Assimilation and the Wage Growth of Rural-to-Urban Migrants in China

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Objectives of the Paper

- China witnessed the largest rural-to-urban migration within a country, and this rural-to-urban migration is one of the driving forces of China's economic growth.

- The first objective is to analyze the wage assimilation process of rural-to-urban migrants in China.
  - Is there convergence in labor earnings between rural migrants and urban workers?

- The second objective is to identify the main sources of migrants' wage growth.

Related Literature

- Large literature on wages of immigrants in the context of international migration (Chiswick, 1978; Borjas, 1985, 1994). Most existing studies find rather speedy assimilation.

- Many studies of China's rural-to-urban migration:
  - The earnings difference between migrants and urban workers (e.g., Meng and Zhang 2001)
  - The study of return migration (e.g., Hare 1999; Zhao 2002)
  - The interaction between education, family characteristics and migration (e.g., Zhao 1999; Taylor, Rozelle and De Brauw 2003)

- Little comprehensive examination on rural-to-urban migrants' wage assimilation and wage growth in China!

Rural-Urban Migration and *Hukou* System

- During the centrally planned regime, virtually no labor mobility was allowed between the rural and urban sectors in China, which was enforced by the household registration (*hukou*) system.

- After the economic reform, labor mobility restrictions were gradually relaxed. Having an agricultural *hukou* no longer directly restricts rural-to-urban labor mobility.

- But rural migrants still tend to be treated differently because of their *hukou* status, in terms of access to jobs and social services.

- In this study, a rural migrant is defined as a person who lives in an urban area but has agricultural *hukou*.

Data: Rural Urban Migration in China (RUMiC)

- Each RUMiC survey consists of three components: the Urban Household Survey (UHS), the Rural Household Survey (RHS) and the Migrant Household Survey (MHS).

- This paper primarily uses data from the 2008 and 2009 waves of the MHS and the UHS. The original 2008 MHS and UHS samples cover about 5,000 migrant and urban households, respectively.

- Cross-section sample:
  - 2008-2009 UHS and MHS
  - Full time workers
  - Real hourly wage rate (in 2008 yuan) = monthly labor income/monthly hours
  - Observations: 11,228 migrants and 10,930 urban workers

Summary Statistics

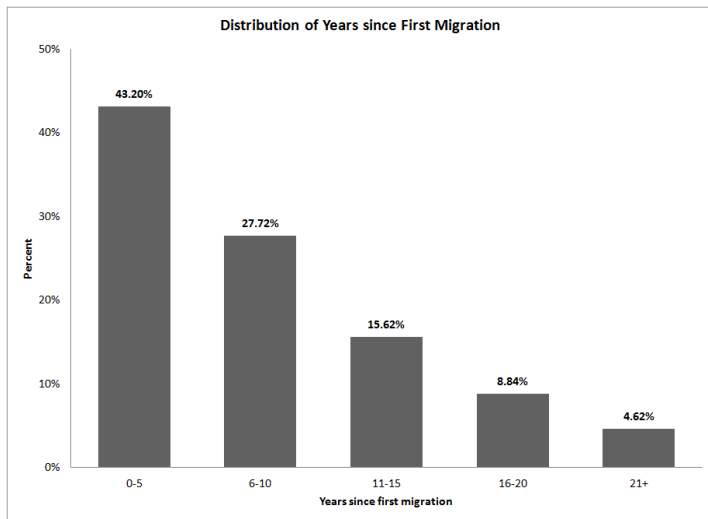|	Migrant Workers	Urban Workers	Difference in Mean
	(1)	(2)	(3) = (2) - (1)
Monthly wage (yuan)	1733.3	2457.7	724.4
	(1249.1)	(1856.0)	
Monthly hours worked	254.4	181.0	-73.4
	(69.8)	(39.3)	
Hourly wage (yuan)	7.2	14.2	7.0
	(5.1)	(10.9)	
Years of schooling	9.3	12.2	2.9
	(2.5)	(3.2)	
Age	31.9	39.9	8.0
	(9.6)	(9.6)	
Years of potential experience	15.2	21.2	6.0
	(10.0)	(10.8)	
Male (%)	60.4	57.6	-2.8
Married (%)	66.2	86.6	20.4
Number of observations	11,228	10,930	

Note: Standard deviations are in parentheses.

