Returns to education and wage disparity in a transitional labour market: evidence from China 2005 national survey

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Abstract

Wage discrimination in the process of economic transition in China has been widely paid attention by empirical and theoretical research recent years. With employing a spline regression model, a hierarchical linear model and a special model dealing with errors' spatial autocorrelation and heteroskedasticity, this paper analyzes the role of returns to education in wage discrimination against people with agricultural *hukou*, and tests the theories of information economics and dual labor market for wage disparity, based on eleven provinces in southeast China from the 2005 1% National Population Sample Survey (NPSS) dataset. We found that different returns to education attainment explained the effect of *hukou* types on wage disparity. Theory of information economics was confirmed that the gap of returns to education is a way to explain wage discrimination against rural immigrants, rather than prejudice. The hypothesis that education may engender wage disparity in the dual labor market with "primary" and "secondary" sectors was proved in explaining China's rural-urban migration and related bewildering phenomenon. Finally, some policies addressing the problems of rural compulsory education were also briefly discussed as the means to narrow wage disparity in contemporary China.

Key words： Wage，Household registration system (*hukou*), Returns to education, Dual labor market theory

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1 Introduction

The relationship between earnings and human capital is a long-standing topic that lots of scholars have contributed to its theoretical development (E.g., Becker, 1993; Mincer, 1974; Schultz, 1961). As it applies to China, some researchers have examined education's role in determining labor's income in either rural or urban areas. They generally confirmed the relationship between education and earnings, and found that returns to education attainment increased as time passed by (Heckman and Li, 2004; Zhou, 2000), though its effect might fluctuate under different situations (Wu and Xie, 2003) or might be relatively weak compared to international standards (Xie and Hannum, 1996) or, most importantly, might has a significant difference between urban and rural areas - the returns to education in rural areas are much lower than those in urban areas after 1990s (Hou, 2004; Wu and Xie, 2003; Yao and Zhang, 2004; Zhao, 1999).

On the other hand, as far as the rural-urban income disparity is concerned, native scholars have paid much attention to household registration system (*hukou*)[1] as a major determinant of

[1] The household registration system was set up in 1958 in order to "guarantee the adequacy of laborers producing agricultural products in rural areas, and to limit the number of people enjoying low priced food in urban areas". Generally, it separates population into rural (agricultural *hukou*) and urban areas (non-agricultural *hukou*). According to its regulations, any person AT BIRTH should be registered in locality where his or her mother is registered, with the same *hukou* type as his or her mother (Cai, 2003). Even though the abolition of the commune system and the introduction of the "household responsibility system" made individual households responsible for particular plots greatly improving the efficiency of agricultural production and made peasants free from the land to seek jobs in the industrial and service sectors (Liang, 2001; Lin, 1988; Wu and Treiman, 2004), employees with rural *hukou* status are still classified as "peasant-workers" and thereby are not entitled to the many labor rights and benefits enjoyed by employees with urban *hukou*. No matter how similar their jobs are to

labor's income. While some scholars remained conservative about whether *hukou* would have an independent effect on the actual and undoubted wage difference between people with agricultural *hukou* and with non-agricultural *hukou* in rural areas (Li and Li, 2007), others asserted that rural immigrant labor (or peasant-worker, nong min gong) has been discriminated in their wage simply because of their agricultural *hukou* (Deng, 2007; Wang M, 2003; Yao and Lai, 2004). Indeed, combined with the current opinions of social justice expressed by the public which argues against the unequal social welfare system that provides relatively little support to people with agricultural *hukou* in fields such as education, medical, and so on, it is easy and straightforward to attribute all the discriminations against rural immigrant labors to "prejudice", which means an antipathy based on faulty and inflexible generalization and might be directed toward a minority group or an individual of that group (Allport, 1954). However, unlike physical traits such as gender, complexion and age, *hukou* status might be too invisible to serve as a source for prejudice. Meanwhile, setting aside the general question that whether the majority group would be happy to find a scapegoat for all these problems associated with China's rapid urbanization, the situation might be quite otherwise when we focus on discrimination in wage. Together with some empirical findings that prejudice will not cause wage discrimination against immigrants (Evans and Kelley, 1991), some economists pointed that wage discrimination might be based on reasons other than prejudice and personal characters such as gender, age and race. It might be a costless way to separate those employees with higher productivity and human capital (Arrow, 1971; Spence, 1973). Hence, does the gap between returns to education in rural and urban areas, as was

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those held by urban workers (Wang et al., 2002). See Lu (2003) for more details about household registration system.

mentioned above, has anything to do with the wage discrimination against people with agricultural *hukou*? Or, more precisely, do the returns to education play a role in explanation of this wage disparity based on *hukou* status? Which theory, the scapegoat theory or information economics, is more preferable in explaining China's wage disparity based on *hukou* status? Then, adopting the data of eleven provinces in southeast China of the 2005 1% National Population Sample Survey (NPSS), we will investigate factors that influence the wage gap defined by *hukou* type and examine the validity of different theories in explaining wage disparity. Further, similar to many other developing countries, rural-out migration in China is largely compelled by economic reasons (Jalan and Ravallion, 2001; Li, 2003; Massey, et al., 1993; Massey and Espinosa, 1997). Understanding the real source for wage discrimination based on different *hukou* status may thus play a key role in understanding the reasons for the large and ever-increasing rural-urban migration in contemporary China. Hence, the paper will reexamine the validity of these findings in predicting rural labor's income and discuss its implications on China's rural-urban migration.

2 Data and variables

2.1 Data source

This research is based on the China 2005 1% National Population Sample Survey (NPSS)[2]. The geographical focus of the research is eleven provinces located in the southeast part of China, namely, Shanghai, Jiangsu, Zhejiang, Shandong, Henan, Hubei, Hunan, Jiangxi, Anhui, Guangdong and Fujian. Based on China's Yearbook 2004, the eleven provinces of southeast

[2] For the sampling method and questionnaires of this micro-census, please see the website of State Statistical Bureau: http://www.stats.gov.cn/tjgb/rkpcgb/qgrkpcgb/t20060316_402310923.htm

China have more than half (52.4%) of the country's population and account for 73.8 % of the nation's GDP. Besides, these areas include the major origins and destinations of rural-urban migrants in contemporary China, which allow us to examine the effect of returns to education on the motives of migration in a concentrated area (Yang and Wang, 2007). Hence, though this paper only analyzes one third of China's provinces, it deals with the main body of the country in a demographical or economical sense. We may as well visualize the provinces of interest with the following map (see Figure 1). Yet, the macro-unit for analysis would be at city level. However, the word "City" is an ambiguous term in China and it represents both an administrative region (including city itself and the counties, towns and villages to which are affiliated) and the city areas of that region. So we would call it "region" when it refers to an administrative region and "city" when it refers to the city areas of that region. Actually, the eleven provinces contain 145 regions in all.

Figure 1. The location map of studied areas in China

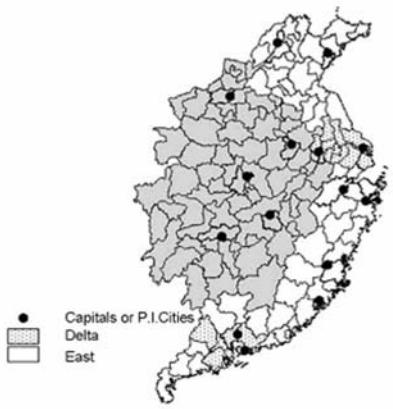

Figure 2. Indication map for three geographical variables

2.2 Dependent and independent variables

Since a hierarchical linear model will be employed later to explore and examine the paper's empirical findings, both person-level and region-level variables are included in the analysis:

Personal-level variables

Income: The question concerning income was coded to ask respondent's monthly income earned by labor (wage) in October in 2005, excluding those acquired by non-labor factors, such as property or transfer. We use its logarithmic as the dependent variable of the model. Due to the nature of logarithmic transformation, this research is confined on those who have responded a non-zero answer to the income question (N=638,871). Indeed, it may be doubted that we have omitted the unemployed at working age, and our results may somewhat overestimate the actual income on the whole and be subject to selective bias. However, this can be largely compensated by the instructions[3] of the income question during this survey. Meanwhile, it should be noted that the wage reported by themselves might be a little systematically biased in some seasonal occupation like tourism, farming and so on.

