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**Article**

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# The Earnings Differential between Formal and Informal Employees in Urban China

Hong Zuo<sup>1</sup>

## ABSTRACT

Few studies in the field of labor economics have analyzed the earnings differential between formal and informal employees in urban China. Due to data limitations, previous studies on this subject have not yielded accurate and widely acceptable results. This study seeks to obtain more accurate results by analyzing the earnings differential based on the conceptual framework of informal employment developed by the 17th International Conference of Labor Statisticians. We analyzed data from the 2006 Chinese General Social Survey, using the Lee model to correct for selection bias and decomposing the earnings differential between formal and informal employees in urban China in terms of the effects of employee characteristics, employment, and working hours. The latter two of these comprise the segmentation effect. We found that only 33% of the observed earnings differential can be explained by employee characteristics; the remaining 67% is attributable to the segmentation effect. The working hours effect narrows the earnings differential. Based on the results of our analysis, we conclude that informal employees in urban China, especially female informal employees, suffer from segmentation and that policies to address segmentation issues are needed.

**KEY WORDS:** informal employment; earnings differential; segmentation; decomposition

**JEL Classification:** J16, J21, J31

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## Introduction

In recent years, informal employment has become a significant phenomenon, not only in developing countries but also in developed countries, as reflected by increasing proportions of workers who are informally employed. Between 20% and 30% of all workers in developed countries and more than 40% of workers in developing countries are engaged in informal employment (Hu & Yang, 2001). However, informal employees suffer from low wages, lack of social protection, and other problems (International Labor Organization [ILO], 2002).

In China, informal employment is an important and urgent issue. When China transitioned to a market-oriented economy, to address the problem of overallocation of labor to the agriculture sector, the Hukou System was modified to permit more flexibility. The state policy concerning the control of rural worker mobility has gradually changed since 1978. According to Meng (2003), from 1958 to 1978, the movement of rural residents to urban areas was forbidden. This was followed by a period of controlled movement (1979–1983), a period during which such movement was allowed (1984–1988), a period of controlled random movement (1989–1991), a period of regulated movement (1992–2000), and a period since 2000 during which a fair movement policy has prevailed. From the 1980s through the early 2000s, millions of surplus rural laborers migrated to urban areas in search of

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employment, and at the same time, millions of former state-sector employees were laid off (Cooke, 2008). As there were not enough formal jobs for all of these people, informal employment came to exist and has experienced a steady increase in China since the 1990s. Informal employment is becoming the main mode of employment in China (Hu & Yang, 2001). However, informally employed workers are at a disadvantage in various respects, such as in their work conditions and social welfare level, compared to formal workers (Wu & Cai, 2006). Therefore, labor market policy changes in China are called for to address informal employment issues.

Aspects of informal employment, including its definition (Hu & Yang, 2001; Wang, 2006), scale (Wu & Cai, 2006), and wage differential (Deng, 2009) have been researched by many Chinese scholars. Although several studies have addressed informal employment in China on a macro scale, few if any had sufficient micro data available to support their findings, and these studies were not structured in accordance with the internationally accepted framework of informal employment. These previous studies were thus not able to accurately characterize the earnings differential between formal and informal employment in China and were also unable to make comparisons with international research on informal employment.

To tackle the problems confronted by previous researchers and to provide more accurate and widely acceptable results, we analyzed the earnings differential between formal and informal employees in urban China, utilizing data from the 2006 Chinese General Social Survey (CGSS), a relatively new nationwide sample and four-stage stratified sampling scheme that provides abundant job information that can be analyzed using the International Conference of Labor Statisticians (ICLS) framework, using an approach based on this conceptual framework of informal employment developed by the 17th ICLS. Lee's model (1983) was employed to correct for possible selection bias, and the effect of working hours on the earnings differential is considered. Earnings differential decompositions have been widely used in previous studies on the existence and extent of labor market segmentation (Dickens & Lang, 1985) and specifically in studies on informal employment (Du, Cai & Wang, 2008). We follow the examples of previous studies.