Summary Statistics (Continued)

	Migrant Workers (1)	Urban Workers (2)	Difference in Mean (3) = (2) - (1)
Occupation (%)			
White-collar	3.0	27.5	24.5
Pink-collar	14.5	24.4	9.9
Blue-collar	56.0	39.8	-16.2
Self-employed	26.5	8.3	-18.2
Ownership (%)			
State sector	11.1	54.1	43.0
Private sector	80.2	34.7	-45.5
Other sector	8.7	11.2	2.5
Contract type (%)			
Permanent or long-term	40.8	76.5	35.7
Short-term or no contract	59.2	23.5	-35.7
Region (%)			
East	53.2	53.9	0.7
Central	29.0	31.2	2.2
West	17.8	14.9	-2.9
Number of observations	11,228	10,930	

Note: Standard deviations are in parentheses.

Migration Duration

Distribution of Years since First Migration

Percent

- 0-5: 43.20%
- 6-10: 27.72%
- 11-15: 15.62%
- 16-20: 8.84%
- 21+: 4.62%

Years since first migration

The Migrant Panel

- To study the wage dynamics of migrant workers requires longitudinal information, but sample attrition rate was very high for the MHS between 2008 and 2009.

- The MHS has retrospective questions to migrants on their first jobs after migration, including information on labor income, hours worked, occupation, ownership, etc.

- We construct a sample of migrant movers, for whom we track wage growth and job turnover between their first jobs after migration and current jobs in 2008 or 2009.

- A migrant panel of 4,122 individuals after the same sample restriction.

Migrants' Wage Growth and Job Transitions

	First Job	Current Job	Difference in Mean
	(1)	(2)	(3) = (2) - (1)
Monthly wage (yuan)	957.2	1715.7	758.5
	(654.7)	(1242.8)	
Monthly hours worked	246.4	250.4	4.0
	(58.2)	(66.1)	
Hourly wage (yuan)	4.1	7.2	3.1
	(3.1)	(4.9)	
Occupation (%)			
White-collar	2.0	3.0	1.0
Pink-collar	12.8	17.1	4.3
Blue-collar	80.8	59.8	-21.0
Self-employed	4.4	20.1	15.7
Ownership (%)			
State sector	9.9	10.4	0.6
Private sector	81.5	80.4	-1.1
Other sector	8.6	9.2	0.5
Contract type (%)			
Permanent or long-term	29.7	44.1	14.4
Short-term or no contract	70.3	55.9	-14.4
Number of observations	4,122	4,122	

Note: Standard deviations are in parentheses.

Wage Assimilation: Basic Empirical Framework

- The baseline wage function for the pooled urban and migrant workers is given by

$$\ln w_i = \beta^1 EDU_i + \beta^2 EXP_i + \beta^3 EXP_i^2 + \mathbf{Z}_i \boldsymbol{\phi} + \gamma y_i + \alpha^0 M_i + \varepsilon_i, \tag{1}$$

  where

  w_i is the hourly wage of worker i, and
  M_i is a dummy for migrant worker.

- The coefficient on the migrant dummy in equation (1) captures the average migrant and urban wage differentials conditional on worker characteristics (and sector affiliations).

Basic Empirical Framework (Continued)

- We also specify a wage function for the pooled urban and migrant workers by

$$
\begin{aligned}
\ln w_i \;=\; & \beta^1 EDU_i + \beta^2 EXP_i + \beta^3 EXP_i^2 + \mathbf{Z}_i \boldsymbol{\phi} + \gamma y_i \quad (2) \\
& + M_i (\alpha^0 + \alpha^1 YSM_i + \alpha^2 YSM_i^2) + \varepsilon_i,
\end{aligned}
$$

where YSM_i measures years since migration.

- The coefficient on the migrant dummy in equation (2) measures the conditional migrant and urban wage differentials when migrants first arrive in cities.

