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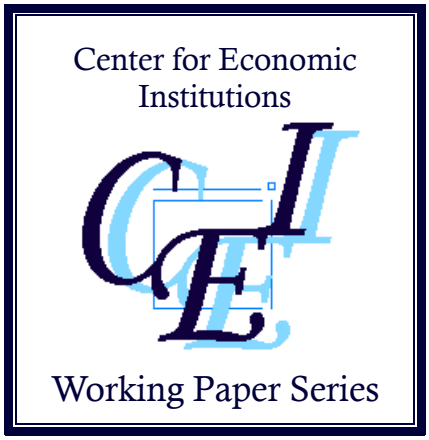

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Industrial Segregation and Wage Gaps between Migrants and Local Urban Residents in China:2002-2013

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Abstract

This paper explores industrial segregation and its impact on the wage gaps between rural-to-urban migrants and local urban residents in China. Using the Chinese Household Income Project (CHIP) 2002 and 2013 surveys, we analyzed the probabilities of entry to various industries for both migrant and local urban resident groups; using the model of Brown *et al*. (1980), we then undertook a decomposition analysis of the wage gaps. Several major conclusions emerge. First, although inter-industry differentials and intra-industry differentials both affect the wage gap between migrants and local urban residents, the effect of intra-industrial differentials is greater in both 2002 and 2013. Second, in considering the effect of intra-industry differentials, while the influence of explained differentials is greater than that of unexplained differentials in both 2002 and 2013, the influence of the unexplained component of the intra-industrial differentials rises steeply from 19.4% (2002) to 68.0% (2013). The results show that when other factors are held constant, the problem of discrimination against migrants in a given industry is becoming more serious. In addition, the influence of the explained component of the intra-industry differentials rises from 61.2% (2002) to 77.7% (2013).

JEL classification*:* J16 J24 J42 J71
Keywords*:* industrial segregation, wage gaps, migrants, local urban residents, urban China

1 Introduction

In China, along with the transitional economy, two phenomena have attracted attention. First, the Chinese urban market is segregated into migrant and local urban resident groups; and there exists discrimination against migrants in employment and wages (Meng & Zhang, 2001; Wang,

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2003, 2005; Zhang, 2003; Song & Appleton, 2006, Ma, 2011). Second, since the 1990s, the wage gap between the monopoly industries (e.g., finance, electricity, gas, and water supply, education, governmental organizations industries) and the competitive industries (e.g., manufacturing, construction, retail and wholesale industries) has widened (Cai, 1996；Luo &Li, 2007；Demurger *et al.* 2007; Jin & Cui, 2008；Ma, 2012,2014). Moreover, Roberts (2001), Song & Appleton (2006) pointed out that most migrants are concentrated in the competitive industries, whereas local urban residents work in the monopoly industries. This may be because most migrants rarely have a chance to enter the monopoly industries. Thus, along with the growth of the industrial wage gap, the suggestion is that industrial segregation might widen the wage gap between migrants and local urban residents.

Does industrial segregation affect the wage gap between migrants and local urban residents? Based on the analysis in Brown *et al.* (1980)[1], the effects of industry segregation on the wage gap between migrants and local urban residents can be divided into two parts as follows. First, the chances (or possibilities) of entry to various industries may differ between these groups. If such a pattern exists, it can cause industry distribution differentials between these two groups. For example, if the proportion of those working in monopoly industries—in which the average wage levels are higher—is greater for local urban residents than for migrants, or if most migrants work in competitive industries in which the average wage levels are relatively lower, the wage gap thus created is designated as an *inter-industry differential*. Second, while other factors such as human

[1] Brown *et al.* (1980) analyzed the gender occupational segregation, and divided the gender wage gaps into two parts—inter-occupation differentials and intra-occupation differentials. Based on the analysis in Brown *et al.* (1980), this study divide the wage gap between migrants and local urban residents into the inter-industry differentials and intra-industry differentials. For the empirical studies utilized the model in Brown *et al.* (1980) on the occupational segregation and wage gaps in China, please see Meng (1998), Meng & Zhang (2001), Li & Ma (2006), and Ma (2007).

capital are held constant, if different wage levels between migrants and local urban residents in the same industry sector cause a wage gap between these two groups, this is designated as an *intra-industry differential*. To reveal which factors determine the wage gap between these two groups, it is necessary to analyze the effects of both inter-industry and intra-industry differentials on this gap.

In previous studies on the wage gap between migrants and local urban residents, Wang (2003), Xie & Yao (2006), Ma (2011) utilized the Oaxaca-Blinder model to undertake the decomposition analysis and found that the influence of discrimination on the wage gap is greater than that of human capital differentials. Meng (1998), Meng & Zhang (2001) utilized the Brown *et al.* model (1981) to analyze occupational segregation and the wage gap between migrants and local urban residents and found that occupational discrimination is the main factor underlying the wage gap. However, these studies did not focus on industrial segregation and it is not clearly how intra-industry differentials and inter-industry differentials affect the wage gap between these two groups. Zhang (2003) pointed out that discrimination exists against migrants when they enter into industry. However, he did not utilize decomposition methods to estimate how industrial segregation affected the wage gap.

Using 2002 and 2013 Chinese Household Income Project (CHIP) survey data, this study investigates three questions as follows. First, how do unexplained differentials (i.e., discrimination) and explained differentials (e.g., differentials based on individual characteristics) affect the wage gap between migrants and local urban residents? Second, how do intra-industry differentials and inter-industry differentials affect the wage gap? Third, how is the wage gap affected by discrimination that arises when a worker wants to enter an industry, as well as by discrimination that exists against those already working within the same industry? To our knowledge, this is the first study to utilize decomposition methods for the

estimations required to answer the second and third questions; these results are new discoveries.

This paper is structured as follows. Part II describes the analysis methods, including introduction to data and models. Part III are the description analysis results, and Part V states the quantitative analysis results to answer the first, second, third questions. Part VI presents the main conclusions.

2 Methodology and data

2.1 Model

To estimate how industry segregations affect the wage gap between migrants and local urban residents, we utilized the Brown *et al.* model (Brown, *et al.* 1980), it is expressed as follows.

