB), are used in this paper. The official data includes longer term information but describes income distribution among permanent resident households (i.e. households with Shenzhen HUKOU) only. In contrast, the 2006 *Shenzhen Household Survey* investigated the income distribution of both permanent resident households and temporary resident households (i.e. migrant households without Shenzhen HUKOU). Using these two types of data, we would like to answer the following questions:

- 1) What is the real level of income inequality in China's large cities such as Shenzhen?
- 2) How much do migrant households influence the overall income inequality in Shenzhen?
- 3) What are the main factors affecting the income of working population in Shenzhen?

The remainder of this paper is organized as follows. Section II reviews previous studies. Section III introduces the data sources and the income inequality measures used in this paper. Section IV describes the recent trend of urbanization and industrialization in Shenzhen. Section V examines the trend of income inequality among permanent

resident households in Shenzhen, using the official survey data. Section VI describes HUKOU (register) discrimination in the local labor market and measures the income inequality among all households including both permanent resident households and migrant households in Shenzhen, using the 2006 *Shenzhen Household Survey* data. Section VII decomposes the Theil index of overall inequality into 4 components to investigate the influence of migrant households on income inequality, and estimates the income function of the working population to examine the influence of HUKOU and other factors on individual income. Section VIII summarizes the main findings.

II. An overview of previous studies

According to the data sources used for analysis, the previous studies on urban income inequality in China can be roughly divided into two groups: one consists of studies based on the official household income surveys conducted by the National Bureau of Statistics of China (World Bank, 1997; Gibson, etc., 2003), and the other consists of studies based on surveys by the Chinese Academy of Social Sciences (Griffin and Zhao, 1993; Zhao, Li, and Riskin, 1999; Khan and Riskin, 1998, 1999; Li and Zhang, 2000; Xue and Wei, 2003; Meng, 2004; Knight and Li, 2006).

The NBSC has been annually conducting sampling surveys on incomes /expenditures of urban and rural households since the early 1980s. It is easy to obtain annual average income and population data by income-level group (5-7 groups) from the *China Statistical Yearbook* and province/city level statistical yearbooks. However, the household level data of the survey, which are usually necessary for more detailed analyses, have not been published or released. Further, in NBSC urban household surveys, only permanent resident households are included while the increasing number of migrant households has been completely overlooked.

On the other hand, the CASS has conducted 4 nationwide household income surveys with the cooperation of international organizations, foreign universities and the NBSC since 1988. Although the number of households included in the CASS survey is much smaller than that of the NBSC Survey, the survey collects far more comprehensive household level information. Furthermore, in the two most recent surveys (the 1999 CASS Survey and 2002 CASS Survey) migrant households were also included, making it possible to estimate more accurately the real level of income inequality in urban China (Dai and Xue, 2002; Xue and Wei 2003). However, the CASS survey was not conducted again after 2002.

III. Data and measures of income inequality

1. Data

Two types of data are used in this paper. The first one is average household income data by income group of 7 levels aggregated from official survey, which is published in the *Shenzhen Statistical Yearbook (SSY)*. We use this data for examining the recent trends in income inequality among permanent resident households (with Shenzhen HUKOU) in Shenzhen. The other type of data used in this paper is drawn from the *2006 Shenzhen Household Survey (the 2006 survey)*. Compared to the official survey of the Shenzhen Statistical Bureau, the *2006 Survey* not only has a larger number of sample households, but also includes the migrant households who have no Shenzhen HUKOU but have lived in Shenzhen city for over 6 months. In this survey 1056 sample households distributed in 3 districts were randomly chosen from 6 districts was given Shenzhen's. Consideration was given to each district's population size and share of migrants. 766 migrant households, together with 290 permanent resident households, were questioned. We use per capita disposable household income data for the year 2005 drawn from the *2006 Survey* to measure the income inequality among all households. The estimation of the income function of the working

population is also based on data from the *2006 Survey*.

2. Income inequality measures

Two indexes of income inequality, the Gini coefficient and the Theil index, are used in this paper. They are measured as follows.

(1). The Gini coefficient

$$G = 1 - \sum_{k=0}^{k=n-1} (X_{k+1} - X_k)(Y_{k+1} + Y_k)$$

where G is the Gini coefficient, X is the cumulated proportion of the population from lower to higher income group, and Y is the cumulated proportion of the income from lower to higher income group.