Hukou type, a dummy variable, was coded as agricultural *hukou*=0 and non-agricultural *hukou*=1.

Current location, a dummy variable, was coded as rural areas=0 and urban areas=1. Unfortunately, although the dichotomic classification of China as urban and rural areas has been widely used, the survey actually divides China into three categories with reference to degrees of urbanization level, namely, city, county and village. Based on the differences of means of log-wage, city and county areas of the 145 regions were combined to denote the urban areas, and the village areas of 144 regions[4] were coded as rural areas. Besides, two features set the NPSS data apart from other censuses conducted in China. One is that it first introduced a question concerning respondent's income; the other is that it was based on de

[3] The instruction stated that for those have no income in reference period, they should report the income in the most recent month; for those who obtain an annual salary, they calculate and report the corresponding monthly wage; and for those who began to participate work and had not received wage yet, they should report monthly income expected to earn.
[4] The region of Shenzhen didn't have any rural area, see endnote of Table 2

facto population, not de jure population. And the latter feature allows us to identify a rural-urban migration if a person with agricultural *hukou* was located in urban areas.

Years of schooling was a continuous variable constructed on the basis of the corresponding years of respondent's level of education[5], assisted by status of educational achievement[6]. Though converting an original nominal variable into a continuous one means a loss of information and a linear constraint on the variable's partial effect, the single continuous variable constructed by years of schooling is still preferred to a group of dummy variables based on level of education for simplicity without loss of generality[7]. Besides, this construction could incorporate the information obtained from status of education achievement, which is difficult to use if we treat this variable as a nominal one. Meanwhile, those who were still at school in the reference period were screened out from analysis since their part-time wage may not consist with their human capital.

The following variables are deemed as person-level control variables:

Gender, a dummy variable, was coded as male=0 and female=1.

Age refers to the respondent's exact age as measured by year and only those who were not younger than 15 would report their income. Since the NPSS does not contain questions about respondent's working experience, and working experience could be roughly represented by a linear combination between age and years of schooling, their age was used here as a control variable for their working experience.

[5] Answers in questionnaire include seven categories, namely, "illiteracy, primary school, junior secondary school, senior secondary school, tertiary professional school, college, graduate school".

[6] Answers in questionnaire include five categories, namely, "at school", "graduated with a diploma", "graduated but failed to obtain diploma", "drop out", "others". Assisted by results of goodness of fit test, we gave the latter three categories shorter years of schooling, respectively, with comparison to those "graduated with a diploma". Readers can contact: fu_qiang@pku.edu.cn for more details about this construction.

[7] The model will reach the same conclusion as the results listed in table 3 if we treat occupations as control variables. And we used spline regression below to examine and express the non-linear effect of years of schooling.

Hours worked last week refers to the respondent's working hours from October 25 to October 31 in 2005.

State of health, a dummy variable reported by respondents themselves with a question, was coded as unhealthy=0[8] and healthy=1.

Occupation was denoted by a group of dummy variables, with a reference group representing workers in agriculture and related affairs. The Table for Occupation Classification and Coding generally divides 73 occupations in the questionnaire into six major categories: Leadership, Professional, Public Service, Business Service, Operators and Producers, and Occupations in Agriculture and Related Affairs (forestry, animal husbandry, fisheries etc.). The first five categories were coded as dummy variables.

Table 1 gives the person-level variables a brief description about their means and standardized deviance. Obviously, the dependent variable exhibits a gap between different *hukou* types. Actually, it means that being a person with non-agricultural *hukou* indicates an average monthly wage of 1042 yuan (China money unit, 1$=7.5 yuan), while people with agricultural *hukou* only obtain 403 yuan monthly. If we turn to the independent variables, as expected, the most important gap exists in the current location, nearly all the people with non-agricultural *hukou* are located in the urban areas and only more than one third of the people with agricultural *hukou* are located there. The difference between years of schooling is second to it. On average, people with non-agricultural *hukou* nearly finished senior secondary school, while people with agricultural *hukou* were on the midway between primary and junior secondary school. As far as occupation is concerned, people with non-agricultural *hukou* have

[8] For those who didn't report "totally healthy".

a substantially higher proportion in occupations other than agriculture and related work, especially in leadership, professional and public service. Actually, the difference in occupational distribution may help answer the question why people with non-agricultural *hukou* could be deemed as a majority group or dominant group, which controls the majority of power and resources within the different institutional settings (Allport, 1954). On the other hand, there might not be such a significant gap between different *hukou* types with regard to physical traits such as gender, age and state of health.

Table 1. Descriptive analysis for person-level variables

	Overall		Non-agricultural		Agricultural	
Personal-level variables	Mean	S.D.	Mean	S.D.	Mean	S.D.
Log of Income	6.216	.878	6.949	.725	6.000	.799
Non-agricultural *Hukou*	.227					
Urban	.504		.935		.377	
Years of Schooling	8.581	3.316	11.754	3.140	7.648	2.738
Female	.454		.417		.465	
Age	38.831	12.613	37.372	10.194	39.260	13.211
Log of Hours Worked Last Week	3.797	.351	3.810	.240	3.793	.377
Healthy	.981		.991		.978	
Occupation						
Leadership	.020		.055		.009	
Professional	.076		.232		.030	
Public Service	.045		.151		.014	
Business Service	.147		.271		.110	
Operator and Producer	.240		.247		.237	
Number of samples	638,871		145,193		493,678	

Region-level variables

Though the great sample size (638,871) allows us to consider more variables in person-level, the independent variables should be as few as possible to make the region-level estimation valid, since we don not have much degree of freedom on region-level.

Delta, a dummy variable, was coded as 1 if a specific region belongs to either Yangtze

River Delta (including 15 regions such as Shanghai, Nanjing, Ningbo and so on) or Pearl River Delta (including 9 regions such as Guangzhou, Shenzhen, Dongguan and so on), which are the popular destination for rural-out migrants (Yang and Wang, 2007), the conomic centers in contemporary China and manufacturing centers of the whole world (Sun, et al., 2006), and was coded as 0 if not.

East, a dummy variable, was coded as 1 if a specific region belongs to the east part of China, and coded as 0 if not. As measured by urbanization level, human capital, investment and so on, the east part of China is more advanced compared with central and west parts of China and economic convergence is taking place in the three parts (Wang and Fan, 2004). East part refers to six provinces of southeast China, namely, as Shanghai, Jiangsu, Zhejiang, Shandong, Fujian and Guangdong. Regions that belong to any of the six provinces were coded as 1.

Provincial capitals or planning independent cities, a dummy variable, was coded as 1 if a specific region is the capital of a province or a planning independent city, which mainly has a regional political influence and is a regional economic center.

It should be noted that the three geographical features are not exclusive, that is, a single region could be labeled as any of the three types. And those regions labeled as “delta” must also be labeled as “east”, since Yangtze River Delta and Pearl River Delta are both located in the east part of China. For example, Dongguan is both a delta and east region, while Guangzhou is labeled as delta, east and provincial capital or planning independent city (See Figure 2).