The results of this study are presented as follows. In Section 2, we present the results of a literature review of informal employment in China. In Section 3, we present the conceptual framework of informal employment developed by the 17th ICLS and describe the data and methodology. In Section 4, we present an overview of formal and informal employees in urban China. In Section 5, we discuss the results of the estimation and decomposition. We lastly offer concluding remarks in Section 6.

## Literature review

Bernabè (2002) defined informal employees as individuals in any of the following situations in either their primary or secondary jobs: (1) self-employed workers and employees in household enterprises; (2) (unpaid) contributing family workers; (3) non-regular employees; (4) persons employed casually, temporarily or seasonally; or (5) employees engaged in "left-hand work" (earnings informal income at their formal workplaces).

Günther and Launov (2011) studied the structure of the urban labor market in the Côte d'Ivoire. They formulated an econometric model of the labor market that provided an intuitive approach to analyzing whether employment in the informal sector of the labor market was voluntary or a strategy of last resort. Their results show that the informal sector is composed of two segments, with a distinct wage equation for each segment.

The definition of informal employment differs among scholars in China. Hu and Yang (2001) defined informally employed workers as follows: (1) workers engaged in the informal sector, and (2) workers with informal employment in the formal sector. The informal sector includes small and medium enterprises, family enterprises, and self-owned small businesses. Informally employed workers in the formal sector are workers who are temporarily employed by the formal sector. Corporate enterprises and institutions, government agencies, and social organizations were defined by Hu and Yang as making up the formal sector. Hu and Yang concluded that developing informal employment in China is an important way to avoid high unemployment and that it will become the main mode of employment in China in the future.

Wang (2006) proposed a legal definition of informally employed workers as those engaged in informal

65 employment who are not in the formal sector, whose  
66 employment is not forbidden by law, and whose pur-  
67 pose is to earn enough to live on. He defined the for-  
68 mal sector as being made up of commercial or public  
69 interests that are established or registered with the gov-  
70 ernment. However, his definition is not very applicable  
71 to empirical analysis.

72 Wu and Cai (2006) utilized data from a 66-city sur-  
73 vey conducted in 2002 to calculate the extent of infor-  
74 mal employment in urban China in 2002, according to  
75 the definition suggested by ILO. The calculated extent  
76 of informal employment—over 120 million work-  
77 ers—was much greater than most estimates by other  
78 scholars. They also found that the work conditions and  
79 social welfare levels of informally employed workers  
80 are much lower than those of formal workers.

81 Based on an empirical analysis using the same defi-  
82 nition of informal employment as Wu and Cai (2006),  
83 Du et al. (2008) suggested that the extent of informal  
84 employment was underestimated. Their results showed  
85 that informal employment as a percentage of total em-  
86 ployment rose from 19% in 2001 to 33% in 2005 for  
87 native urban residents in China and from 73% to 84%  
88 for migrants. They also noted that informalization is  
89 part of the process of transition and development of  
90 the Chinese labor market.

91 There have only been a few empirical studies on the  
92 earnings differential between formal and informal em-  
93 ployees in China. The most noteworthy research in this  
94 area is that of Deng (2009), who used survey data to  
95 gain insights into informal employment in urban areas  
96 as China, for which the information required to con-  
97 duct an empirical analysis on informal employment  
98 has long been lacking. Deng (2009) treated workers in  
99 private and individually owned enterprises (with fewer  
100 than 100 employees), the self-employed, and work-  
101 ers without long-term contracts as being informally  
102 employed. He found that the earnings differential be-  
103 tween formal and informal wage earners was primarily  
104 attributable to unexplained factors rather than to the  
105 different characteristics of formal and informal work-  
106 ers. However, those working in individual household  
107 production or in small private enterprises with less  
108 than 100 workers were considered informal employees  
109 according to Deng's definition, which could result in  
110 overestimation of the extent of informal employment.

111 As rural migrants are an important component of

informal employment in China, studies of the earnings  
differences between rural migrants and urban resi-  
dents yield some insights into the issue under study.  
Meng and Zhang (2001) utilized two comparable sur-  
vey data sets, the Shanghai Floating Population Survey  
and the Shanghai Residents and Floating Population  
Survey, to analyze the degree to which segmenta-  
tion between rural migrants and urban residents has  
occurred, in terms of occupational segregation and  
wage differentials. They found significant differences  
in occupational attainment and wages between rural  
migrants and urban residents, with most of the differ-  
ence being unexplainable by productivity-related dif-  
ferences between the two groups.