(2). The Theil index

$$T = \frac{1}{N} \sum_{i=1}^N \left(\frac{x_i}{\bar{x}} \cdot \ln \frac{x_i}{\bar{x}} \right)$$

$$\bar{x} = \frac{1}{N} \sum_{i=1}^N x_i$$

where x_i is the per capita income of the i th household, and N is the number of households.

The Theil index shares some characteristics with the Gini coefficient, and it ranges from 0, perfect equality, to $\log N$, perfect inequality. However, the Theil index is relatively easy for decomposition so that the contribution of within-group inequality and between-group inequality to overall

inequality can be identified.

If all of the households are divided into m subgroups and s_k is the income share of group k , T_k is the Theil index for that subgroup, and \bar{x}_k is the average income in group k , then the Theil index can be decomposed as follows.

$$T = \sum_{k=1}^m s_k T_k + \sum_{k=1}^m s_k \ln \frac{\bar{x}_k}{\bar{x}}$$

The first component of the right-hand side of the above formula is the sum of weighted inequality within each of the m subgroups, while the second component is the inequality between subgroups.

IV. Trends in urbanization and industrialization in Shenzhen

Since 1980, when the Chinese central government decided to establish China's first Special Economic Zone in Shenzhen, a village in Guangdong Province, next to Hong Kong, this area has experienced rapid urbanization and industrialization. The current administrative area of Shenzhen city consists of four central districts (Luohu, Futian, Nanshan, and Yantian) in the Special Economic Zone (SEZ) and two surrounding districts (Baoan and Longgang) in the non-SEZ area, to comprise a big modern city with a population of over 8 million people. As China's most important

export-oriented manufacturing city with plentiful employment opportunities and the highest income level in the country (Table 1), Shenzhen has been one of the main destinations for domestic migration (Sakamoto and Dai, 2004). Since it is quite difficult for rural migrants to obtain Shenzhen HUKOU (Shenzhen register), the migrant population without local HUKOU increased from 0.01 million in 1980 to 6.46 million in 2005 (Table 2), exceeding 78% of the total population. As described in section VI, most migrant laborers work in the informal sector (including many private companies/establishments and a portion of small-scale Town/Village Enterprises) or work in the formal sector as informal workers with low wages and short-term contracts. They therefore make-up the majority of *non-Zhigong* labor (Labor NZ) in Shenzhen (Table 3).

V. Income inequality in Shenzhen: estimation based on official data

Table 4 shows the recent trends in income inequality among permanent resident households in Shenzhen, Beijing and urban China as a whole. The Gini coefficient of income inequality in Table 4 is measured using the official statistical data, which are published in the *Shenzhen Statistical Yearbook* (SSY), *Beijing Municipal Statistical Yearbook* (BMSY), and the *China Statistical*

Table 1 Industry structure and income level of Shenzhen

Year	Composition of GDP (%)			Per capita GDP (Yuan)			Population (10,000s)
	Primary	Secondary	Tertiary	Shenzhen	Beijing	China	
1980	28.9	26.0	45.1	811	1,544	463	33.3
1985	6.7	41.9	51.4	4,427	2,704	858	88.2
1990	4.1	44.8	51.1	10,232	4,635	1,644	167.8
1995	1.5	50.1	48.4	18,757	12,690	5,046	449.2
2000	0.7	49.7	49.6	31,194	24,122	7,858	701.2
2005	0.2	53.2	46.6	59,812	45,444	14,040	827.8

Source: *Shenzhen Statistical Yearbook 2006*

Table 2 Growth and composition of population in Shenzhen

Year	Total population	Population with SZ HUKOU		Population without SZ HUKOU	
	(10,000s)	(10,000s)	(%)	(10,000s)	(%)
1980	33.3	32.1	96.4	1.2	3.6
1985	88.2	47.9	54.3	40.3	45.7
1988	120.1	60.1	50.1	60.0	49.9
1990	167.8	68.7	40.9	99.1	59.1
1995	449.2	99.2	22.1	350.0	77.9
2000	701.2	124.9	17.8	576.3	82.2
2001	724.6	132.0	18.2	592.5	81.8
2002	746.6	139.5	18.7	607.2	81.3
2003	778.3	150.9	19.4	627.3	80.6
2004	800.8	165.1	20.6	635.7	79.4
2005	827.8	181.9	22.0	645.8	78.0

Source: *Shenzhen Statistical Yearbook 2006*

Note: SZ HUKOU refers to HUKOU (register) of Shenzhen.