In Eq. (1), i represents the individual (a migrant or a local urban resident), $\ln W$ is the logarithm of the average wage, X represents factors (e.g. education, experience years, industries, occupations) which affect wage, u is a random error item.

$$\ln W_i = a + \beta X_i + u_i \qquad (1)$$

The Brown *et al.* model is expressed as the follows. First, the probabilities of entry to industries are estimated based on a multinomial logistic model, shown as Eq. (2.1)

$$P_{ik} = prob(y_{ik} = industry_{ik}) = \frac{e^{x_i \gamma_k}}{\sum_{k=1}^{K} e^{x_i \gamma_k}} \qquad (2.1)$$

$i = 1, \cdots, N$ individuals

$k = 1, \cdots, k$ industries

In Eq. (2.1), $prob(y_{ik} = industry_{ik})$ represents the individual i's probability of entry to industry k, x represents factors (e.g. education, experience years) which affect the selection of entry to industry. Based on the estimated results by Eq. (3.1), the probabilities of entry to industries of migrants ($\hat{P}^{rm}$) are calculated—$\hat{P}^{rm}$ are the probability distributions of entry to an industry on an assumption condition that there don't exist discriminations when migrants entrance to industry.

Second, the wage functions by the industry categories are estimated. Wage functions by k kinds of industry categories are expressed by Eq. (2.2).

$$\ln W_{ik} = \alpha_k + \beta_{ik} X_{ik} + u_{ik} \tag{2.2}$$

Third, the estimated results based on Eq.(2.1), Eq.(2.2), and the mean values of variables are utilized to decompose the industry segregations on the wage gap into four kinds of reasons. The decompositions are shown in Eq. (2.3)

$$\begin{aligned} \ln \overline{W_u} - \ln \overline{W}_{rm} = & \sum P_k^{rm} \hat{\beta}_k^u (\overline{X}_k^u - \overline{X}_k^{rm}) \\ & + \sum P_k^{rm} (\hat{a}_k^u - \hat{a}_k^{rm}) + \sum P_k^{rm} \overline{X}_k^{rm} (\hat{\beta}_k^u - \hat{\beta}_k^{rm}) \\ & + \sum \overline{W}_k^u (P_k^u - \hat{P}_k^{rm}) \\ & + \sum \overline{W}_k^u (\hat{P}_k^{rm} - P_k^{rm}) \end{aligned} \tag{2.3}$$

In Eq. (2.3), P_k^{rm}, P_k^u represent the actual industry distributions of migrants and local urban residents, $\hat{P}_k^{rm}$ are the imputed industry distributions of migrants, $\overline{X}_k^u, \overline{X}_k^{rm}$ represent mean values of variables, $\hat{\beta}_k^u$、$\hat{\beta}_k^{rm}$ are the parameters estimated based on wage functions by industry categories.

Then, to see the econometric meanings of decomposition results by Eq. (2.3).

First, $\sum P_k^{rm}\hat{\beta}_k^u(\bar{X}_k^u - \bar{X}_k^{rm})$(A) represents the individual characteristics differentials in the intra-industry differentials, the total value of $\sum P_k^{rm}(\hat{a}_k^u - \hat{a}_k^{rm}) + \sum P_k^{rm}\bar{X}_k^{rm}(\hat{\beta}_k^u - \hat{\beta}_k^{rm})$ (B) represents the unexplained components (e.g. the discriminations on the migrants in the same industry) in the intra-industry differentials, $\sum \bar{W}_k^u(P_k^u - \hat{P}_k^{rm})$ (C) represents the individual characteristics differentials in the inter-industry differentials, $\sum \bar{W}_k^u(\hat{P}_k^{rm} - P_k^{rm})$ (D) represents the unexplained components (e.g. the discriminations against the migrants when they entrance to industry) in the inter-industry differentials.

Second, the total value of A and B represents the total intra-industry differentials, and the total value of C and D represents the total inter-industry differentials.

Third, the total value of B and C represents the total unexplained components caused by the discriminations when the migrants entrance to industry, or when the migrants work together with local urban residents in the same industry.

2.2 Data

The survey data of CHIP2002, CHIP2013 are used for the analysis. These data are gained from the two surveys of CHIP conducted by NBS, Economic Institute of CASS and Beijing Normal University in 2008 and 2014, including respective information about the individual characteristic factors, industries and wages of migrants[2] and local urban residents.

[2] Here noticing that there perhaps exists the sampling bias problem in the migrant survey. In the survey of CHIP2002, CHIP2013, only migrants who has registered in the government officials and who are living in the urban committee in survey year can become the random selection sampling objectives, whereas most of migrants who live

Because there are design similarities of the data in the questionnaire, we can use the same information for analysis for two periods. To make comparisons in two periods, we selected the regions (provinces or cities) covered in all two surveys, including Beijing, Shanxi, Liaoning, Jiangsu, Anhui, Guangdong, Henan, Hubei, Sichuan, Yunnan, and Gansu.[7]

The wage is defined as the total earnings from work (called "the total wage"). Here, it comprises the basic wage, bonus, cash subsidy, and no cash subsidy. We use the CPI in 2002 as the standard, and adjust the nominal wage in 2013.

The analytic objects of this paper are workers, excluding the unemployed. In considering the retirement system implemented in the public sector—the state-owned enterprises (SOEs) and the government organizations, to reduce the effect of that system on the analysis result, the analytic objects are limited in the groups to between the ages of 16 and 60. No answer samples, abnormal value samples[3], and the missing value samples are deleted.

To see the depended variables setting. First, in the probability function of entry to industries, the depended variable is a category variable. To maintain the analysis samples by each industry category and consider the feature of the industry distributions of migrants, the industrial categories in the CHIPs[4] are reclassified. Five kinds of industries—construction, manufacturing, retail and wholesale industries, service, and other industries are utilized to construct the category variables.

Second, in the wage function, the depended variable is the logarithm of the wage rate. The wage rates are calculated based on total wage. The

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in the apartments nearby the workplace proved by firms might not be surveyed(Li, Sicular & Gustaffson, 2008)

[3] That variable values are not in the range of "mean value ± three times S.D." is defined as abnormal value here.

[4] The numbers of industry categories are sixteen in the survey for local urban residents, and they are twenty-five in the survey for migrants in CHIPs.

CHIP survey data for local urban residents are included those who were re-employed as non-regular workers after the employment adjustment of state-owned enterprises. The total wage in those samples are the total value of base salary, bonuses and goods calculated by monetary, excluding layoff living assistance, minimum income assistance, and living assistance by firms, income by asset and financials, security transfer income. For work hours, work hours yearly for local urban residents are calculated by "work hours daily × work days monthly × work month yearly", and work hours monthly for migrants are calculated by "work hours daily × work days weekly × 4". Wage rate are calculated by total wage divided by work hours.

The independent variables are the variables likely to affect the wage level and the probability of entry to industry, they are conducted as the follows.

First, education (primary school or below, junior high school, senior high school/vocational school, college and above), experience years[11], age, health status (very good, good, fair, bad) are conducted as the index of human capital. It is though that these might factors affect the wage level and the probability of entry to industries.