Log of food expenditure per capita is a continuous variable representing the annual food

expenditure per capita, which is introduced to control for the effect of local prices on wage. Indeed, those who have 4,000 yuan per month in Shenzhen might not be better off compared with those who have 2,000 yuan monthly in Xiangxi due to different levels of local prices. Moreover, food expenditure is preferred to CPI (Consumer Price Index) since the former can make a cross-sectional comparison and would be less elastic with regard to income.

Proportion of non-agricultural product is a continuous variable that represents the proportion of products from Secondary and Tertiary Industries in the region's overall GDP. The variable is introduced to depict the level of urbanization for a region. The above two variables are obtained from the Yearbook of 2004, not 2005, since macro-variable might have a "lag" effect to influence the individual's income.

Proportion of labor-intensive workers is a continuous variable that represents the proportion of workers from labor-intensive sectors[9] in the region's overall operators and producers, which is one of the six major occupational categories as defined by occupation classification and coding. In the later part of this paper, we can see how this variable will support our findings and dual labor market theory in explaining China's rural-urban migration.

The descriptive analyses of region-level variables are listed in Table 2. Again, there is a vivid comparison between rural and urban people's food expenditure. As a matter of fact, the latter would be as much as twice of the former if we do not use a log transformation. Geographically speaking, more than one tenth of the regions were labeled as delta, while nearly half of the regions were labeled as East.

[9] The choice of labor-intensive jobs within operators and producers is based on Zhang and Tan's research (Zhang and Tan, 2005).

Table 2. Descriptive analysis for region-level variables

Region-level variables [a]	Mean	S.D.
Delta	.124	
East	.497	
Provincial Capitals or Planning Independent Cities	.103	
Log of Food Expenditure Per Capita (Yuan)	7.655	.226
Urban - Log of Food Expenditure Per Capita (Yuan) [b]	7.954	.279
Rural - Log of Food Expenditure Per Capita (Yuan) [c]	7.162	.345
Proportion of Non-Agricultural Product in region's GDP	.827	.098
Urban - Proportion of Labor-intensive Workers	.216	.129

Note: N=145 for overall regions and region's urban areas; N=144 for region's rural areas.

[a] Shenzhen is not included in the Regional data of rural areas, since this region has no rural areas with reference to census definition (Ouyang, 2004).

[b] This variable is based on people located in urban areas in that region.

[c] This variable is based on people located in rural areas in that region.

3 Identity of scapegoat or label for educational disparity?

In this section, the effect of *hukou* type on respondent's income will be discussed， and the relationship between *hukou* type and human capital will be examined.

The results from OLS models are listed in Table 3. If the theory of scapegoat holds, say, the discrimination based on *hukou* type is due to prejudice or an false and inflexible view that is from a majority group (people with non-agricultural *hukou*) and directs to a minority group (people with agricultural *hukou*), we would at least expect that owning an non-agricultural *hukou* would have an independent positive effect on wage which can not be assumed by any other explanatory variables. However, when different sets of explanatory variables were introduced into the model, the size of effect of *hukou* type became much smaller[10]. Especially, if years of schooling was introduced in model 3 and allowed those with different *hukou* types to have a different size of effect of years of schooling, the coefficient of *hukou* type turned to

[10] If the *hukou* type is used as a single predictor to individual's log-wage, it would have a coefficient of 0.949 with R square (%) of 20.5.

be a negative[11] value.[12] This result consists with findings of research conducted in 28 provinces in 2006 (Li and Li, 2007) and may serve as a disproof for scapegoat theory. At the same time, the returns to education for people with non-agricultural *hukou* are much higher than those with agricultural *hukou*. As it happens, the fact supports the theory of information economics. In other words, people with agricultural *hukou* might be discriminated simply because they have less productivity or human capital. Before defending the result from plausible attacks, we should also pay attention to the effect of current location and respondent's occupation. Undoubtedly, rural-urban migration would decrease nearly one third (from .875 to .612) of the wage gap between people with different *hukou* types. As far as the effect of occupation is concerned, we can find the following results:

(1) The average wages of the five occupational categories coded as dummy variables are substantially higher than those of the reference group, namely, occupations in agricultural and related affairs.

(2) For those with agricultural *hukou*, their wages are not systematically less than their counterparts. Actually, when they participate in business service or were employed as operators or producers, their wages are even higher than those with non-agricultural *hukou*! At this point, it is hard to say there is wage discrimination based on *hukou* type in the last two categories.

On the other hand, we should also ponder why there is wage discrimination against people

[11] The coefficient of *hukou* types will reduce greatly (from .612 to .156) but is still a positive number if we introduce levels of education and its interaction with *hukou* types as categorical variables and abandon the information obtained from educational achievement. Conservatively speaking, returns to education will greatly assume the effect of *hukou* types, if not eliminate that effect.

[12] A tentative explanation might be that with all the disadvantages compared with people grew up in urban areas, they might be more tough and hardworking than their urban peers.

with agricultural *hukou* in the first three categories[13]. Realize it or not, the five categories in Table 3 for occupation classification and coding are generally ranked with the same order as China's occupational prestige (Li, 2005; Li, 2000). So, why is there a significant wage discrimination against people with agricultural *hukou* in the first three occupational categories, which have higher occupational prestige compared with the last two? As noted by some scholars, education achievement is also a major determinant to occupational prestige (Blau and Duncan, 1967; Duncan, 1961). Therefore, combined with results of model 3, it is straightforward to think that the problem with people having agricultural *hukou* might reside in their education received. Even though there might be certain chances in China for people to change their original agricultural *hukou* into non-agricultural *hukou* (Wu and Treiman, 2004), there were little cases for a reverse conversion. So, the fact of owning agricultural *hukou* would indicate that this person was born in a rural area and received his primary or even part of his secondary education (junior secondary school) in the rural areas. Intuitively, this implication makes us to examine the returns to primary and secondary education in rural areas.

Before moving to the next section, let us first have a brief view to relative contribution of independent variables to wage by analysis of variance (ANOVA). As a conservative verification of the OLS results, each independent variable was entered by a nominal variable using their original coding in the questionnaire and no transformation was ever made concerning level of education and so on. Let us use the mean of squares as a criterion, which

[13] Further exploration of this model would strongly suggest the same result that people with agricultural *hukou* are generally discriminated in occupations with higher prestige, if interactions between *hukou* type and EACH occupational code (73 classes) listed in the questionnaire is added as an explanatory variable into the model. However, this redundant result is omitted here due to time and simplicity reasons. Those who are interest in this detailed result may contact the author by the e-mail address listed in the first page of this paper.

has been adjusted by degrees of freedom. It is obvious that gender, current location, level of education and occupation rank top 4 as measured by mean of squares. Besides, the contribution of *hukou* type is relatively trivial if compared with other variables. Given that gender is deemed as a control variable in the analysis, this result confirms the findings in OLS. So, the data might be split into groups according to different *hukou* types and current locations in further analysis, which enables us to examine and compare different education returns across these groups.