Table 3 Growth and composition of labor in Shenzhen

Year	Total labor (10,000s)	Labor Z (ZHIGONG) (10,000s)	Labor NZ (other) (10,000s)	Distribution of Labor Z			Distribution of Labor NZ	
				SOEs	PCOEs	FCs, etc	PCs	TVEs
				(10,000s)	(10,000s)	(10,000s)	(10,000s)	(10,000s)
1980	14.9	4.9	10.0	4.1	0.8	-	0.4	9.7
1985	32.6	22.7	10.0	16.8	2.6	3.2	0.6	9.3
1988	54.5	41.7	12.8	28.0	4.5	9.2	1.7	11.1
1990	109.2	55.4	53.8	33.9	5.3	16.3	3.4	50.5
1995	298.0	88.8	209.3	40.2	10.8	37.8	72.2	137.1
2000	474.2	93.4	380.8	31.0	3.8	58.5	139.9	240.9
2001	490.5	94.9	395.6	31.3	3.7	59.9	152.7	242.9
2002	508.9	101.8	407.1	29.6	2.6	69.6	166.9	240.2
2003	534.9	108.2	426.7	30.1	2.4	75.7	187.7	239.0
2004	561.0	135.9	425.1	31.9	1.7	102.3	204.2	221.0
2005	575.0	165.4	409.6	35.9	2.8	126.7	210.9	198.7

Source: *Shenzhen Statistical Yearbook 2006*

Note: SOEs, PCOEs, FCs, PCs, and TVEs refer to State-Owned Enterprises, Public Collective-Owned Enterprises, Foreign-invested Companies, Private Companies (establishments), and Town/ Village Enterprises, respectively. Labor Z (ZHIGONG) refers the laborers employed in SOEs, PCOEs, FCs, and other types of enterprises with relatively large production/employment levels in urban areas.

Yearbook (CSY). We can note the following points from Table 4:

- (1) Like in Beijing and urban China as a whole, the Gini coefficient of income inequality among permanent resident households in Shenzhen has risen significantly in recent years.
- (2) The Gini coefficient of income inequality in Shenzhen is higher than that in Beijing and urban China as a whole, but seems to remain at a relatively low level.

However, it should be remembered that migrants without urban registration status were almost completely neglected in Table 4. Thus, the relatively low Gini coefficients in this table probably do not

reflect the real situation of overall income inequality in Shenzhen as well as in Beijing and urban China as a whole.

VI. Income inequality in Shenzhen: estimation based on survey data

In this section, we use per capita disposable household income data drawn from the 2006 *Shenzhen Household Survey*, which includes 290 permanent resident households and 766 migrant households without Shenzhen HUKOU, to measure the overall level of income inequality. Among a total of 1056 households investigated, the income data for 5 migrant households and 6

Table 4 Official data-based estimation of income inequality

Year	Gini coefficient						Number of household surveyed		
	Per capita gross income			Per capita disposable income			Shenzhen	Beijing	China
	Shenzhen	Beijing	China	Shenzhen	Beijing	China			
1985	-	0.15	0.16	-	0.16	0.16	-	1,000	17,143
1989	-	0.15	0.18	-	0.16	0.18	-	1,000	35,235
1991	-	0.14	0.16	-	0.15	0.17	-	1,000	36,730
1992	-	0.15	0.18	-	0.15	0.18	-	1,000	36,290
1993	-	0.17	0.2	-	0.17	0.20	-	1,000	35,390
1994	-	0.19	0.21	-	0.20	0.23	-	1,000	34,940
1995	-	0.19	0.20	-	0.20	0.21	-	1,000	35,520
1996	0.29	0.19	0.20	0.29	0.19	0.21	200	1,000	36,370
1997	0.27	0.19	0.22	0.27	0.19	0.22	200	1,000	37,890
1998	0.29	0.22	0.23	0.29	0.20	0.23	200	1,000	39,080
1999	0.30	0.20	0.23	0.30	0.20	0.23	200	1,000	40,044
2000	0.29	0.22	0.24	0.29	0.21	0.25	200	1,000	42,220
2001	0.30	0.22	0.26	0.30	0.23	0.26	200	1,000	43,840
2002	0.37	0.24	0.31	0.37	0.25	0.31	200	1,000	45,610
2003	0.38	0.22	0.32	0.40	0.23	0.32	200	1,000	48,028
2004	0.36	0.25	0.32	0.37	0.26	0.32	200	2,000	50,430
2005	0.38	0.25	0.33	0.36	0.25	0.33	600	2,000	54,496

Note: From 2005, the Shenzhen Statistical Bureau began to include some migrant households in the official household income survey. However, the number of migrants households investigated and the income distribution by HUKOU status have not been released.