Second, because labor market is segmented by the public-and private-sectors in China, and it is pointed out that there exists wage gaps between public- and private-sectors[5], the public sector dummy variable and the private sector dummy variable are conducted to control the influence of ownerships on the wage gaps. Concretely, the public sector include state-owned enterprises (SOE) and government organizations, the private sector composes of collectively owned enterprises (COE) and foreign/private enterprises, self-employed workers, and other ownerships.

[5] For the empirical studies on the wage gap between public- and private-sectors in China, please refer Chen, Demurger & Fournier (2005), Zhang & Xue (2008), Ye, Li & Luo (2011), Demurger, Li & Yang (2012), Zhang (2012), and Ma (2014, 2015, 2016).

Third, it is thought that the special political membership may affect the probability of entry to industry and the wage levels. Party membership dummy is used in the analysis.

Fourth, considering gender, the married, and the race might affect the probability of entry to industry and wage levels, these dummy variables are utilized.

Fifth, because there exists regional disparity for economic development levels, and the labor markets are different by the regions, East, Central, West regions dummy variables are used to control these influences.

3 Descriptive statistics results

3.1 Individual characteristics differentials by migrants and local urban residents, and by industry categories

The mean values of variables by migrants and local urban residents, and by industry categories, are shown in Table 1.

First, the individual characteristic differentials between migrants and local urban residents show that the mean age is greater for local urban residents than for migrants, and that years of experience are greater for local urban residents than for migrants, in both 2002 and 2013. These results are consistent with the phenomenon that most of the younger labor force with rural registrations is moving to and working in urban areas.

Second, although in both 2002 and 2013 the proportion of workers with higher education (such as senior high school and college/university) is smaller for the migrants group, the proportion of migrant workers that has graduated from senior high school rises from 17.7% (2002) to 22.4% (2013), while the proportion of workers who have graduated from college

or university rises from 2.3% (2002) to 12.0% (2013). These results show that education differentials between local urban residents and migrants have changed greatly from 2002 to 2013.

Third, in both 2002 and 2013, the proportion of communist party member is greater for local urban residents (29.3% in 2002, 20.8% in 2013) than for migrants (3.3% in 2002, 4.3% in 2013).

Fourth, in both 2002 and 2013, most of local urban residents work in the public sector (66.7% in 2002, 40.7% in 2013), whereas the proportion of self-employed workers is greater for migrants (73.0% in 2002, 44.4% in 2013). Moreover, the proportion of workers in the private sectors rises greatly for both migrants and local urban residents. For examples, the proportion rises from 13.8% (2002) to 32.3% (2013) for local urban residents, and it rises from 11.6% (2002) to 39.1%(2013) for migrants. These results reveal that along with the decrease of worker share in the public sector, private sector absorbed more workers (both migrants and local urban residents) from 2002 to 2013.

We then compare differentials in individual characteristics by industry category. First, there exist education differentials by industry category; for example, in 2013, the proportion of workers who have graduated from college/university is greatest in the service industry (32.9%) and smallest in the retail and wholesale industry (19.6%) among local urban residents, while for migrants, the proportion is greatest in the service industry (14.4%) and smallest in the construction industry (6.4%).

Table1 Statistics Description

PanelA:2002

	Migrant						Urban					
	Total	Cons.	Manu.	Retails	Service	Others	Total	Cons.	Manu.	Retails	Service	Others
lnwage rate	0.861	1.342	1.095	0.769	0.782	0.957	1.525	1.563	1.401	1.111	1.331	1.745
age	34	34	33	34	34	36	40	42	41	39	40	41
exp	26	26	25	27	26	27	29	30	31	28	29	28
Education category												
Primary school	0.254	0.250	0.179	0.275	0.264	0.222	0.036	0.054	0.050	0.049	0.043	0.021
Jounior high school	0.546	0.566	0.547	0.562	0.538	0.505	0.266	0.259	0.357	0.372	0.297	0.182
Senior high school	0.177	0.164	0.233	0.151	0.172	0.229	0.375	0.393	0.389	0.418	0.417	0.345
College	0.023	0.020	0.041	0.012	0.025	0.044	0.323	0.294	0.204	0.161	0.243	0.451
Health status category												
very good	0.354	0.336	0.314	0.366	0.343	0.364	0.250	0.259	0.207	0.263	0.236	0.273
good	0.559	0.592	0.585	0.557	0.561	0.536	0.431	0.415	0.438	0.417	0.413	0.435
general	0.071	0.066	0.091	0.059	0.080	0.083	0.284	0.297	0.315	0.287	0.302	0.261
bad	0.016	0.007	0.009	0.019	0.017	0.017	0.035	0.029	0.039	0.033	0.049	0.030
Party	0.033	0.046	0.041	0.024	0.031	0.054	0.293	0.262	0.239	0.158	0.217	0.378
Female	0.567	0.868	0.594	0.509	0.536	0.675	0.559	0.700	0.591	0.454	0.431	0.592
Han race	0.916	0.901	0.906	0.924	0.920	0.896	0.959	0.971	0.970	0.956	0.965	0.951
Married	0.898	0.908	0.877	0.912	0.880	0.893	0.884	0.904	0.929	0.825	0.844	0.883
Ownership category												
Public sector	0.070	0.066	0.113	0.019	0.110	0.140	0.667	0.645	0.569	0.293	0.502	0.861
Private sector	0.116	0.270	0.226	0.067	0.122	0.140	0.138	0.192	0.231	0.212	0.177	0.054
self-employment	0.730	0.559	0.585	0.891	0.671	0.475	0.091	0.070	0.034	0.363	0.180	0.030
Other	0.084	0.105	0.075	0.023	0.097	0.244	0.104	0.093	0.166	0.133	0.141	0.055
Region category												
East	0.368	0.388	0.447	0.342	0.368	0.390	0.391	0.422	0.368	0.453	0.527	0.350
Central	0.345	0.224	0.358	0.361	0.298	0.386	0.342	0.278	0.350	0.302	0.244	0.376
West	0.287	0.388	0.195	0.296	0.334	0.224	0.268	0.300	0.282	0.245	0.229	0.273
Samples	3289	152	318	1563	715	541	9577	313	2457	1169	1127	4511

Source:Calculated based on CHIP2002.

Note: Samples limited on age16~60.