Table 3. Coefficients for OLS models of determinants of individual's wage [14]

	Model 1		Model 2		Model 3		Model 4	
Independent variables	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.
Control variables								
Female	-.349	.002	-.344	.002	-.292	.002	-.285	.001
Age [a]	.095	.004	.138	.004	.126	.004	.242	.003
Square of Age [b]	-.291	.005	-.310	.004	-.238	.004	-.355	.004
Log of Hours Worked Last Week	.536	.003	.458	.002	.494	.002	.297	.002
Healthy	.282	.007	.263	.006	.217	.006	.254	.005
Explanatory variables								
Non-Agricultural *Hukou*	.875	.002	.612	.002	-.299	.007	.277	.007
Urban			.481	.002	.451	.002	.172	.002
Years of Schooling [a]					.426	.004		
Years of Schooling×Non-Agri. [a]					.654	.007		
Occupation [c]								
Leadership							1.183	.009
Professional							.441	.005
Public Service							.913	.007
Business Service							.802	.003
Operator and Producer							.841	.002
Leadership×Non-Agri.							.272	.013
Professional×Non-Agri.							.701	.009
Public Service×Non-Agri.							.145	.011
Business Service×Non-Agri.							-.136	.008
Operator×Non-Agri.							-.178	.008
Intercept	3.981	.013	3.978	.013	3.466	.013	4.027	.011
R^2 (%)	36.1		41.7		45.9		56.1	

Note: N=638,871.

[a] The coefficient has been multiplied by 10.

[b] The coefficient has been multiplied by 1000.

[c] Workers that participated in agriculture and related affairs are omitted.

Table 4. Significance of various factors in determining wage through analysis of variance

Source	Partial SS	d.f.	MS

[14] The absolute values of correlation coefficients between the regression residual and independent variables are less than 0.0000, which indicates that the linear form should be a good approximation on E(Y|X).

Independent variables			
Gender	7242.304	1	7242.304
Age	2611.192	84	31.086
Hours worked last week	7887.796	98	8.488
State of health	552.741	2	276.371
Hukou type	12.648	1	12.648
Current location	3634.305	2	1817.153
Level of education	8057.921	6	1342.987
Status of educational achievement	22.030	3	7.343
Occupation	64742.577	72	899.203
Model	303215.527	269	1127.195
Residual	18891.38	638601	.296
Total	492125.908	638870	.770
R^2 (%)		61.6	

NOTE: N = 638871. All explanatory variables are entered into the analysis of variance as categorical variables. d.f. stands for degrees of freedom, SS for sum of squares, and MS for mean of squares (MS = SS/d.f.). For explanatory variables, SS refers to the partial sum of squares with other variables controlled for. Missing values are coded into a separate category for Status of Educational Achievement.

4 Should rural education bear the blame?

In last section, a tentative explanation was established that the rural education, especially the primary and secondary education might account for wage discrimination based on *hukou* types and theory from information economics is preferred to explain the wage disparity. Yet, recalling the nature of cross-sectional data, these findings may be subject to a series of problems without careful examination. Generally speaking, the results might suffer if the following two criticisms hold:

(1) As mentioned above, there is a significant gap in average years of schooling between people with different *hukou* types. Therefore, it is likely that what really matters is the returns to tertiary education, rather than the educational disparity in rural and urban areas.

(2) The results might be subject to selection bias. As pointed by some scholars (Wu and Treiman, 2004), enrollment of a tertiary school would enable a person to change his/her original agricultural *hukou* into non-agricultural *hukou*. As a result, those who were born in rural areas but had relatively high learning abilities were actually present in the group with

non-agricultural *hukou*. In other words, the lower returns to education might be determined by individual's mental factors, not rural area's inferior education.

Thus, I establish a spline regression model to give returns to different levels of education a closer examination across people with different *hukou* types and current locations. Separate models are used to fit people with different *hukou* types and locations. Based on the research of Wu and Treiman (2004), People with non-agricultural but located in rural area (N=9,500) might obtain their *hukou* type by some particular reasons, e.g. social network. This group of people is therefore deleted from analysis. And the model is fitted in Table 5.

From the result of analysis, we can see that the difference of returns to primary and secondary education across the three models is salient[15]. Since people in model 1 and model 2 were located in urban area and have different *hukou* types, we can say that *hukou* type might account for the difference in returns to education in the two models. The same analysis holds for model 2 and model 3 and rural-urban migration, which indicates change of locations, might account for the gap in returns to education. For people with agricultural *hukou*, though rural-urban migration might help in filling the wage gap, its effect diminishes a lot as the respondent receives less education. Actually, there is hardly a difference in returns to education for those only finished primary education (0-6 years) in model 2 and 3. Being educated in rural area's primary school or junior secondary school means a great disadvantage as measured by returns of education. However, As far as tertiary education (above 12 years of schooling) is concerned, all significant coefficients of returns to education in turn favor those with agricultural *hukou* type[16], which contradicts the first criticism mentioned above. On the

[15] Meanwhile, the specious gap between the constants of agricultural *hukou* model (model 1) and non-agricultural *hukou* (model 2 and 3) might be explained by the coefficients of log of hours worked last week. Since there are no secular contracts of employment to guarantee their income, wages of people with agricultural *hukou* are more sensitive to their working hours per week. In the micro-census data, only 28.9% people with agricultural *hukou* have contracts of employment, while 63.4% people with non-agricultural *hukou* have contracts of employment.

[16] Senior high schools and colleges are always located in urban areas, so there is actually no disparity of educational quality above senior high schools rural and urban area. With all the hardship experienced by rural children in their learning process,

other hand, the second criticism might be futile as well – if it holds, we would expect that the gap of returns to education would become greater with the increase of respondent's years of schooling instead of the opposite. Results from spline regression then would corroborate the role of returns to education in explaining wage discrimination based on *hukou* type. Likewise, the place of receiving education does matter like the case of Asian immigrants in US (Zeng and Xie, 2004).

Table 5. Coefficients for spline regression of determinants of individual's wage

	Model 1		Model 2		Model 3	
Independent variables	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.
Control variables						
Female	-.205	.003	-.335	.003	-.310	.003
Age [a]	.024	.001	.018	.001	.012	.001
Square of age [b]	-.269	.014	-.384	.008	-.235	.006
Log of hours worked last week	.045	.007	.639	.004	.492	.003
Healthy	.244	.018	.236	.014	.228	.007
Years of schooling						
0 – 6 Years	.057	.004	.017	.002	.016	.001
7 – 9 Years	.078	.003	.040	.001	.028	.001
10 - 12 Years	.092	.001	.081	.001	.055	.002
13 - 15 Years	.126	.002	.149	.005	.131	.008
Above 15 Years	.210	.003	.299	.030	.070	.067
Intercept	5.281	.043	3.533	.025	3.667	.016
R^2 (%)	26.9		30.2		21.3	

Note: [a] The coefficient has been multiplied by 10. [b] The coefficient has been multiplied by 1000.

The specified points of years of schooling that serve as knots in linear spline regression have the following meanings as defined by educational achievement: 0 – Illiterate 6 – Primary school 9 – Junior school 12 – Senior school 15 – Tertiary specialized school and those who have years of schooling above 15 are bachelors, masters and doctors.

Mode 1 refers to people with Non-agricultural *hukou* in urban areas (N= 135,693), Model 2 refers to people with Agricultural *hukou* in urban areas (N= 186,195), Model 3 refers to people with Agricultural *hukou* in rural areas (N= 307,483). People with Non-agricultural *hukou* in rural areas (N= 9,500) are omitted from analysis due to theoretical consideration and model specification reason.