Source: The Gini coefficients are calculated using the yearly official statistical data with 7 income levels from SSB (various years), CSY (various years), and data with 5 levels from BMSB (various years)

permanent households are invalid or extremely high¹⁾. After excluding these 11 households, we use the data of 1045 households for analysis in the paper²⁾. Although these data provide income distribution information for only one year, 2005, it can help us to understand the real situation of income inequality in Shenzhen and the influence of migrant households thereupon.

1. Register (HUKOU) discrimination in the labor market of Shenzhen

The labor market in Shenzhen is one of the most open in China, attracting millions of migrant laborers from other provinces/cities to work in this rapidly growing city. Nevertheless, there still exists obvious HUKOU discrimination in the labor market.

Table 5 shows that among laborers of 3 different register statuses, Shenzhen HUKOU laborers have the best opportunity to get jobs in high wage companies/establishments such as SOEs with monopolies/oligopolies in the market (e.g. banks, telecommunication

companies, electricity power companies, etc.)³⁾, and some government organizations. The employment chances for urban migrant laborers, who migrated from other cities but have not obtained local register status (Shenzhen HUKOU), is less than that for Shenzhen HUKOU laborers but more than the rural migrant laborers. The rural migrant laborers have the least chance of entering the aforementioned sectors, where there usually exist HUKOU regulations on employing new staff. Thus, the majority of migrant laborers, particularly the rural migrant laborers, are working in low-pay export-processing factories and other private companies / establishments, most of which belong to the informal sector. In addition, when even employed in the same company/organization, there are obvious differences in job position (occupation category) among laborers of various HUKOU statuses.

Table 6 shows that about half of Shenzhen HUKOU residents are working as: are officials, managers of SOEs manager, owner of private companies,

Table 5 Employment distribution of working population by HUKOU status

	Labor with SZ HUKOU (persons)	Labor without SZ HUKOU		Labor with SZ HUKOU (%)	Labor without SZ HUKOU	
		Urban-M (persons)	Rural-M (persons)		Urban-M (%)	Rural-M (%)
SOEs and government	147	39	57	29.2	7.3	6.4
POEs	11	4	18	2.2	0.8	2
Foreign companies	49	66	47	9.7	12.4	5.3
Private companies	74	44	14	14.7	8.3	1.6
Private business	223	379	757	44.2	71.2	84.8
Total	504	532	893	100.0	100.0	100.0

Note: Urban-M and Rural-M refer to urban migrants and rural migrants, respectively. Source: Calculated by the author, using the 2006 Shenzhen Household Survey data.

and professionals, while the share of these jobs for urban migrant laborers and rural migrant laborers are 26.9% and 7.4%, respectively. Such HUKOU discrimination in the labor market is probably one of main factors causing income inequality among people of various HUKOU statuses in Shenzhen.

2. Income inequality in Shenzhen: survey data-based estimation

Table 7 shows the results of 2006 Survey estimation of income inequality in Shenzhen. Since the 2006 Survey data includes income information on both permanent resident households and migrant households, the 2006 Survey estimation should be closer to reality than the official data-based estimation. From Table 7, we can note the following points:

(1) The Gini coefficient of income inequality among migrant households, 0.48, is higher than the

Gini coefficient among permanent households, 0.45.

(2) The Gini coefficient of income inequality among all households measured using the Survey data, 0.53, is 47% higher than the Gini coefficient measured using the official data, 0.36 (Table 4), which includes only permanent resident households.