Panel B:2013

	Migrant						Urban					
	Total	Cons.	Manu.	Retails	Service	Others	Total	Cons.	Manu.	Retails	Service	Others
lnwage rate	2.143	2.411	2.179	2.031	2.162	2.175	2.310	2.481	2.302	2.040	2.153	2.466
age	37	41	35	37	38	37	41	42	40	40	40	41
experience	28	32	26	28	29	27	29	31	29	30	29	29
Education category												
Primary school	0.142	0.191	0.105	0.170	0.130	0.110	0.047	0.100	0.044	0.070	0.062	0.027
Jounior high school	0.515	0.564	0.545	0.539	0.502	0.437	0.261	0.351	0.322	0.367	0.300	0.173
Senior high school	0.224	0.182	0.244	0.223	0.223	0.228	0.304	0.287	0.368	0.366	0.308	0.258
College	0.120	0.064	0.105	0.068	0.144	0.224	0.388	0.262	0.266	0.196	0.329	0.542
Health status category												
very good	0.397	0.382	0.493	0.380	0.326	0.413	0.340	0.334	0.327	0.318	0.318	0.364
good	0.469	0.455	0.426	0.489	0.526	0.429	0.480	0.519	0.483	0.498	0.478	0.467
general	0.121	0.145	0.077	0.120	0.135	0.134	0.161	0.130	0.169	0.164	0.178	0.155
bad	0.014	0.018	0.005	0.011	0.014	0.024	0.019	0.017	0.021	0.021	0.026	0.014
Party	0.043	0.000	0.053	0.030	0.051	0.071	0.208	0.123	0.135	0.050	0.148	0.328
Female	0.590	0.836	0.555	0.484	0.581	0.701	0.557	0.804	0.610	0.405	0.494	0.598
Han race	0.950	0.955	0.967	0.936	0.967	0.945	0.952	0.940	0.968	0.941	0.953	0.953
Married	0.844	0.918	0.799	0.864	0.847	0.811	0.866	0.909	0.865	0.856	0.831	0.879
Ownership category												
Public sector	0.088	0.036	0.086	0.016	0.047	0.272	0.407	0.185	0.272	0.078	0.211	0.685
Private sector	0.391	0.409	0.694	0.259	0.349	0.398	0.323	0.464	0.620	0.364	0.400	0.164
self-employment	0.444	0.400	0.187	0.695	0.460	0.224	0.189	0.232	0.074	0.511	0.240	0.073
Other	0.077	0.155	0.033	0.030	0.144	0.106	0.081	0.119	0.034	0.046	0.149	0.078
Region category												
East	0.432	0.345	0.660	0.411	0.363	0.374	0.419	0.362	0.544	0.389	0.431	0.392
Central	0.395	0.345	0.301	0.418	0.400	0.449	0.350	0.304	0.323	0.336	0.313	0.385
West	0.173	0.309	0.038	0.170	0.237	0.177	0.231	0.334	0.133	0.275	0.256	0.223
Samples	1228	110	209	440	215	254	9620	470	1390	1685	1780	4295

Source:Calculated based on CHIP2013.

Note: Samples limited on age16~60.

3.2 The proportions of industry distributions

The proportions of the industrial distributions are shown in Table 2. In both 2002 and 2013, the proportions of workers in construction and retail and wholesale are greater for migrants than for local urban residents. For example, in 2013, the proportion in construction is 9.0% for the migrants, which is greater than that for local urban residents (4.9%).

In addition, in 2002, the proportion of migrants working in manufacturing (9.7%) is smaller than that of local urban residents (25.7%), whereas in 2013, the proportion of migrants in manufacturing (17.0%) is greater than that of local urban residents (14.4%). However, in 2002, the proportion of migrants working in services (21.7%) is greater than that of local urban residents (11.8%), whereas in 2013, the proportion of migrants in services (17.5%) is smaller than that of local urban residents (18.5%). Although the proportions of migrants working in the construction industry, which needs workers with physical strength, and in retail and wholesale enterprises, most of which belong to the informal sector, are still greater than those of local urban residents, the proportions working in manufacturing and services have changed significantly for both migrants and local urban residents. These industry distribution changes may affect the wage gaps between migrants and local urban residents in 2002 and 2013.

Table2 Industry Distributions

	2002		2013	
	Migrant	Urban	Migrant	Urban
Construction	4.6%	3.3%	9.0%	4.9%
Manufucturing	9.7%	25.7%	17.0%	14.4%
Retail/Catering	47.5%	12.2%	35.8%	17.5%
Service	21.7%	11.8%	17.5%	18.5%
Other	16.4%	47.1%	20.7%	44.6%
Total	100.0%	100.0%	100.0%	100.0%

Source:Calculated based on CHIP2002 and CHIP2013.

3.3 The mean values and standard deviations of the wages by Industry categories

The means and standard deviations of wages are different by industry category (see Table3). For example, in migrants group, the logarithm of the wage rates are highest for construction industry in 2002(4.762) and 2013(12.955). Whereas in local urban residents group, it is highest for other industry group (6.978) in 2002, and it is highest for construction industry (15.729) in 2013.

Table3 Mean Values and Standard Deviations of Wages by Industry categories

	Migrant		Urban	
	Mean.	S.D.	Mean.	S.D.
		2002		
Construction	4.762	3.488	6.176	5.431
Manufucturing	3.896	3.445	4.965	4.062
Retail/Wholesale	2.792	3.209	4.177	4.379
Service	2.645	2.021	5.091	5.103
Other	3.588	4.695	6.978	5.504
Total	3.087	3.377	5.875	5.160
		2013		
Construction	12.955	7.289	15.729	15.062
Manufucturing	10.755	6.946	12.951	17.229
Retail/Wholesale	9.831	9.268	10.493	11.001
Service	11.525	9.418	12.514	16.588
Other	11.176	9.386	15.052	12.517
Total	10.833	8.838	13.512	14.114

Source:Calculated based on CHIP2002 and CHIP2013.

Although these tabulation calculation results indicate that the proportional industry distributions are different for migrants and local urban residents, and that there exist industrial wage gaps between the two groups, the factors that might affect the probabilities of entry to industries and the wage level differentials have not been controlled in these results. An econometric analysis is thus conducted as follows.

4 Econometric analysis results

4.1 Which factors are the determinants that affect the probability of entry to industries?

The results of probability of entry to the various industries calculated by the multinomial logistic (ML) regression model are shown in Table 4. The reference group is the manufacturing industry.

First, in 2002, age affects the possibilities of entry to retail and wholesale for migrants, and to services and other industry for urban residents, whereas the age variables are statistically insignificant for all industry categories in 2013.

Second, in both 2002 and 2013, education affects the choices of entry to industry. For example, in 2013, for both migrants and local urban residents, the possibilities of entry to services (migrants 0.788, local urban residents 0.381), and other industry (migrants 1.278, local urban residents 1.384) for workers with higher education (college/university) are greater than those of workers with low- or mid-level education.