5 Education in rural China

Based on the results of the spline regression model, returns to education at different educational level are plotted in figure 4 to depict their relative advantages in wages compared with illiterates among the three groups of people. Obviously, the most vivid comparison exists

those who strived to attend a senior high school might be more hardworking and gifted than their peers.

in the primary education among the three groups of persons, since those with agricultural *hukou* and received primary education in rural areas only get less than one third of the wages as those with non-agricultural *hukou* and generally received education in urban areas, other things being equal. While the same significant disadvantage continue to exist in junior secondary education, it is not so obvious in senior secondary education and tertiary education. Therefore, what is the matter with compulsory (primary and junior secondary) education in rural China? By and large, compulsory education in rural China suffers in the following perspectives:

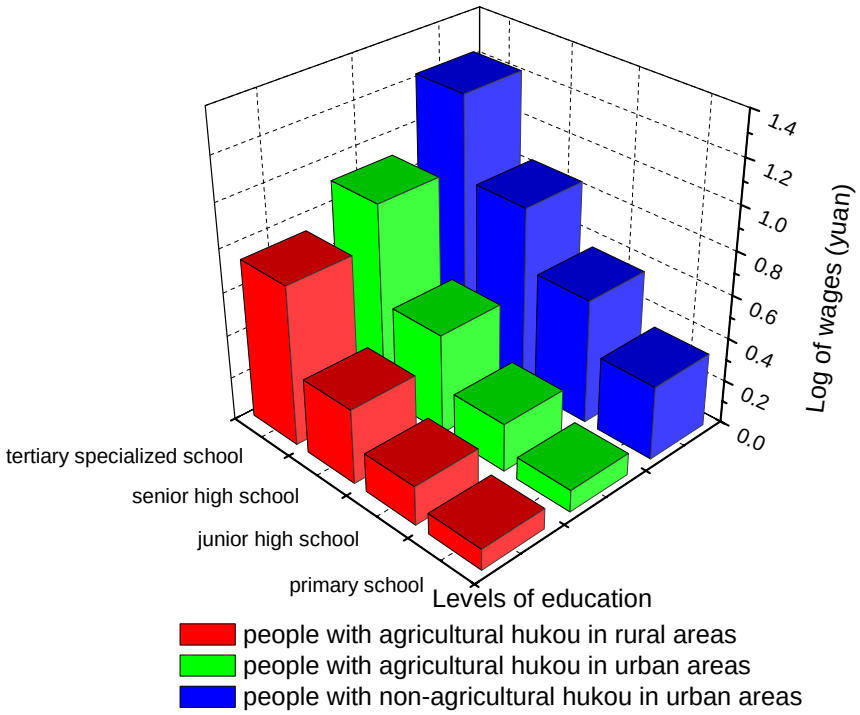

Figure 3. Relative returns to education at different educational levels

In China, like in other parts of the world, lack of enough financial support should be the major reason for poor quality of rural education. As pointed by Heckman (2005), “China’s current policies favor physical capital investment over schooling and urban human capital investment over rural human capital investment”. In recent years, China has spent about 3% of its GDP on human capital. In USA, this figure is above 5%. Meanwhile, government funds

were allocated to support tertiary and senior secondary schools that locate in urban areas[17]. According the report conducted by Ministry of Finance (2005), central government, provincial government and county government respectively contribute to 2%, 11% and 9% of the funds for compulsory education, where as much as 78% of all is assumed by government at town and village level. On the other hand, education expenditure accounts for approximately 75 percent at township level (Wang D, 2003). Given that township or village government was striving to maintain its daily running (Yu, 2001), there is a tendency for local governments to transfer the responsibility for rural education to township revenues and peasant's input, even though there is a huge rural-urban income gap in China (Wang D, 2003). Some researchers have noticed that rural educational surtax, education funds collected by villages, tuitions and miscellaneous fees have become the major input channels for compulsory education in Xiangyang County between 1990 and 2000. The combination of these three parts accounted for about 40 percent of total education funds and played an important role in ensuring the operation of rural compulsory education, maintaining dangerously dilapidated school buildings and basic teaching facilities (Xie, 2002). In a long run, it is surely too much to hope that peasants could deal with the problem of financing rural compulsory education.

Definitely, lack of appropriate financing would cause serious problems in rural compulsory education. In 2001, while 40.94% of primary school teachers have diplomas equal to or higher than specialized secondary school and 23.51% of junior secondary school

[17] According to Education Law and Compulsory Education Law, rural compulsory education is taken charge by county and township governments, not by central or compulsory education. Yet, the lower government is always in the side of disadvantage when bargain with superior governments concerning the allocation of funds for rural compulsory education (Wang D, 2003).

teachers have diplomas equal to or higher than tertiary education in urban areas, otherwise, the corresponding figures are 20.25% and 9.35% respectively in rural areas. Meanwhile, the teaching quality for rural teachers also differs tremendously from region to region. East China beats Central and West China in all of the indicators such as proportions of qualified primary school and junior secondary school teachers. Due to economic burdens imposed by "compulsory" education, rural parents are willing to discontinue children's education at primary school once they found that their children don not have the potential to obtain a tertiary degree (Wang D, 2003). Moreover, schools beyond junior secondary or even primary level tend to be located in urban areas (Hannum, 1999), which means that rural students have to leave their families for their continuing studies.

Furthermore, there are still some policies against children of rural immigrant in that they have to pay higher tuition fee in order to guarantee their children studying in urban areas. China's urban compulsory education only benefit those urban residents, and rural immigrants have to pay hundreds of times the fees normally charged to urban residents for compulsory education in urban areas (Zhao, 1999). According to a survey conducted by Liu and Zheng (2007), this exorbitant tuition fee would cost half of rural labor's income, which forced their children to receive rural compulsory education. And children have to separate from their floating parents during the studying period.

All in all, as pointed by Heckman (2005), China's current educational policy promotes inequality. Place of birth currently determines a person's chances to attain well educated and wages to be received. Current tuition policies for compulsory education discriminate against the rural children and the children of rural migrants.

6 Returns to education and China's dual labor market

Recall that the major motive for rural-out migration of people with agricultural *hukou* in China is to obtain higher income (Jalan and Ravallion, 2001; Li, 2003; Massey, et al., 1993; Massey and Espinosa, 1997); our findings might as well play a key role in understanding China's rural-out migration. As suggested by theories of migration, dual labor market theory (Massey et al., 1993; Piore, 1979) may help to explain the motives for rural-out migration concerning two groups of people with different returns to education, which are people with agricultural *hukou* and non-agricultural *hukou* in our case. According to this theory, capital is a fixed factor of production and labor is a variable. This dualism creates distinctions among workers and two sectors in the labor market - workers in the capital-intensive primary sector generally live by their human capitals and have higher returns to education, while workers in the labor-intensive secondary sector live by their own labor and have lower returns to education. For workers in the second sector, the sole purpose for workers' migration is to earn more money and improve their living conditions at home, since there are no methods for upward mobility (Dickens and Lang, 1985; Massey, et al., 1993; Piore, 1979). So, if there are two groups of persons, namely, people with agricultural *hukou* and with non-agricultural *hukou*, having different returns to education, we would like to explain specific phenomena in China's rural-out migration with dual labor market theory, after a first examination of the theory's validity.

Different from neoclassical human capital theory and the new economics for migration, dual labor market theory sights away from decisions made by individuals at a micro-level and argues that migration stems from the macro-level intrinsic labor demands of modern industrial

societies (Massey et al., 1993). Hence, we would like to examine whether our findings confirm with China's income disparity at a macro-level, say, whether people with agricultural *hukou* would suffer less in places that they migrated to, or, more exactly, whether the macro-level intrinsic labor demands of industrial societies have a major influence on rural labors' wages controlling for micro-level's covariates.