Baseline Estimation Results

	(1)	(2)	(3)	(4)
Years of schooling (EDU)	0.0720***	0.0495***	0.0716***	0.0492***
	(0.0017)	(0.0017)	(0.0017)	(0.0017)
Potential experience (EXP)	0.0198***	0.0174***	0.0157***	0.0141***
	(0.0017)	(0.0016)	(0.0018)	(0.0017)
EXP squared	-0.0005***	-0.0005***	-0.0004***	-0.0004***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Occupation		yes		yes
Contract type		yes		yes
Ownership type		yes		yes
Migrant	-0.3680***	-0.2543***	-0.4598***	-0.3277***
	(0.0100)	(0.0101)	(0.0156)	(0.0152)
(Migrant) (YSM)			0.0195***	0.0155***
			(0.0026)	(0.0025)
(Migrant) (YSM^2)			-0.0007***	-0.0005***
			(0.0001)	(0.0001)
No. of observations	22,158	22,158	22,158	22,158
Adjusted R-squared	0.383	0.436	0.385	0.437

Note: Robust standard errors are in parentheses. * $p<0.10$, ** $p<0.05$, *** $p<0.001$.

Regressions also include dummies on gender, marital status, regions and time and a constant.
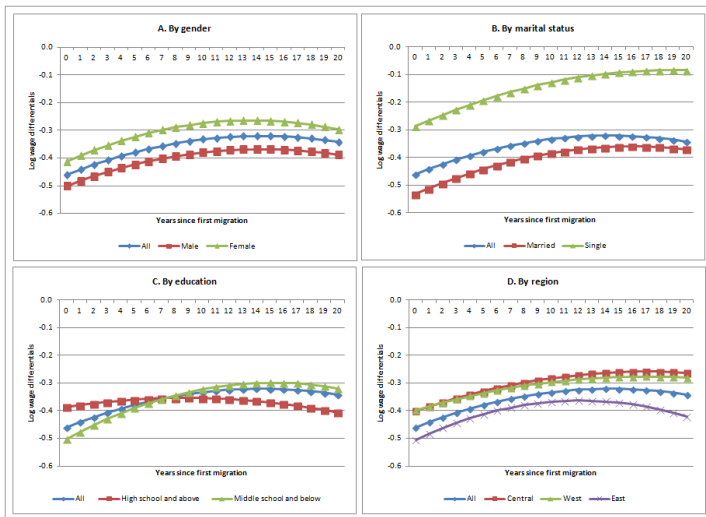
Average Migrant and Urban Wage Differences

- Migrant workers' earnings are 49% lower than urban workers' on average.

- Migrant workers' earnings are 37% lower than comparable urban workers with the same schooling, work experience and other socioeconomic characteristics.

- Migrant workers' earnings are 25% lower than comparable urban workers with the same characteristics and working in the same sector.

Initial Wage Differences and Convergence

- Migrant workers' wage disadvantages were larger when they first arrived in cities.

  - They earned 46% less than urban workers with the same characteristics.
  - They earned 33% less than urban workers with the same characteristics and working in the same sector.

- Migrant workers' earnings rise with time spent in cities, but at a decreasing rate. The hourly wage of migrant workers is 38% (26%) lower than urban workers with the same characteristics (and in the same sector) 5 years after migration, 33% (22%) lower after 10 years.

- But migrants earnings cannot catch up with those of urban workers according to the estimates.

Pervasiveness of the Wage (Non)convergence

Predicted Migrant and Urban Wage Differentials by YSM

Migrant/Urban Wage Differences

- At time of arrival, female, single, more-educated migrants have less wage disadvantage relative to comparable urban workers.

- Female, single, and less-educated migrants experience faster wage assimilation compared to male, married, more-educated migrants.

- For all workers and each subgroup separated by gender, marital status, education and region, migrant and urban wage differences tend to shrink in the first 10 to 15 years after first migration, but there is no long-run wage convergence.