The previous studies mentioned are very important  
to subsequent studies of informal employment. How-  
ever, as mentioned before, the results obtained in pre-  
vious studies were not very accurate or widely accept-  
ed and were not obtained using the ICLS framework.  
The ICLS framework was used in this study to conduct  
a more comprehensive analysis of informal employ-  
ment in urban China. Lee's model was used to correct  
for possible selection bias, and the effect of working  
hours on monthly earnings was determined from the  
unexplained factors.

## Definition of informal employment, data, and methodology

### *Definition of informal employment*

According to Hussmanns (2004), the international sta-  
tistical definition of the informal sector was adopted  
by the 15th ICLS in 1993. Employment in the infor-  
mal sector was defined as all jobs in informal-sector  
enterprises or employment of all persons who, during  
a given reference period, were employed in at least one  
informal-sector enterprise, irrespective of their status in  
employment and whether it was their main or second-  
ary job. Informal employment was defined by the 17th  
ICLS as the total number of informal jobs, whether car-  
ried out in formal-sector enterprises, informal-sector  
enterprises, or households, during a given reference  
period. Because of the lack of information and specifics  
by country, operational definitions of the informal sec-  
tor and informal employment vary considerably among  
countries. Even within China, there is no set definition  
of the informal sector or informal employment, and as

China has thus far lacked the data necessary to analyze informal employment, the definitions used in previous studies are not totally satisfactory.

According to the ICLS framework, there are three standards by which to judge whether a worker is in formal or informal employment. The first standard is the production unit to which they belong. Production units are classified into three groups: formal-sector enterprises, informal-sector enterprises, and households. The second standard is their job status. According to the International Classification by Status in Employment 93 (ICSE-93, ILO), employment status is classified as follows: self-employed workers, employers, contributing family workers, employees, members of producers' cooperatives, and agricultural workers. The third standard is the nature of the job, i.e., whether the type of job a person holds is a formal or informal job.

Considering the differences in work conditions and social welfare levels, in this study, we consider the following to be components of the formal sector in terms of production units: party and governmental organizations; state-owned or state-shareholding enterprises; collective or collective-shareholding enterprises; state-owned or collectively owned non-profit institutions; enterprises in Hong Kong, Macao, or Taiwan; foreign capital enterprises; and social groups. The self-employed, private enterprises, and other enterprises are considered part of the informal sector, in terms of production units. Following ILO (Husmanns, 2004), workers in firms with fewer than 10 employees are considered to be working in the informal sector, and because of data limitations, these workers are treated as informal employees. We consider the nature of the job to be formal if the worker has an employment contract or if his employment is registered with the government. More details on the definition of informal employment are given by Zuo (2013).

According to the definition described above, there are 983 formal employees and 1,213 informal employees in our database. As stated in the literature review, Deng defined informal workers as workers in private and individually owned enterprises (with fewer than 100 employees), the self-employed, and workers who do not have a long-term contracts. Applying his definition to our data set, we found that there were 287 formal employees and 1,916 informal employees in our sample. Obviously, his definition overestimates the extent of informal employment.

## Data

The data used in this analysis were drawn from the 2006 Chinese General Social Survey (CGSS). This survey was conducted jointly by the Survey Research Center of the Hong Kong University of Science and Technology and the Sociology Department of the People's University of China. A total of 10,000 households from 28 provinces and cities in China were randomly selected for this survey, and one family member between the ages of 18 and 69 was randomly picked from each of the selected households to participate in the survey. Unlike other survey data, such as the Chinese Household Income Project (CHIP), the 2006 CGSS is a relatively new nationwide sample and four-stage stratified sampling scheme that provides abundant job information that can be analyzed using the ICLS framework.

## Methodology

As some workers in the samples were unemployed, their earnings were not observed; therefore, selection bias could be an issue. In this study, we adopted the Lee (1983) approach to correct for this selection bias. A multinomial logit model was estimated at the first stage of the Lee model. The results of this first stage (the employment status selection equation) are not discussed in this study, as the focus of this study is on the decomposition of the earnings differential between formal and informal workers. Zuo (2013) discussed the selection equation using similar workers' data for China. The results of the second stage of the Lee model (the unbiased hourly earnings functions and working hour functions for formal and informal employees) are used to decompose the monthly earnings differential between formal and informal employees.