Third, party membership effects are exist. For example, in both 2002 and 2013, the possibility of entry to retail and wholesale industry for communist party member group is lower (-0.219 in 2002, -0.919 in 2013), whereas the possibility of entry to manufacturing industry is higher for local urban residents.

Fourth, there exists gender gaps of possibility of entry to industry. For example, in 2013, the possibility of entry to construction industry is lower for females in both migrants (-1.576) and local urban residents (-0.996).

Fifth, the possibility of entry to the industry is different by the married and no-married groups. For example, in 2013, compared with the single group, the probability of entry to service industry is lower for the married local urban residents.

Table4 Results of Probability of Entry to Industry

PanelA:2002

	Construction		Retail/Wholesale		Service		Other	
	Migrant	Urban	Migrant	Urban	Migrant	Urban	Migrant	Urban
Age	0.023	0.008	0.137 **	-0.074 *	0.015	-0.078 **	-0.024	-0.072 **
	(0.24)	(0.13)	(2.40)	(-1.96)	(0.25)	(-2.06)	(-0.38)	(-2.51)
Age squred	-4.666E-04	4.200E-05	-0.002 **	0.001	4.460E-05	0.001 **	0.001	0.001 ***
	(-0.38)	(0.05)	(-2.16)	(1.39)	(0.06)	(2.06)	(0.83)	(2.83)
Education (Junior high school)								
Primary school	0.416 *	0.307	0.275 *	0.038	0.247	0.103	0.206	-0.265 *
	(1.62)	(1.10)	(1.63)	(0.23)	(1.35)	(0.58)	(1.06)	(-1.84)
Senior high school	-0.439 *	0.325 **	-0.394 **	-0.102	-0.241	0.164 *	0.004	0.481 ***
	(-1.65)	(2.18)	(-2.50)	(-1.24)	(-1.39)	(1.89)	(0.02)	(7.46)
College/University	-0.597	0.651 ***	-1.142 ***	-0.500 ***	-0.382	0.264 **	0.333	1.299 ***
	(-1.00)	(3.85)	(-3.01)	(-4.58)	(-1.00)	(2.53)	(0.92)	(17.74)
Health	0.318	0.127	0.418 **	0.079	0.197	0.002	0.015	0.217 ***
	(0.91)	(0.99)	(1.99)	(1.04)	(0.87)	(0.03)	(0.06)	(3.92)
Party	-0.098	-0.092	-0.417	-0.219 **	-0.273	-0.043	-0.168	0.423 ***
	(-0.20)	(-0.64)	(-1.28)	(-2.23)	(-0.78)	(-0.46)	(-0.49)	(6.87)
Female	-1.683 ***	-0.480 ***	0.313 **	0.511 ***	0.215	0.666 ***	-0.276 *	0.073
	(-6.25)	(-3.69)	(2.44)	(7.05)	(1.54)	(9.06)	(-1.84)	(1.37)
Married	0.115	-0.382	-0.135	-0.570 ***	-0.272	-0.612 ***	-0.034	-0.377 ***
	(0.28)	(-1.44)	(-0.54)	(-3.85)	(-1.02)	(-4.08)	(-0.12)	(-3.17)
Han race	-0.101	0.152	0.197	-0.335 *	0.162	-0.152	-0.105	-0.481 ***
	(-0.32)	(0.42)	(0.91)	(-1.79)	(0.68)	(-0.76)	(-0.44)	(-3.41)
Region(East)								
Central	-0.481 *	-0.341 **	0.294 **	-0.288 ***	0.034	-0.688 ***	0.189	0.127 **
	(-1.92)	(-2.35)	(2.08)	(-3.46)	(0.22)	(-7.97)	(1.17)	(2.08)
West	0.652 ***	0.007	0.622 ***	-0.265 ***	0.691 ***	-0.500 ***	0.240	0.075
	(2.75)	(0.05)	(3.79)	(-2.98)	(3.93)	(-5.61)	(1.26)	(1.15)
Cosntants	-0.827	-2.346 *	-1.855 *	2.029 ***	-0.124	1.362 *	0.510	1.691 ***
	(-0.53)	(-1.84)	(-1.93)	(2.87)	(-0.12)	(1.90)	(0.48)	(3.10)
Samples	3330	9927						
Log Likelihood	-4365.867	-12465.713						
Pseudo R2	0.031	0.0556						

Source:Calculated based on CHIP2002.

Note:1. *,**,***: statistical significant level are10%,5%.1%.

2. Reference group in multilogit regression modle ananlysis is manufacturing industry group.

3. z values are shown in the parentheses.

Sixth, in both 2002 and 2013, the possibilities of entry to construction, retail and wholesale, services, and other industry, are higher in the West and Central regions, whereas the possibilities of entry to manufacturing are relatively higher in the East region for both migrants and local urban residents. These results might be caused by regional disparities in industry distributions. For example, since China's entry into the WTO, manufacturing industry has been concentrated in the East region, so an accumulation of manufacturing industry exists in the eastern coastal area.

4.2 Do wage gaps exist between the industry categories?

Do wage gaps exist between the industry categories? To answer this question, wage functions including dummy variables for industry categories are estimated, the results being shown in Table 5.

First, the Maddala model (Maddala 1983) is utilized to adjust the sample selection bias caused by the choice of entry to an industry. In both 2002 and 2013, the correct items are statistically significant for the local urban residents group and the coefficients of these correct items are all negative values. The results for the local urban residents group will thus be overestimated when these selection biases are not adjusted.

Second, industrial wage gaps exist for both migrants and local urban residents. For example, compared with manufacturing and with other factors held constant, wage levels in construction are higher both for migrants (0.223 in 2002, 0.233 in 2013) and local urban residents (0.087 in 2002, 0.205 in 2013). Moreover, for the local urban residents group, compared with manufacturing, wages levels are lower in retail and wholesale as well as in services in both 2002 and 2003. For migrants, wages levels are lower in 2003 in retail and wholesale, services, and other industry, whereas the wage gaps between the groups in manufacturing, retail and wholesale, services, and other industry are not statistically significant in 2013.