It should also be noted that the Gini coefficient of income inequality among permanent households measured using the 2006 Survey data, 0.45, is higher than the Gini coefficient measured using the official data, 0.36. Thus, the big discrepancy between the Gini coefficient measured using the 2006 Survey data and the Gini coefficient measured using the official data is partly attributed to the difference of sample selection for permanent resident households. Nevertheless, the findings from Table 7 indicate that with migrant households

Table 6 Occupational category of working population by HUKOU status

	Labor with SZ HUKOU (persons)	Labor without SZ HUKOU		Labor with SZ HUKOU (%)	Labor without SZ HUKOU	
		Urban-M (persons)	Rural-M (persons)		Urban-M (%)	Rural-M (%)
Official, SOEs manager	67	26	19	13.3	4.9	2.1
Private company owner	73	44	14	14.5	8.3	1.6
Professional	115	73	33	22.8	13.7	3.7
Self-employer	55	123	282	10.9	23.1	31.6
Salesman	38	61	20	7.5	11.5	2.2
Skilled worker	11	29	126	2.2	5.5	14.1
Staff and unskilled worker	105	125	249	20.8	23.5	27.9
Other	40	51	150	7.9	9.6	16.8
Total	504	532	893	100.0	100.0	100.0

Source: Calculated by the author, using the 2006 Shenzhen Household Survey data.

being taken into account, the real income inequality in Shenzhen is much higher than that measured by the official data.

VII. The influence of migrant households on overall income inequality

1. Decomposition of overall inequality by HUKOU group

In order to clarify the influence of migrant households on overall income inequality, in this section we use the 2006 Survey data to calculate the Theil index of inequality among all households and decompose the index into four components: inequality within permanent resident households (T_{PR}), inequality within urban migrant households (T_{UM}), inequality within rural migrant households (T_{RM}) and the inequality between three groups (T_{BG}). The results in Table 8 show us that although the income inequality within the permanent resident households (T_{PR}) is the largest

component of overall income inequality in Shenzhen, the other three components are also quite significant. Furthermore, the combined share of the three migrant related components has largely exceeded T_{PR} . These results mean that although there may be some other important factors (e.g. disparity among individual levels of education attained) affecting the income inequality in Shenzhen, the rapid increase of migrants has become a very important contributor to overall income inequality in Shenzhen.

2. The influence of the HUKOU factor on the income of the working population

Due to the low incomes of migrants, the increase in migrants has actually become an important factor leading to the rise of income inequality in Shenzhen; but why is the income of migrant households significantly lower than that of permanent resident households in Shenzhen? Although some

Table 7 Income inequality in Shenzhen

	All households			SZ-PR households			Migrant households		
	Number of Households surveyed	Population (persons)	Per capita income (yuan)	Number of Households surveyed	Population (persons)	Per capita income (yuan)	Number of Households surveyed	Population (persons)	Per capita income (yuan)
Lowest	105	359	4,237	29	105	10,236	76	266	3,811
Low	105	293	6,970	29	103	18,799	76	226	6,135
Lower Middle	210	600	10,530	57	205	27,102	152	418	8,731
Middle	210	646	17,715	57	201	43,791	153	430	12,968
Upper Middle	210	668	31,695	57	191	68,891	152	464	20,603
High	104	335	58,240	29	92	107,439	76	213	34,740
Highest	101	310	141,718	26	79	237,471	76	218	83,407
Total	1,045	3,211	32,993	284	976	60,627	761	2,235	20,925
Gini Coefficient	0.53			0.45			0.48		

Note: "SZ-PR households" mean permanent resident households with Shenzhen HUKOU. Source: Calculated by the author, using the 2006 Shenzhen Household Survey data.

Table 8 Decomposition of overall income inequality (Theil index)

	All households	Within SZ-PR households	Within Urban-M households	Within Rural-M households	Between three groups
Household number	1045	284	299	462	-
Average per capita income	32748	63295	34040	13134	-
Theil index	0.575	0.207	0.126	0.045	0.196
Share (%)	100.0	36.1	22.0	7.9	34.0

Note: SZ-PR means the permanent residents with Shenzhen HUKOU, while Urban-M and Rural-M mean urban migrants and rural migrants, respectively, The unit of income is Yuan.
Source: Calculated by the author.

human capital factors such as ‘years of schooling’ can probably explain part of the income difference, the information in Table 5 and Table 6 shows us that HUKOU should be an important factor affecting people’s income in Shenzhen. In order to examine this assumption, we use the data from the *2006 Household Survey* to estimate the income function of the working population in Shenzhen, which is specified as follows.

$$Y = \alpha_1 SZHK + \alpha_2 RM + \beta_1 AGE + \beta_2 AGE^2 + \beta_3 SEX + \beta_4 EDU + \beta_5 CP + \beta_6 YEAR + \sum \gamma_i SEC_i + \varepsilon$$

Where,

Y (the dependent variable):

the individual’s yearly income (in logarithmic form)

SZHK:

Shenzhen HUKOU dummy (With SZHK=1; Without SZHK=0)

RM:

Rural Migrant dummy (Rural migrant=1; others=0)

SEX:

Sex dummy (Male=1; Female=0)

AGE:

The individual’s age, being proxy of working experience

EDU:

Years of schooling

CP:

Dummy for Party (Chinese Communist Party) membership.