Because the classification of employment status in this study was not binary, we adopted Lee's (1983) model rather than Heckman's model (1979) to correct for selection bias. The four employment status conditions considered are as follows: formal employees, informal employees, self-employed workers and the unemployed. Oaxaca-Blinder's decomposition approach is widely used to separate the earnings differential into two components. However, this approach cannot be applied to decomposing the earnings differential effects into three parts: difference in characteristics (e.g., age, sex, education and so on), differences in employment (i.e., formally or informally employed), and dif-

**Table 1.** Overview of Formal and Informal Employees in Urban China (%) (2006)

		Formal employees	Informal employees
<b>Demographics</b>	Male	57.78	52.84
Age	18–29 years	30.42	29.68
	30–39 years	36.01	29.93
	40–49 years	24.42	28.36
	50–59 years	8.85	10.47
	60–69 years	0.31	1.57
<b>Total education years</b>	0–6 years	1.93	8.99
	7–12 years	58.80	63.15
	13–16 years	35.40	25.39
	17–22 years	3.87	2.47
<b>Location</b>	East region	52.49	46.66
	Middle region	31.94	33.22
	West region	15.56	20.12
	Large city	50.66	43.78
	Immigrant	11.19	16.49
<b>Firm size</b>	Not reported	18.51	18.47
	0–9		16.49
	10–15	3.15	7.67
	16–49	9.36	15.83
	50–99	11.09	8.74
	100–499	28.38	19.21
	500 or more	29.50	13.60
<b>Occupation</b>	Managerial	8.55	8.82
	Professional	23.80	18.96
	Technical	19.74	19.04
	Clerical	12.51	21.27
	Skilled agricultural	35.40	31.90
<b>Industry</b>	Manufacturing	38.13	26.82
	Services	61.87	73.18
<b>Total (number)</b>		983	1213

Notes:

The author calculated the values in this table using data from the 2006 Chinese General Social Survey.

ference in hours worked (i.e., monthly working hours). To conduct such decomposition, the extension of the Oaxaca-Blinder approach proposed by Bourguignon, Fournier and Gurgand (2001) was used in this analysis.

The decomposition model of Bourguignon et al. can be explained as follows. Let F represent formal employees, and let I represent informal employees. The monthly earnings of informal employee *i* can be written as follows:

$$y_i^i = h_i^i \times \exp(\ln w_i^i) = H(z_i^i, \eta_i^i, \gamma_i^i) \times \exp(\ln W(x_i^i, \varepsilon_i^i, \beta_i^i))$$

where  $y_i^i$ ,  $h_i^i$  and  $w_i^i$  are the monthly earnings, hours worked, and hourly earnings, respectively of informal employee *i*.

Hourly earnings can be expressed as follows:

$$\ln w_i^i = W(x_i^i, \varepsilon_i^i, \beta_i^i)$$

with individual observable characteristics ( $x_i^i$ ), unobservable characteristics ( $\varepsilon_i^i$ ), and parameters  $\beta_i$  as arguments.

Working hours can be expressed as  $h_i^i = H(z_i^i, \eta_i^i, \gamma_i^i)$ , where  $z_i^i$  and  $\eta_i^i$  are individual observable and unobservable characteristics, respectively, and  $\gamma_i^i$  are the coefficients estimated.