Table5 Results of Wage Function (Entire Industries)

	2002				2013			
	Migrant		Urban		Migrant		Urban	
	coef.	t value	coef.	t value	coef.	t value	coef.	t value
Experience	0.016 *	1.96	0.026 ***	6.65	0.014	0.92	0.023 ***	4.96
Experience squq	-3.981E-04 ***	-3.27	0.000 ***	-4.00	-0.001 ***	-2.77	-4.884E-04 ***	-6.46
Education (Junior high school)								
Primary school	-0.116 ***	-3.37	-0.231 ***	-3.71	0.197 **	2.18	0.019	0.38
Senior high scho	0.277 **	2.27	0.266 ***	5.45	0.037	0.58	0.006	0.13
College/Universi	0.750 *	1.87	0.678 ***	5.05	-0.346	-1.11	-0.098	-0.58
Health	-0.094	-0.74	0.044 *	1.87	0.281 ***	2.57	-0.016	-0.59
Party	0.214 *	1.64	0.207 ***	3.66	0.151	0.89	-0.241 **	-2.10
Female	-0.518 **	-2.15	-0.115 **	-2.40	0.042	0.19	-0.178 ***	-4.58
Han race	-0.062	-0.52	-0.191 ***	-3.27	0.465 ***	2.68	0.115 ***	2.98
Ownership (Public)								
Private	0.198 ***	3.77	-0.172 ***	-8.95	-0.075	-0.98	-0.054 ***	-2.69
Self-employed	0.104 **	2.32	-0.470 ***	-19.13	-0.030	-0.37	-0.089 ***	-3.55
Other	-0.066	-1.19	-0.123 ***	-5.87	-0.403 ***	-4.02	-0.234 ***	-7.87
Industries(Manusfacturing)								
Construction	0.223 ***	3.62	0.087 **	2.42	0.233 ***	2.78	0.205 ***	5.32
Retail/Catering	-0.250 ***	-6.38	-0.092 ***	-4.04	-0.095	-1.54	-0.116 ***	-4.22
Service	-0.229 ***	-5.45	-0.050 **	-2.25	0.025	0.36	-0.086 ***	-3.29
Other	-0.081 *	-1.82	0.210 ***	13.13	-0.034	-0.51	0.044 *	1.85
Region(East)								
Central	-0.408 ***	-7.39	-0.311 ***	-5.64	-0.557 ***	-3.87	-0.530 ***	-9.39
West	-0.376 **	-2.52	-0.266 ***	-7.67	-0.673 **	-2.27	-0.454 ***	-7.58
correct item1	9.686	1.04	-5.656	-1.53	-11.524	-1.48	-5.819 ***	-2.62
correct item2	7.983	0.89	-5.456 **	-2.52	-6.901	-0.80	-3.024	-1.22
correct item3	5.660	0.57	-2.214	-0.96	-10.614	-1.26	-6.374 **	-2.42
correct item4	7.860	0.93	-6.110 ***	-2.85	-10.678	-1.59	-3.019	-1.46
correct item5	8.165	0.72	-3.630	-1.56	-14.149	-1.48	-9.200 ***	-3.94
Cosntants	-25.811	-0.81	16.901 **	2.44	38.392	1.42	20.583 ***	2.71
Samples	3289		9577		1228		9620	
Adj R-squared	0.175		0.311		0.149		0.201	

Source:Calculated based on CHIP2002 and CHIP2013.

Note: *,**,***: statistical significant levels are10%,5%.1%.

4.3 How do industrial factors affect the wage gaps?

First, wage functions by industry category are estimated, with the results shown in Table 6. The estimations show that although human capital, gender, and ownership have the greatest effect on industry wage levels in both 2002 and 2013, the influences of human capital on wage levels differ between migrants and local urban residents; the effects of human capital are greater for the local urban residents group. These results are consistent with previous studies on the wage structures of migrants and local urban residents in urban China (Wang 2003; Zhang & Xue; 2008; Zhang, 2012; Ma 2014, 2015, 2016).

Table 6 Results of Wage Function by Industry Categories

Panel A: 2002

	Construction		Manufacturing		Retail/Wholesale		Service		Other	
	Migrants	Urban	Migrants	Urban	Migrants	Urban	Migrants	Urban	Migrants	Urban
Experience	0.057 *	0.036 *	0.059 ***	0.025 ***	0.007	0.043 ***	0.022 *	0.008	0.039 ***	0.033 ***
	(1.93)	(1.85)	(2.96)	(3.29)	(0.56)	(3.99)	(1.82)	(0.73)	(2.74)	(7.46)
Experience squqred	-0.001	-1.810E-04	-0.001 ***	-2.935E-04 ***	-2.463E-04	-0.001 ***	0.000 **	4.700E-05	-0.001 ***	0.000 ***
	(-1.33)	(-0.53)	(-3.07)	(-2.32)	(-1.27)	(-4.51)	(-2.42)	(0.24)	(-3.21)	(-3.85)
Education (Junior high school)										
Primary school	-0.339 **	-0.062	-0.076	-0.192 ***	-0.112 ***	0.074	-0.096 *	-0.202 *	-0.114	-0.154 **
	(-2.13)	(-0.23)	(-0.63)	(-3.32)	(-2.75)	(0.72)	(-1.66)	(-1.83)	(-1.39)	(-2.02)
Senior high school	0.441 **	0.171	0.262 **	0.255 ***	0.180 **	0.105	0.176 ***	0.218 ***	4.173E-04	0.180 ***
	(2.44)	(1.52)	(2.13)	(6.80)	(2.20)	(1.50)	(2.88)	(4.22)	(0.00)	(2.89)
College/University	0.883 **	0.536 ***	0.426 *	0.556 ***	0.556 *	0.065	0.523 ***	0.580 ***	-0.469	0.317 **
	(2.25)	(4.32)	(1.69)	(7.89)	(1.92)	(0.41)	(3.74)	(7.26)	(-0.80)	(2.03)
Health	-0.142	0.044	-0.086	0.016	0.027	-0.002	0.013	-0.007	0.236	-0.049 *
	(-0.69)	(0.56)	(-0.60)	(0.59)	(0.25)	(-0.05)	(0.18)	(-0.15)	(1.28)	(-1.76)
Party	0.025	-0.063	0.313	0.148 ***	0.070	0.077	-0.017	0.031	-0.138	0.034
	(0.09)	(-0.43)	(1.46)	(4.41)	(0.49)	(1.12)	(-0.14)	(0.50)	(-0.77)	(0.61)
Female	0.373	-0.305	-0.241 ***	-0.093 ***	-0.304 **	-0.073	-0.191 ***	-0.234 ***	0.016	-0.035
	(0.88)	(-1.24)	(-3.12)	(-3.10)	(-2.46)	(-1.26)	(-3.41)	(-2.75)	(0.07)	(-1.39)
Ownership (Public)										
Private	-0.032	0.074	0.076	-0.120 ***	0.137	-0.143 **	0.217 **	-0.368 ***	0.360 ***	-0.199 ***
	(-0.15)	(0.75)	(0.57)	(-4.19)	(1.04)	(-2.50)	(2.44)	(-6.60)	(3.29)	(-5.24)
Self-employed	0.101	-0.128	0.006	-0.360 ***	-0.013	-0.477 ***	0.151 **	-0.596 ***	0.170 *	-0.445 ***
	(0.48)	(-0.87)	(0.05)	(-5.61)	(-0.11)	(-9.18)	(2.17)	(-10.28)	(1.86)	(-8.79)
Other	-0.136	0.007	-0.025	-0.053 *	-0.136	0.025	0.004	-0.380 ***	-0.066	-0.145 ***
	(-0.54)	(0.06)	(-0.14)	(-1.67)	(-0.87)	(0.39)	(0.04)	(-6.34)	(-0.68)	(-3.87)
Han race	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Regions	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
correct item	-12.010	24.688	-3.269	-1.559 **	-2.175	4.201 ***	4.138 *	-0.754	-9.984 *	-1.313
	(-1.37)	(1.41)	(-0.64)	(-2.23)	(-0.99)	(2.72)	(1.64)	(-0.39)	(-1.77)	(-1.39)
Cosntants	9.482	-18.451	3.052	2.018 ***	2.125	-1.727 *	-2.220	2.066 *	7.199 *	1.877 ***
	(1.51)	(-1.35)	(0.89)	(4.04)	(1.41)	(-1.85)	(-1.39)	(1.64)	(1.93)	(3.24)
Samples	152	313	318	2452	1563	1169	715	1127	541	4511
Adj R-squared	0.165	0.2469	0.179	0.187	0.099	0.287	0.151	0.290	0.206	0.233