Certain macro-level variables, then, should be used here to test the dual labor market theory. A hierarchical model (HLM) is introduced to incorporate region-level variables:

Person-level: $$Y_{ij} = \beta_{0j} + \sum_{q=1}^{11} \beta_q (X_{qij} - \overline{X_q}) + r_{ij}$$

Where β_0 is the intercept; X_{qij} is the value of independent variable q with respondent i in neighborhood j, which has been centered around its grand mean; and β_q is the partial effect of that independent variable on log of wage. The error term, r_{ij}, is the unique contribution of each individual, which is assumed to be independently and normally distributed with constant value σ^2.

Region-level: $$\beta_{0j} = \gamma_{00} + \sum_{p=1}^{6} \gamma_{0p} Z_{pj} + u_{0j}$$

Where γ_{00} is the region-level intercept; Z_{pj} is the value of region-level independent variable p with region j; and γ_{0p} is the partial effect of that region-level independent variable. The error term, u_{0j} is the unique contribution of each region, which is assumed to be independently and normally distributed with τ.

Table 6. Coefficients for hierarchical linear models of the determinants of individual's wage

	Model 1		Model 2		Model 3		Model 4		Model 5	
Independent variables	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.
Intercept	6.577	.019	6.104	.021	5.679	.021	2.166	.444	2.511	.511
Person-level										
Female	-.205	.003	-.280	.002	-.266	.002	-.205	.003	-.280	.002
Age [a]	.344	.009	.298	.005	.243	.004	.345	.009	.298	.005
Square of Age [b]	-.393	.011	-.398	.006	-.325	.005	-.394	.011	-.398	.006
Log of hours worked last week	.097	.006	.317	.004	.331	.003	.096	.006	.317	.004
Healthy	.194	.015	.186	.011	.222	.006	.194	.015	.186	.011
Years of schooling [a]	.779	.006	.378	.005	.216	.004	.779	.006	.378	.005
Occupation [c]										
Leadership	.824	.010	1.112	.010	.720	.013	.823	.010	1.112	.010
Professional	.573	.009	.609	.007	.263	.006	.573	.009	.608	.007
Public service	.518	.009	.626	.008	.672	.012	.518	.009	.626	.008
Business service	.361	.008	.600	.004	.670	.005	.361	.008	.599	.004
Operator and producer	.392	.008	.592	.003	.694	.003	.392	.008	.592	.003
Region-level										
Delta	.219	.044	.117	.048	.063	.050	.049	.033	-.035	.044
East	.265	.029	.226	.032	.194	.033	.105	.024	.080	.032
Provincial capitals or planning independent cities	.273	.044	.185	.048	.147	.051	.107	.036	.051	.045
Log of food expenditure per capita [d]							.529	.118	.426	.069
Proportion of non-agricultural product							.365	.107	.318	.158
Proportion of labor-intensive workers							.071	.059	.220	.113
Percentage of variance explained										
Within neighborhoods	32.1		38.7		34.4		32.1		38.7	
Between neighborhoods	65.5		77.4		73.0		85.2		86.2	

Note: [abc] refers to the endnote in Table 3. [d] means that a variable is computed from people located in urban areas (Model 1, 2, 4 and 5) and people in rural areas (Model 3) separately.

Mode 1 and 4 refer to people with non-agricultural *hukou* in urban areas (N= 135,693), Model 2 and 5 refer to people with agricultural *hukou* in urban areas (N= 186,195), Model 3 refer to people with agricultural *hukou* in rural areas (N= 307,483). People with non-agricultural *hukou* in rural areas (N= 9,500) are omitted from analysis due to theoretical consideration and model specification reason.

As shown in figure 4, the returns to education or slopes of years of schooling concerning three different groups of persons also exhibit a significant difference after controlling the geographical factors at region-level. The returns to education of people with non-agricultural *hukou* in urban areas (.779) are substantially higher than the other two groups of people (.378 and .216) who received their compulsory education in rural areas, which is coherent with the conclusions of previous models and the dual labor market theory[18].

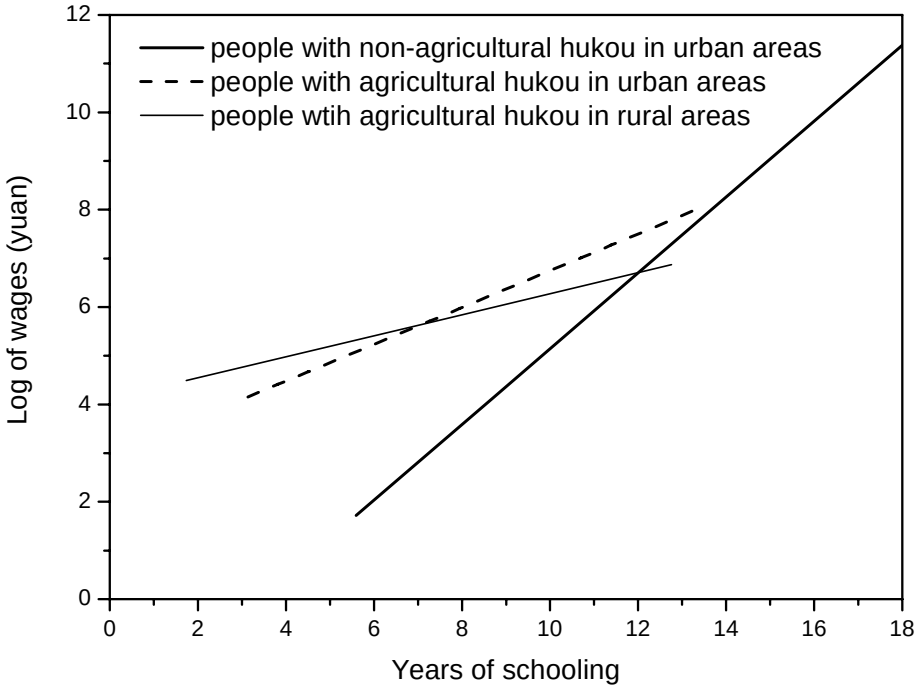

Figure 4. Returns to education after controlling geographical factors

The effects of other person-level variables present the same trend as previous analysis. As far as region-level variables are concerned, the explanatory power of the first three geographical variables (delta, east and provincial capitals or planning independent cities) is surprisingly high, which confirms the spatial concentration of wages in these three groups. Also, people with agricultural *hukou* would get higher wages if they migrate to the urban area

[18] It should be noted that the intercepts or relative locations in y-axis might be seriously influenced by different means of covariates concerning three groups of people, since these hierarchical linear models have been centered around their grand means.

in east regions of China (.226 vs .194), especially in the cities located in Yangtze River Delta and Pearl River Delta (.343 vs .257)[19]. Yet, it should be examined whether certain region-level features, namely, the macro-level intrinsic labor demands of industrial societies, would have a strong attraction to labor with lower returns to education, such as people with agricultural *hukou*, over the others. Therefore, in models 4 and 5, this hypothesis is tested after controlling the effect of local prices, which are measured by log of food expenditure per capita, and urbanization level, which are measured by proportion of non-agricultural product. Here, we used the proportion of workers from labor-intensive sectors in the region's overall operators and producers to indicate intrinsic labor demands of industrial societies at macro-level. While the effect of labor-intensive worker's proportion is not significant concerning people with non-agricultural *hukou* and higher returns to education, it shows marginal significance for urban people with agricultural *hukou* and lower returns to education. This result largely confirms the dual labor market theory.

However, the marginal significance is less satisfying - null hypothesis can not be rejected statistically at 0.05 significant levels, and the strong explanatory power of these three geographical variables indicates that models might suffer from spatial autocorrelation. Meanwhile, since centering person-level variables around their grand mean could give the region's intercepts an adjustment and make the intercepts more homogeneous, the explanatory power of the region-level variables in "grand mean" model tends to be overestimated comparing with "group mean" model, which leaves the region's intercepts unadjusted. Spatial model is then employed to address the two problems.