Similarly, the monthly earnings of formal employees can be written as follows:

$$y_F^i = h_F^i \times \exp(\ln W_F^i) = H(z_F^i, \eta_F^i, \gamma_F^i) \times \exp(\ln W(x_F^i, \varepsilon_F^i, \beta_F^i))$$

The monthly earnings differential between formal and informal employees can be decomposed into three parts:

(1) Pure differences in characteristics (e.g., sex, education):

$$H(z_F^i, \eta_F^i, \gamma_F^i) \times W(x_F^i, \varepsilon_F^i, \beta_F^i) - H(z_I^i, \eta_I^i, \gamma_I^i) \times W(x_I^i, \varepsilon_I^i, \beta_I^i)$$

(2) Pure differences in employment (i.e., formally or informally employed):

$$H(z_F^i, \eta_F^i, \gamma_F^i) \times W(x_I^i, \varepsilon_I^i, \beta_I^i) - H(z_I^i, \eta_I^i, \gamma_I^i) \times W(x_I^i, \varepsilon_I^i, \beta_I^i)$$

(3) Pure differences in hours worked (i.e., monthly working hours):

$$H(z_F^i, \eta_F^i, \gamma_F^i) \times W(x_I^i, \varepsilon_I^i, \beta_I^i) - H(z_I^i, \eta_I^i, \gamma_I^i) \times W(x_I^i, \varepsilon_I^i, \beta_I^i)$$

The latter two, the difference in employment and the difference in hours worked, comprise the segmentation effect. We report the mean of the alternative decomposition results.

## Overview of Formal and Informal Employees in Urban China

We present an overview of formal and informal employees by indicating the proportion of workers in each group (see Table 1). There are six variables that detail the characteristics for all employed individuals: demographics, total years of education, location, firm size, occupation, and industry.

As Table 1 shows, males occupy larger proportions of both the formal and informal employee groups than females. Young workers below the age of 40 are more likely to be formal employees, while workers above age 40 are more likely to be informal employees. Most formal employees have more than 7 years of education, while 63% of informal employees have between 7 and 12 years of education.

Workers in the east account for the vast majority of both formal and informal employees (more than

45%), followed by workers in the middle and west regions. Approximately 56% of informal employees are not from large cities, and more than 80% of all of the workers are non-immigrants.

Nearly 40% of informal employees are in enterprises that employ fewer than 50 workers. In contrast, more than 57% of formal employees are in enterprises that employ more than 100 workers.

In terms of occupation, proportionally more professional and technical workers are formal employees than informal employees. A larger proportion of informal employees are clerical workers. The majority of formal and informal employees work in services, although the percentage is higher for informal employees.

## Empirical results

### Hourly earnings functions

The hourly earnings are summarized in Table 2. We only comment on the marginal effects that are statistically significant. Male employees enjoy hourly earnings that are approximately 9% higher than female employees, meaning that an hourly earnings differential by gender exists among both formal and informal employees.

Higher educational attainment leads to approximately 6% higher hourly earnings for formal employees, and it is also significant and slightly higher, at 7%, for informal employees. This indicates that education is rewarded for both informal and formal employees in urban China.

Hourly earnings differ greatly for employees from different regions. Hourly earnings are 40% for formal employees and approximately 30% higher for informal employees in the east than in the middle and western regions. Formal and informal employees from large cities receive hourly earnings more than 20% higher than employees from smaller areas. Immigrant employees receive higher hourly earnings than non-immigrants.

Informal employees in firms employing fewer than 50 workers earn significantly less than employees in the reference group; i.e., those in firms with more than 500 workers. Informal employees in firms with fewer than 10 workers earn 42% less per hour than those in the reference group. For formal employees, all other groups of workers earn significantly less than those in