Source:Calculated based on CHIP2002.

Note:1. *,**,***: statistical significant levels are10%,5%.1%.

2. z values are shown in the parentheses.

Panel B: 2013

	Construction		Manufacturing		Retail/Wholesale		Service		Other	
	Migrants	Urban	Migrants	Urban	Migrants	Urban	Migrants	Urban	Migrants	Urban
Experience	0.011	0.080 ***	0.074 ***	0.026 ***	0.041 ***	0.047 ***	0.021	0.024 **	0.038 *	0.025 ***
	(0.33)	(5.65)	(3.09)	(3.14)	(2.64)	(2.14)	(0.72)	(2.33)	(1.79)	(5.01)
Experience squqred	-4.071E-04	-0.001 ***	-0.001 ***	-4.117E-04 ***	-0.001 **	-0.001 ***	-0.001	-3.772E-04 **	-0.001 **	-4.747E-04 ***
	(-0.86)	(-4.85)	(-3.46)	(-2.92)	(-2.19)	(-4.48)	(-1.51)	(-2.26)	(-2.23)	(-5.69)
Education (Junior high school)										
Primary school	0.041	-0.116	-0.085	-0.045	-0.029	-0.022	0.494 **	-0.062	0.159	0.044
	(0.26)	(-0.75)	(-0.52)	(-0.44)	(-0.23)	(-0.26)	(2.22)	(-0.72)	(0.91)	(0.57)
Senior high school	0.224 **	-0.005	0.073	0.190 ***	0.271 ***	0.249 ***	0.052	0.154 ***	0.030	0.005
	(1.40)	(-0.06)	(0.63)	(3.91)	(3.17)	(4.59)	(0.36)	(2.80)	(0.21)	(0.10)
College/University	0.129 ***	0.460 ***	0.547 ***	0.559 ***	0.742 ***	0.726 ***	-0.048	0.598 ***	-0.199	-0.182
	(0.46)	(3.87)	(2.99)	(8.90)	(2.76)	(4.38)	(-0.18)	(7.27)	(-0.43)	(-1.12)
Health	-0.003	0.016	-0.031	0.043	0.094	0.071	0.145	0.073	0.215	0.041
	(-0.02)	(0.16)	(-0.18)	(0.81)	(0.95)	(1.47)	(0.94)	(1.33)	(1.16)	(1.32)
Party	(omitted)	-0.141	-0.165	0.234 ***	0.170	0.175	0.183	-0.033	0.013	-0.359 ***
	(omitted)	(-1.26)	(-0.58)	(3.53)	(0.82)	(1.21)	(0.74)	(-0.49)	(0.05)	(-3.70)
Female	-0.084	-0.178	-0.260	-0.045	-0.434 **	-0.402 ***	-0.440 ***	-0.156 ***	-0.259	-0.113 ***
	(-0.26)	(-1.28)	(-1.40)	(-0.54)	(-2.44)	(-3.54)	(-3.81)	(-2.79)	(-1.10)	(-3.88)
Ownership (Public)										
Private	-0.098	-0.143	0.250	-0.059	-0.129	0.021	-0.162	-0.025	-0.216 *	-0.073 **
	(-0.32)	(-1.57)	(1.43)	(-1.33)	(-0.49)	(0.29)	(-0.63)	(-0.50)	(-1.86)	(-2.44)
Self-employed	0.083	-0.045	0.335 *	0.114	-0.247	-0.055	0.145	-0.052	-0.157	-0.119 ***
	(0.27)	(-0.42)	(1.73)	(1.48)	(-0.97)	(-0.77)	(0.57)	(-0.87)	(-1.18)	(-2.78)
Other	-0.036	-0.142	-0.588 *	-0.373 ***	-0.439	-0.025	-0.450	-0.238 ***	-0.440 ***	-0.284 ***
	(-0.11)	(-1.11)	(-1.93)	(-3.56)	(-1.41)	(-0.23)	(-1.59)	(-3.68)	(-2.59)	(-6.79)
Han race	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Regions	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
correct item	-2.033	0.997	-2.836	-4.141 *	-1.417	-1.721	-5.921	2.974 *	-3.290	-4.148 ***
	(-0.50)	(0.33)	(-0.83)	(-1.84)	(-0.68)	(-1.05)	(-1.30)	(1.66)	(-0.92)	(-4.33)
Cosntants	4.389	1.181	3.485	5.229 ***	2.458 **	2.741 ***	7.014 *	0.021	4.210 *	5.070 ***
	(1.29)	(0.52)	(1.28)	(3.08)	(2.01)	(2.59)	(1.87)	(0.02)	(1.85)	(7.29)
Samples	110	470	209	1390	440	1685	215	1780	254	4295
Adj R-squared	0.1159	0.1345	0.168	0.142	0.127	0.128	0.151	0.208	0.130	0.169

Source:Calculated based on CHIP2013.

Note:1. *,**,***: statistical significant levels are10%,5%.1%.

2. z values are shown in the parentheses.