Robustness Checks: Flexible Effects of YSM

Migrant and Urban Wage Differentials: Overall
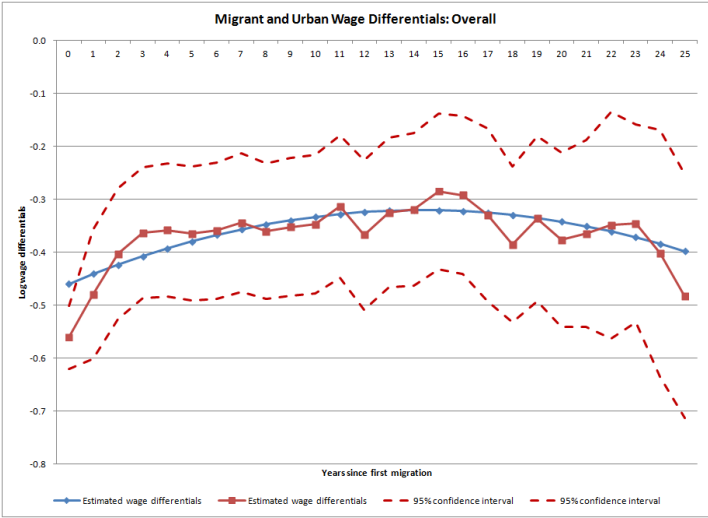
Predicted Migrant and Urban Wage Differentials by YSM

Alternative Specifications

- We allow for different coefficients for worker characteristics such as education, experience, marital status, as well as different wage premiums for occupations, contract and ownership types, for migrant and urban workers.

- We include dummies for migrants' cohort of arrival to account for cohort effects (Borjas 1985; Borjas 1995).

- We also include age at first migration (Friedberg 1992).

Estimation Results

Variable	(1)	(2)	(3)	(4)
Years of schooling (EDU)	0.0876***	0.0544***	0.0544***	0.0540***
	(0.0025)	(0.0025)	(0.0025)	(0.0025)
Potential experience (EXP)	0.0216***	0.0178***	0.0178***	0.0175***
	(0.0027)	(0.0024)	(0.0024)	(0.0019)
EXP squared	-0.0005***	-0.0004***	-0.0004***	-0.0004***
	(0.0001)	(0.0001)	(0.0001)	(0.0000)
WC occupations		0.3430***	0.3427***	0.3429***
		(0.0142)	(0.0142)	(0.0142)
PC occupations		0.1899***	0.1897***	0.1900***
		(0.0140)	(0.0140)	(0.0140)
Self-employment		0.4794***	0.4797***	0.4794***
		(0.0279)	(0.0279)	(0.0278)
(Migrant) (EDU)	-0.0357***	-0.0104***	-0.0106***	-0.0077**
	(0.0034)	(0.0034)	(0.0034)	(0.0032)
(Migrant) (EXP)	-0.0091**	-0.0056	-0.0058*	0.0000
	(0.0037)	(0.0035)	(0.0035)	(0.0000)
(Migrant) (EXP^2)	0.0000	-0.0000	-0.0000	0.0000
	(0.0001)	(0.0001)	(0.0001)	(0.0000)
(Migrant) (WC)		-0.0078	-0.0088	-0.0056
		(0.0305)	(0.0305)	(0.0305)
(Migrant) (PC)		-0.1371***	-0.1368***	-0.1359***
		(0.0187)	(0.0187)	(0.0187)
(Migrant) (Self-employment)		-0.3811***	-0.3819***	-0.3809***
		(0.0317)	(0.0316)	(0.0316)

Estimation Results (continued)

Variable	(1)	(2)	(3)	(4)
Migrant	0.2581***	0.2521***	0.2177***	0.2831***
	(0.0548)	(0.0519)	(0.0686)	(0.0722)
(Migrant) (YSM)	0.0267***	0.0240***	0.0276***	0.0220***
	(0.0028)	(0.0027)	(0.0033)	(0.0034)
(Migrant) (YSM^2)	-0.0008***	-0.0007***	-0.0007***	-0.0008***
	(0.0001)	(0.0001)	(0.0001)	(0.0001)
(Migrant) (cohort 1990-1999)			-0.0085	-0.0082
			(0.0357)	(0.0357)
(Migrant) (cohort 2000-2009)			0.0236	0.0235
			(0.0439)	(0.0439)
(Migrant) (Age at first migration)				-0.0057***
				(0.0010)
No. of observations	22,158	22,158	22,158	22,158
Adjusted R-squared	0.395	0.451	0.451	0.451

Note: Robust standard errors are reported in parentheses. The regressions also include a constant, a gender dummy, a marital status dummy, regional dummies, contract and ownership type dummies, and their effects are allowed to vary between urban and migrant workers.
* $p<0.10$, ** $p<0.05$, *** $p<0.001$.