[19] As mentioned above, the total region-level's effect on region's labeled as "delta" should be the partial coefficient of "delta" plus that of "east", since Yangtze River Delta and Pearl River Delta are all located in the east part of China.

To shed more light on the patterns and levels of spatial cluster in wage disparity, let us have a brief view to the geographical distribution of wage disparity. The within effects of person-level variables are purged from the model to see the purer effect of macro-level data[20]. Another reason for this handling is that, if we think that macro-level intrinsic labor demands of industrial societies could attract labor with fewer returns to education, person-level variables are rather irrelevant to this effect.

The method used here is known as LISA Cluster Map (Anselin, 2005), denoting each region j based on its own value, say, average log of wage after purging person-level within effect, and the weighted average of values in surrounding regions, represented by the spatial lag term, Wy, where W denotes a spatial weight matrix using Queen Criterion[21] (Anselin, 2002). Following the definition given by Anselin (1995, 2005), regions with above mean on y are considered as having "high" values of y, while regions with below mean are recognized as "low". This definition results in a four-fold classification: (1) low-low, for regions that have low levels of log wage and are closed to other regions with low log wage; (2) low-high, for regions that have low levels of log wage but have neighbors with high levels; (3) high-low, for regions that have high levels of log wage but are closed to others with low levels; and (4) high-high, for regions with high levels of log wage that are also closed to others with high

[20] Here, the person-level's coefficients (or within effects) are obtained by centering person-level's variable around their group mean, rather than grand mean in the HLM. Though Sampson et al. (1999) once used a method to implement the purging process, Prof. Raudenbush (personal communication) suggested a more simple method to me, since the grand mean of independent and dependent variables could be deemed as constant. Namely, $Y_{Purge(j)} = \overline{Y_j} - \sum_{q=1}^{11} \beta_{wq} \overline{X}_{qj}$

Where $\overline{Y_j}$ is region j 's average log wage; β_{wq} is the within effect that obtained from centering person-level's explanatory variables around their group means; $\overline{X}_{qj}$ is region j 's average X_{qij} . Besides, the spatial error model would also use $Y_{Purge(j)}$ as dependent variable (Sampson et al., 1999).

[21] Following Prof. Lu's advice (personal communication), the weight matrix is set without regard to the region of Zhoushan archipelago, since this region has little economic dependence on its neighboring regions, and vice versa.

levels. And the LISA Cluster Map is yielded by representing those significant (under 0.05 significance level) four-fold categories on the map (See Figure 5).

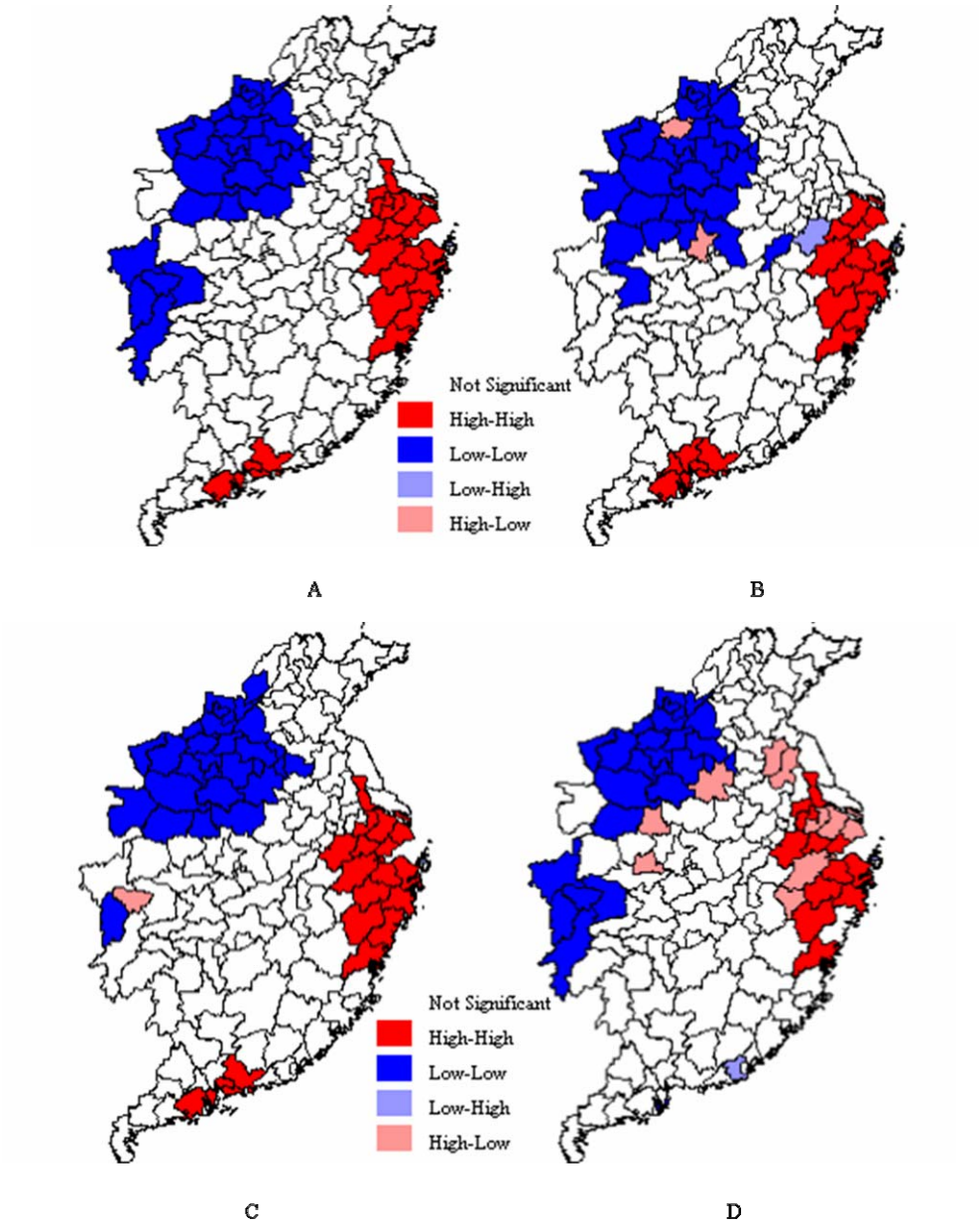

Figure 5. LISA Cluster Map for log wage after purging person-level effect

Notes: A is calculated from the overall samples; B is calculated from people with non-agricultural *hukou* in urban areas (N= 135,693); C refers to people with agricultural *hukou* in urban areas (N= 186,195); D refers to people with agricultural *hukou* in rural areas (N= 307,483).

Clearly, the regions labeled as “low-low” and “high-high” generally match those origins and destinations of rural labors, especially for the destinations (Yang and Wang, 2007). Meanwhile, it is obvious that there is strong evidence of spatial cluster. Generally, the

northwest areas (Henan, Anhui, and Hubei) in southeast China exhibit spatial disadvantage, possibly with high-low areas of provincial capitals (Zhengzhou and Wuhan) as outliers (Anselin, 2005). Contrarily, the areas of Yangtze and Pearl River Delta and East Regions show a strong spatial advantage over the rest, which confirms the results of hierarchical model. Furthermore, there is no significant difference in spatial patterns across A to C for Figure 5, which indicates that agricultural people might enjoy the same spatial advantage as non-agricultural people through rural-urban migration. However, people in rural areas tend to suffer if they choose to stay since there are more low-low areas and less high-high areas for them, as compared with the above 3 figures (see D of Figure 5).