YEAR:

Years of living in Shenzhen

SECI:

Dummy for industry sector i where the individual is working

From the analysis of the results shown in Table 9, we can note the following points:

(1) As expected, individual human capital factors including Years of schooling, Age (working experience), and Years of living in Shenzhen have a significantly positive influence on the income of the working population in Shenzhen. Other individual characteristic factors including Sex and Party membership also have a positive influence.

(2) While the dummy variable *Shenzhen HUKOU* has a significantly positive influence on income, the dummy variable

Rural Migrant has a significantly negative influence, indicating that HUKOU is also an important determinant factor affecting the income of the working population in Shenzhen as we have assumed.

(3) In addition, industry sector factors also have some influence on individual income. A few sectors such as SEC5 (Construction), SEC7 (Transport, Storage, Post & Telecommunication Services), SEC9 (Finance and Insurance), and SEC10 (Real Estate), which are mainly state-owned and usually only employ people

with Shenzhen HUKOU as formal staff, have a positive influence on income.

VIII. Conclusions

This paper examines the income inequality among all households in Shenzhen, the city designated as the first Special Economic Zone in China, focusing on the influence of rapid increase of domestic migrants. The main findings are as follows:

(1) With the rapid industrialization

Table 9 OLS estimation results of the income function of the working population in Shenzhen
(Dependent variable: logarithm yearly income; Included observations: 1839)

Variable	Coefficient	Prob.	Variable	Coefficient	Prob.
Intercept	6.928	0.000	Intercept	6.986	0.000
RM	-0.546	0.000	RM	-0.546	0.000
SZHK	0.373	0.000	SZHK	0.360	0.000
SEX	0.343	0.000	SEX	0.323	0.000
AGE	0.102	0.000	AGE	-0.001	0.000
AGE ²	-0.001	0.000	AGE ²	-0.001	0.000
EDU	0.107	0.000	EDU	0.102	0.000
CP	0.136	0.040	CP	0.138	0.037
YEAR	0.010	0.002	YEAR	0.009	0.005
-	-	-	SEC3	0.884	0.377
-	-	-	SEC5	2.047	0.041
-	-	-	SEC7	1.855	0.064
-	-	-	SEC8&11	-1.350	0.177
-	-	-	SEC9	2.293	0.022
-	-	-	SEC10	2.697	0.007
-	-	-	SEC12-14	0.644	0.520
-	-	-	SEC15	-1.209	0.227
R-squared		0.520	R-squared		0.532
Adjusted R-squared		0.518	Adjusted R-squared		0.528
Log likelihood		-2121.843	Log likelihood		-2097.228
F-statistic		247.468	F-statistic		129.625
Prob(F-statistic)		0.000	Prob(F-statistic)		0.000

Source: Calculated by the author.

Note: SEC1 & 2: Farming, Forestry, Animal Husbandry and Fishery; Mining and Quarrying; SEC3: Manufacturing, SEC4 & 6: Production and Supply of Electricity and Gas and Water, Geological Prospecting and Water Conservancy; SEC5: Construction; SEC7: Transport, Storage, Post & Telecommunication Services; SEC8 & 11: Wholesale and Retail Trade & Catering Services, Social Services; SEC9: Finance and Insurance; SEC10: Real Estate; SEC12-14: Health Care, Sports & Social Welfare, Education, Culture and Arts, Radio, Film and Television, Scientific Research and Polytechnic Service; SEC15: Government Agencies, Party Agencies and Social Organizations.

and urbanization since the early 1980s, millions of migrants have moved to Shenzhen and have become the majority of the city's total population. However, migrant laborers who have not obtained Shenzhen HUKOU (register), particularly the rural migrant laborers, have very little opportunity to enter high profit industrial sectors and secure high wage jobs.

(1) The rapid growth of migrants and obvious HUKOU discrimination towards them in Shenzhen's labor market has become an important factor in rising income inequality. The Gini coefficient of income inequality measured by the income data drawn from the *2006 Survey*, which covers both the Shenzhen HUKOU (permanent resident) households and migrant households, is 47% higher than the value measured by using the official statistical data, which only covers Shenzhen HUKOU households.