**Table 2.** Estimating Log Hourly Earnings of Formal and Informal Employees in Urban China (2006)

		Formal employees	Informal employees
<b>Demographics</b>	Male (d)	0.088(2.14)**	0.101(2.54)***
Age	18–29 (d)	0.496(0.87)	0.287(1.03)
	30–39 (d)	0.467(0.83)	0.258(0.92)
	40–49 (d)	0.468(0.83)	0.275(0.99)
	50–59 (d)	0.686(1.21)	0.323(1.16)
	60–69 (d)	Reference	Reference
Experience		0.010(0.98)	0.020(2.59) ***
Experience squared		–0.000(–0.86)	–0.000(–1.54)
<b>Total education years</b>		0.058(6.05) ***	0.070(9.65) ***
<b>Location</b>	East region (d)	Reference	Reference
	Middle region (d)	–0.409(–9.43) ***	–0.259(–5.35) ***
	West region (d)	–0.434(–6.80) ***	–0.335(–6.74) ***
	Large city (d)	0.209(5.00) ***	0.229(5.91) ***
	Immigrant (d)	0.211(3.32) ***	0.185(3.16) ***
<b>Firm size</b>	Not reported (d)	–0.183(–2.87) ***	–0.061(–0.80)
	0–9 (d)		–0.421 (–5.37) ***
	10–15 (d)	–0.279(–2.08) **	–0.252(–2.61) ***
	16–49 (d)	–0.162(–1.78) *	–0.167(–1.93) **
	50–99 (d)	–0.175(–2.59) ***	–0.036(–0.44)
	100–499 (d)	–0.162(–3.00) ***	–0.031(–0.47)
	500 or more (d)	Reference	Reference
<b>Occupation</b>	Managerial (d)	0.454(4.92) ***	0.276(2.94)***
	Professional (d)	0.178(2.63) ***	0.112(1.82)*
	Technical (d)	–0.056(–0.88)	–0.033(–0.53)
	Clerical (d)	–0.082(–1.12)	–0.086(–1.42)
	Skilled agricultural (d)	Reference	Reference
<b>Industry</b>	Manufacturing (d)	Reference	Reference
	Services (d)	0.117(2.38) **	0.070(1.43)
<b>Pseudo R-squared</b>		0.535	0.535
Constant		0.953(1.58)	0.586(1.90) *
Number of observations		983	1213

Notes:

The author calculated the values in this table using data from the 2006 Chinese General Social Survey.

\*\*\*, \*\*, and \* denote statistical significance at the 1%, 5%, and 10% levels, respectively; (d) represents a discrete change in the dummy variable from 0–1; data in parentheses are the Z values.

the reference group, with workers in firms employing fewer than 15 workers earning the least.

Formal employees in managerial and professional occupations earn higher hourly earnings than skilled agricultural workers. For informal employees, it seems that occupations do not make much difference in hourly earnings, except for professional workers. For-

mal employees engaged in services earn approximately 12% higher hourly earnings than formal employees in the manufacturing industry.

### *The determinants of working hours*

The hourly earnings are summarized in Table 3. In addition, we only comment on the marginal effects that



**Table 3.** Estimating Monthly Working Hours of Formal and Informal Employees in Urban China (2006)

		Formal employees	Informal employees	
<b>Demographics</b>	Male (d)	10.335(3.93)***	11.217(3.68)***	300
	Age	1.910(1.87)*	-2.042(-1.81)*	301
	Age2	-0.026(-1.87)*	0.018(1.21)	302
<b>Total education years</b>		-1.720(-2.44)**	-3.688(-6.01)***	303
<b>Location</b>	East region (d)	Reference	Reference	304
	Middle region (d)	5.863(1.76)*	4.109(1.19)	305
	West region (d)	-1.066(-0.25)	-2.700(-0.57)	306
	Large city (d)	-12.620(-4.15)***	-1.869(-0.62)	307
	Immigrant (d)	9.225(1.81)*	15.124(3.15)***	308
<b>Firm size</b>	Not reported (d)	0.378(0.10)	10.821(1.82)*	309
	0-9 (d)		17.476(2.72)***	310
	10-15 (d)	3.157(0.26)	21.226(2.36)**	311
	16-49 (d)	-2.116(-0.35)	15.515(2.10)**	312
	50-99 (d)	5.170(0.93)	6.235(0.93)	313
	100-499 (d)	7.235(1.89)*	2.594(0.44)	314
	500 or more (d)	Reference	Reference	315
<b>Occupation</b>	Managerial (d)	0.731(0.13)	-3.647(-0.51)	316
	Professional (d)	1.392(0.30)	-5.087(-1.04)	317
	Technical (d)	5.321(1.12)	1.688(0.33)	318
	Clerical (d)	2.598(0.47)	3.362(0.63)	319
	Skilled agricultural (d)	Reference	Reference	320
<b>Industry</b>	Manufacturing (d)	Reference	Reference	321
	Services (d)	-4.682(-1.32)	-0.874(-0.22)	322
<b>Pseudo R-squared</b>		0.526	0.526	323
Constant		160.697(7.17)***	258.961(10.85)***	324
Number of observations		983	1213	325

Notes:

The author calculated the values in this table using data from the 2006 Chinese General Social Survey.