Then, based on the estimated results shown in Table 4, the implied industry distributions are calculated, with the results summarized in Table 7. These findings show that if discrimination against migrants did not exist, then the proportions of migrants in manufacturing and other industries (such as education, finance, and governmental organizations) will increase in 2002, while the proportions in construction, manufacturing, and services will increase in 2013. On the other hand, for local urban residents, the proportion working in retail and wholesale and services will increase in 2002, while the proportions in construction, manufacturing, retail and wholesale, and services will increase in 2013. The results reveal that an irrational allocation of labor may exist in the registration system.

Does discrimination against migrants who try to enter an industry affect the wage gap? The following estimated results based on the Brown *et al.* (1980) model can provide us with an answer.

Table7 Industry Distributions by the Actual Values and the Imputed Values

	Actural value		Imputed Value	Differentials (I-A)	
	Migrant	Urban	Migrant	Migrant	Urban
			2002		
Construaction	4.6%	3.3%	2.4%	-2.2%	-2.9%
Manufucturing	9.7%	25.7%	23.8%	14.1%	-11.6%
Retail/Catering	47.5%	12.2%	30.9%	-16.6%	18.7%
Service	21.7%	11.8%	14.1%	-7.6%	2.3%
Other	16.3%	47.0%	28.8%	12.5%	-18.2%
Total	100.0%	100.0%	100.0%		
			2013		
Construaction	9.0%	4.9%	11.2%	2.3%	6.3%
Manufucturing	17.0%	14.4%	17.3%	0.3%	2.9%
Retail/Catering	35.8%	17.5%	25.6%	-10.2%	8.1%
Service	17.5%	18.5%	36.5%	19.0%	18.0%
Other	20.7%	44.7%	9.4%	-11.3%	-35.3%
Total	100.0%	100.0%	100.0%		

Source:Calculated based on CHIP2002 and CHIP2013.

The decomposition results based on the Brown *et al.* model are shown in Table 8. The values and percentage contributions to the wage gap are summarized. The main results are as follows.

First, [estimation1] considered the influences of both explained and unexplained differentials; the influences of the explained differentials are greater in both 2002 and 2013. In 2002, for example, the explained differentials make up 61.4% of the inter-industry differential and 75.9% of the intra-industry differential; these values are greater than those for the unexplained differentials, which make up 38.6% of the inter-industry differential and 24.1% of the intra-industry differential. The tendencies of the estimated results in 2013 are similar to those in 2002. These results indicate that the explained differential is the main factor that caused the wage gaps observed in both 2002 and 2013.

Second, [estimation2] considered the effects of inter-industry and intra-industry differentials; and found that the influences of intra-industry differentials are greater than those of inter-industry differentials. The contributions of intra-industry differentials are 80.6% in 2002 and 145.7% in 2013, whereas the contributions of inter-industry differentials are 19.4% in 2002 and −45.7% in 2013. The results reveal that the intra-industry differential is a main factor underlying the wage gap.

Third, in the results of [estimation2], which factor has the greatest influence on the wage gap? Of the overall decomposition results, the highest value obtained in 2002 is the explained component of the intra-industry differential (61.2%); the findings show that differentials in individual characteristics (such as human capital) between migrants and local urban residents in the same industry are the main cause of the wage gap in 2002. Moreover, in 2013, both the effects of explained differentials (77.7%) and unexplained differentials (68.0%) on intra-industry differentials are greater. This implies that differentials in individual characteristics and discrimination against migrants in the same industry are the main causes of the wage gap in 2013.

Fourth, to consider the influences on intra-industry differentials; while the effect of the explained differential is greater than that of the

unexplained differential in both 2002 and 2013, the contribution of the unexplained differential rises greatly from 19.4% (2002) to 68.0% (2013). This shows that if other factors are held constant, the problem of discrimination against migrants in the same industry has become more serious in recent years.

Table8 Decomposition Results Based on Brown Model

		Estimation1	Estimation2
	Actual Value	Percentage (%)	Percentage (%)
		2002	
Total wage differentials	0.6571		100.0%
Inter-industry differential	0.1272	100.0%	19.4%
Explained differential	0.0780	61.4%	11.9%
Unexplained differential	0.0492	38.6%	7.5%
Intra-industry differential	0.5299	100.0%	80.6%
Explained differential	0.4022	75.9%	61.2%
Unexplained differential	0.1277	24.1%	19.4%
		100%	
Total explained differentials	0.4802	73.1%	
Total unexplained differentials	0.1769	26.9%	
		2013	
Total wage differentials	0.1676		100%
Inter-industry differential	-0.0767	100%	-45.70%
Explained differential	-0.0944	123.1%	-56.3%
Unexplained differential	0.0177	-23.1%	10.6%
Intra-industry differential	0.2443	100%	145.7%
Explained differential	0.1303	53.3%	77.7%
Unexplained differential	0.1140	46.7%	68.0%
		100%	
Total explained differentials	0.0359	21.4%	
Total unexplained differentials	0.1317	78.6%	

Source:Calculated based on CHIP2002 and CHIP2013.

5 Conclusions

This paper explores industrial segregation and its impact on the wage gaps between rural-to-urban migrants and local urban residents in China. Using the Chinese Household Income Project (CHIP) 2002 and 2013 surveys, we analyzed the probabilities of entry to various industries for both migrant and local urban resident groups; using the model of Brown *et al.* (1980),

we then undertook a decomposition analysis of the wage gaps. Several major conclusions emerge.

First, the industry distributions of migrants and local urban residents differ in both 2002 and 2013; a persistent industrial wage gap therefore exists between these two groups.

Second, although both inter-industry differentials and intra-industry differentials affect the wage gap between migrants and local urban residents, the influence of intra-industry differentials is greater than that of inter-industry differentials.

Third, when compared with unexplained differentials, the influences of explained differentials are greater in both 2002 and 2013. The results indicate that the explained differentials are the main reasons behind the wage gaps in both 2002 and 2013.

Fourth, looking at the overall decomposition results, the differentials in individual characteristics (such as human capital) between migrants group and local urban residents in the same industry is the main reason for the wage gap in 2002. In addition, in 2013, the differentials in individual characteristics and discrimination within the same industry sector are the main reasons for the wage gaps.

Fifth, to consider the effect of intra-industry differentials; although the contribution of explained differentials is greater than that of unexplained differentials in both 2002 and 2013, the contributions of unexplained differentials to intra-industry differentials rise greatly from 19.4% (2002) to 68.0% (2013). The results show that with other factors held constant, the problem of discrimination against migrants in the same industry is becoming more serious.

These findings indicate that to reduce wage gaps between migrants and local urban residents, employment equality laws and an equal pay for equal work policy are immediate priorities. Policies that aim to reduce human capital differentials between these two groups, such as education

and years of tenure, should also be implemented in the long term.

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