(2) By decomposing the Theil index of overall income inequality into four components: inequality within Shenzhen-HUKOU households, inequality within urban migrant households, inequality within rural migrant households, and inequality between the three types of households, it is clear that the combined share of migrant related components (the latter three) has remarkably exceeded the share of inequality within Shenzhen-HUKOU households.

(3) The results of econometric analysis confirm that HUKOU is an important

determinant factor affecting the income of the working population in Shenzhen, while the individual human capital factors including Years of schooling, Age, Years of living in Shenzhen, and other individual characteristic factors (Sex, Party membership) also have significant influence on the income of the working population in this city.

The aforementioned findings have some policy implications.

First, since the share of migrants in the total urban population of China has been rising and has even become the majority in some cities like Shenzhen, they must be included in all official household surveys.

Second, it is necessary to replace the existing HUKOU regulation in the labor market with other more acceptable regulations such as a requirement of skill certification so that everyone has more of a fair chance in the labor market. This in turn will encourage more educational training and increase the overall human capital. In addition, the minimum-wage system and other related laws or policies should actually be implemented for protecting the basic rights of migrants (particularly rural migrants), who usually work in low-pay export processing factories and other private companies/ establishments⁴⁾.

Third, with accelerated urbanization in China and economic globalization in the world, some large coastal cities like

Shenzhen, Shanghai and Beijing will become increasingly attractive destinations to both domestic migrants and international migrants who are not included in the study (e.g. foreign investors, managers, and other skilled laborers). With the growing influx of low-income migrants from inland provinces and high-income migrants from overseas, the income inequality problem in these cities may become particularly serious in the future. Thus, special attention should be paid to these internationalized large cities.

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Notes

- 1) The per capita disposable income of these 6 households, ranging from 993,300 Yuan to 3,850,000 Yuan, is far higher than other households.

- 2) In some papers by our project team members such as Xue-Sonoda-Arayama’s paper, which required detailed information on all household members, the number of sample households they used that have valid information for their analysis is a little less than that in this paper.
- 3) With privatization of most small and medium sized SOEs, the majority of current SOEs in many coastal Chinese cities including Shenzhen are large scale enterprises and monopolies in the national economy. Thus, the average yearly wage of employees of SOEs is usually higher than that of employees of non-SOEs. According to the *Shenzhen Statistical Yearbook 2006*, in 2005, the average early wage of staff and workers (“*Zhigong*”) by ownership is as follows:

Enterprise by ownership	Number (persons)	Wage (Yuan)
1. Domestic Investment Enterprises	862,988	39,037
State-owned	343,431	47,762
Collective-owned	27,557	17,112
Cooperative Shares Enterprises	15,804	20,148
Joint owned	45,790	28,019
Companies limited with liabilities	311,154	34,616
Companies limited by shares	117,844	37,463
Others	1,408	19,215
2. Funded by Enterprises from Hong Kong, Macao, and Taiwan	412,775	22,357
3. Foreign Funded	315,375	27,768
Total	1,591,138	32,476

Here “*Zhigong*” refers to persons employed in SOEs, PCOE, FCs, and other enterprises with relatively large production / employment levels in urban areas. The workers

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employed in most small private enterprises, the number of which is more than 4.09 million persons, are not included in the above table. The average wage of non-Zhigong, who are mainly migrant workers, is lower than that for employees of Collective-owned enterprises (17,112 Yuan) but basically higher than the minimum wage level in Shenzhen.

According to the Shenzhen Labor and Social Security Bureau, the minimum monthly wage in Shenzhen rose by from RMB 610 Yuan in 2004 to 680 Yuan in 2005 for workers in four central districts (Luohu, Futian, Nanshan, and Yantian) within the Special Economic Zone and from 480 Yuan in 2004 to 580 Yuan in 2005 for workers in other two surrounding districts (Baoan and Longgang). However, the "minimum wage" in Shenzhen does not include overtime pay and other income. Shenzhen Labor and Social Security Bureau estimated that many migrant workers have overtime pay amounting to over 30% of their salary.

4) It is of great concern that interventions in the labor market for protecting/ improving workers' working condition may disrupt China's export-led industrialization and overall economic growth. However, in order to make the development of the economy more sustainable, China probably has to slow down its rapid export growth and then become more home-market dependent in the coming years. Thus, the growth in wages (income) of low-income groups will ultimately be necessary and very helpful for China's continued economic growth.

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