(a) \*\*\*, \*\*, and \* denote statistical significance at the 1%, 5%, and 10% levels, respectively; (d) represents a discrete change in the dummy variable from 0-1; data in parentheses are the Z values.

are statistically significant. Men, both formal and informal employees, work approximately 11 hours per month more than women. Higher educational attainment leads to shorter working hours for both formal and informal employees and is more notable for informal employees.

Monthly working hours do not appear to differ for employees from different regions. Formal employees from large cities worked approximately 13 hours per month less than formal employees from smaller areas. Among informal employees, immigrant employees

work more than 15 hours per month more than non-immigrants.

Firm size does not make much difference in monthly working hours for formal employees, but the situation is much different for informal employees working in firms employing fewer than 50 workers. These informal employees work approximately 20 hours more per month than informal employees working in firms employing more than 500 workers.

Occupation does not make much difference in monthly working hours for either formal or informal employees.

**Table 4.** Decomposition of Monthly Earnings Differential between Formal and Informal Employees in Urban China (2006)

	Mean monthly earnings		Observed differential	Effect on the observed earnings differential of		
	Formal employees	Informal employees	Formal-Informal	Characteristics effect	Segmentation effect	
					Employment effect	Hours worked effect
<b>All employees</b>	1808.6	1196.4	612.2	202.2 (33.0%)	454.4 (74.3%)	-44.4 (-7.3%)
<b>Male employees</b>	2038.1	1393.4	644.7	249.4 (38.7%)	466.6 (72.4%)	-71.3 (-11.1%)
<b>Female employees</b>	1414.2	1001.4	412.8	79.5 (19.3%)	410.8 (99.5%)	-77.5 (-18.8%)

Notes:

Decompositions are based on regressions results presented in tables 2 and 3; values refer to measured effects evaluated as earnings differences in 2006 Chinese Yuan; percentages in parentheses refer to measured effects as percentages of the observed total earnings differentials.

### *Decomposing the Observed Earnings Differential*

Following the methodology presented in section 3, we use the earnings function and working hours function estimations to decompose the earnings differential into the pure difference-in-characteristics effect, the pure difference-in-employment effect, and the pure difference-in-hours-worked effect, with the latter two comprising the segmentation effect. The decomposition results are given in table 4.

As Table 4 shows, the majority of the observed total earnings differential between formal and informal employees can be attributed to the difference-in-employment effect and the difference-in-hours-worked effect, rather than the differences in characteristics. Only 33% of the earnings differential between formal and informal employees can be explained by the differences in characteristics. The remaining 67% can be attributed to the segmentation effect, in which the pure employment effect dominates. In fact, longer hours worked by informal employees narrow the earnings differential between formal and informal employees, meaning that informal employees work more but earn less. This result confirms that the Chinese labor market is far from fully integrated, leading

to a high earnings differential between formal and informal employees.

We also examined the earnings differential decomposition results by gender. For the male sub-sample, segmentation forces play a slightly less important role in explaining the earnings differential between formal and informal employees. However, in the female sub-sample, segmentation forces account for nearly 80% of the earnings differential between these two groups of employees, suggesting that female informal employees suffer most from segmentation.

### **Concluding remarks**

The purpose of this research was to analyze the earnings differential between formal and informal workers in urban China based on the ICLS framework of informal employment, in an effort to obtain more accurate and widely acceptable results than previous studies. Using the 2006 CGSS micro data, we employed the approach of Bourguignon et al. (2001) to decompose the earnings differential between formal and informal employees in urban China into characteristics, employment and working hour effects, with the latter two comprising the segmentation effect. The possible selection bias problem was addressed using the Lee model.

The main conclusions are that informal employees suffer from segmentation and work more but earn less, meaning that the earnings differential would be even larger if they worked the same number of hours as formal employees. This is especially true for female informal employees. Employment policies that address segmentation issues, e.g., gender segmentation, are needed in urban China. Segmentation, which prevents individuals from taking advantage of economic opportunities, must be identified and its adverse effects minimized. However, because we only have data for 2006 on hand, it was not possible in this study to assess how the situation has changed since 2006. This will be addressed in future research.

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