Table 7. Coefficients for spatial models of the determinants of region's average wage [a]

	Model 1		Model 2		Model 3		Model 4	
Independent variables	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.
Intercept	-.374	.405	.489	.464	-.010	.513	2.119	.580
Spatial proximity			.472	.094			.725	.064
Delta district	.048	.035	.039	.042	-.036	.044	-.026	.054
Eastern region	.108	.025	.129	.033	.081	.032	.160	.047
Provincial capitals or planning independent cities	.107	.036	.136	.031	.050	.045	.099	.033
Log of food expenditure per capita [b]	.529	.055	.409	.064	.427	.070	.163	.079
Proportion of non-agricultural product	.364	.125	.449	.135	.315	.158	.245	.161
Proportion of labor-intensive workers	.062	.090	.138	.092	.218	.114	.387	.107
Pseudo R^2 (%)	81.3		83.1		62.2		73.1	
Log-likelihood	112.0		116.3		77.8		94.4	
Diagnostic tests (p-value)								
Spatial error dependence (LM)	.015				7(10-7)			
Likelihood-ratio test for spatial dependence			.003				1(10-8)	
Moran's I z-value for residuals [c]	.007		.382		1(10-4)		.193	
Heteroskedasticity	.029		.103		.125		.063	

Note: N=145. Model 1 and 2 refer to people with non-agricultural *hukou* in urban areas; model 3 and 4 refer to people with agricultural *hukou* in urban areas,

[a] Person-level's within effect is purged from each model using the coefficients generated by centering person-level independent variables around their group means.

[b] This variable is computed from people located in urban areas in that region.

[c] Moran's I is a statistic used to depict degrees of spatial autocorrelation (see Anselin, 1995).The z-value of Moran's I is generated from randomization with 9999 computations to achieve a robust estimation (Anselin, 2005).

However, the spatial autocorrelation of dependent variable does not necessarily mean that the same kind of autocorrelation would be presented by error term. Meanwhile, the insignificant coefficient of proportion of labor-intensive workers in Model 5 (see Table 6) requires a spatial dependence model to deal with heteroskedasticity and dependence of error term in HLM. Since HLM does not support spatial analysis currently, a spatial error model[22] is employed here to address these problems according to the value of Lagrange Multiplier, using the same dependent variable as LISA cluster map (Anselin, 2005; Sampson et al., 1999).

It is easy to see that coefficients of Model 1 and Model 3 are consistent with Model 1 and Model 2 in HLM, possibly with disagreements due to original instable estimation or omission of decimals in our calculations of purging the person-level within effects. And error's spatial autocorrelation has been cured as measured by Moran I. Most importantly, the previous marginal significant coefficient of labor-intensive worker's proportion in Model 3 (people with agricultural *hukou* but located in urban areas) turns out to be highly significant even under 0.001 significant level in Model 4, while its effect turns to be more insignificant concerning people with non-agricultural *hukou*. This result generally confirms the role of dual labor market theory in explaining the motives for rural-out migration in China.

[22] The spatial error model is: $y_{Purge(j)} = \beta_0 + \sum_{p=1}^{6} \beta_p Z_{pj} + \lambda W \varepsilon_j + u_j$, where $y_{Purge(j)}$ is the average log wage in region j and is irrelevant to person-level within effect; W is the spatial weights matrix using Queen Criterion, Z_{pj} is the region-level explanatory variables, ε_j is spatially auto-correlated error term obtained from OLS, u_j is i.i.d. error, λ and β_p are coefficients (Anselin, 2005).

7 Discussion and conclusion

Back to the questions proposed in the former parts of this paper, theories of information economics, rather than prejudice, are preferred to explain the wage disparity based on *hukou* status. And agricultural *hukou* might be served as a signal for lower quality of education received, due to the unequal educational investment and policy in urban and rural areas. Sometimes, we might pay too much attention to policy arrangements that we take no notice of the chain effect that is triggered by the introduction of an initial policy, especially in fields that we could only observe its negative effects years after the introduction. Currently, even though China has adopted several financial measures to deal with the problems resided in rural compulsory education and the results are encouraging in several eastern and southern provinces, rural children at western parts might still suffer from shortage of educational investment (Gao, 2004). And the unequal allocation of educational resources between rural and urban areas gave birth to a dual-labor market that contributes to the large-scale rural-out migration in contemporary China.

So, dual labor market theory may help explaining lots of odd phenomena of China's rural-out migration. For instance, since there is a huge amount (about 150 million) of rural surplus labor (Liu, 2006) and rural labor is continuing floating to urban areas, it may seem ridiculous to worry about labor shortage and China's low urbanization rate. However, reality refutes this optimism since there are both serious shortage of labor in Pearl River Delta caused by inflexible wage rate for labor-intensive sector and most rural immigrants will go back to their origins after years of working in urban areas (Jian and Zhang, 2005; Li, 2003;

Liu, 2006; Zhang and Tan, 2005), which are both predicted by dual labor market theory[23]. According to this theory (Massey et al., 1993; Piore, 1979), workers participated in the "secondary sector" are always in the lower end of occupational prestige. Although they work in the urban areas to earn their children's tuition fee and wish that their children would become urban residents by the enrollment of tertiary education, rural labors never view themselves as parts of urban areas and decide to move back once they are unable to continue to work. Due to the huge gap of living standards between rural and urban areas, the lower wage in urban areas usually equal to more than ten times of rural labor's income home. They view their jobs simply as a way for earning money, without any implications for status or prestige. So, they are very sensitive to the amount of wages offered by the employers.

On the other hand, wages not only express the gap between supply and demand; they also reflect occupational prestige. Generally, people believe that wages are correlated with social status, and they have rather rigid notions about this correlation. So, wages offered by employers can not be adjusted freely with reference to changes in the supply of workers, since raising wages at the bottom of the hierarchy prestige, such as rural labor, would shake socially defined relationships between status and remuneration. If wages are increased in labor-intensive industry, there will be in turn strong pressure to raise wages in all other occupations that have a relatively higher occupational prestige. That is the reason why the rural labor's average wage only raised 68 *yuan* (equal to less than 10 dollars) within 12 years in Pearl River Delta. Hence, the conflict between the two sides of labor market would

[23] Different from institution inflation that is given by dual labor market theory, the very nature of those labor-intensive industry might as well contribute to the relative fixed wage: their "low-tech" products are easy to be imitated and usually get a relatively lower profit rate, which in turn means that they should pay serious attention to their budget and cost (Peng and Wang, 2006).

definitely cause a labor shortage once other booming areas (such as Yangtze River Delta) outbid the traditional areas (such as Pearl River Delta) for labor-intensive industry.

So, we should worry about the more fundamental problems resided in rural children's education. Though researchers have proposed different ways, for example, to open capital market and to introduce competitors in education service market to deal with problems lying in rural compulsory education (Heckman, 2005; Jiang and Dai, 2005), these measures are hard to take effect in a short period since they involve the change of government's recognition of the public goods market and a fundamental reform concerning the relationship between schools and government. Practically, combined with current opinions on social justice expressed by the public, the political barriers and exorbitant tuition fee might be relatively easily removed for rural children to receive compulsory education in urban areas[24]. If not, these current reforms of household registration system can only obscure the real and fundamental problem, namely, rural-urban gap in the quality of compulsory education.

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[24] Based on the estimation by Huang and Xu (2006), there are at least 260,000 children of rural labors need to receive compulsory education in urban areas of Hangzhou, which is the capital of Zhejiang province.

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