Robustness of Wage (Non)covergence
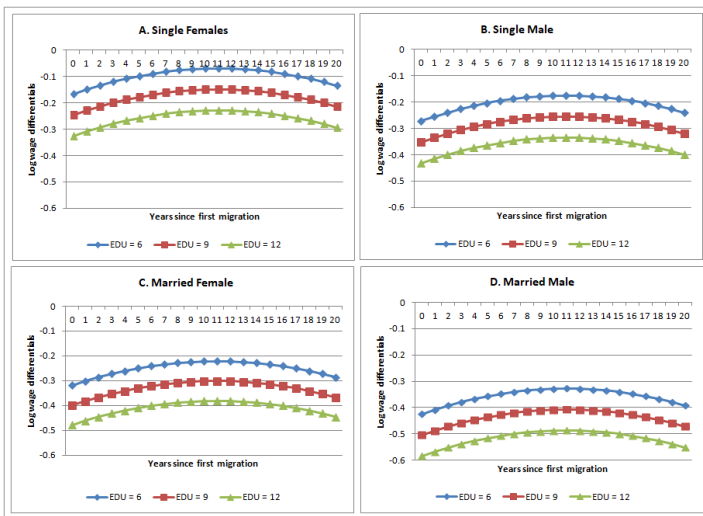
Predicted Migrant and Urban Wage Differentials for Migrant Workers in the Eastern Region in 2008 (Age at Migration = 24)

Main Findings

- Returns to schooling and experience are significantly lower for migrant workers. These differences are crucial in explaining the wage differences between urban and migrant workers.

- Single, female, less-educated migrants do better (relative to their urban counterparts) than married, male, more educated migrants.

- There exist no sizable cohort effects among migrant workers. Age at first migration has a significant negative effect on migrant wage.

- The migrant/urban wage gap is minimized when YSM is between 11-15 years.

Return Migration

- Return migration: are less successful migrants more likely to return to the villages?

  - Return migrants are slightly less educated (8.4 vs. 9.3 years of schooling) compared to migrant workers in cities.
  - Main reasons for return migration are to look after a home business/agriculture and to look after a household member.

- The subgroup analyses show that the wage assimilation pattern is robust to selection on the observables.

Hukou Conversion

	All Urban Workers	Without Hukou Conversion	With Hukou Conversion
Monthly wage (yuan)	2457.7	2418.2	2608.4
	(1856.0)	(1799.8)	(2049.4)
Monthly hours worked	181.0	180.2	184.5
	(39.3)	(39.0)	(40.5)
Hourly wage (yuan)	14.2	14.0	14.8
	(10.9)	(10.6)	(12.1)
Years of schooling	12.2	12.3	11.9
	(3.2)	(3.1)	(3.5)
Occupation (%)			
WC occupations	27.5	27.5	27.3
PC occupations	24.4	24.9	22.4
BC occupations	39.8	39.6	40.9
Self-employed	8.3	8.0	9.4
Ownership (%)			
State sector	54.1	54.3	53.6
Private sector	34.7	34.2	36.5
Other sector	11.2	11.5	9.9
Contract type (%)			
Permanent or long-term	76.5	77.6	72.3
Short-term or no contract	23.5	22.4	27.7
Number of observations	10,930	8,656	2,274

Hukou system may be the main obstacle for economic assimilation of migrant workers in urban China.

Migrants' Wage Growth

Wage growth between first jobs and current jobs:

$$\overline{\ln w^C} - \overline{\ln w^F} = \sum_j \widehat{\beta}_j^C \overline{X}_j^C - \sum_j \widehat{\beta}_j^F \overline{X}_j^F$$

$$= \{\sum_j (\widehat{\beta}_j^C - \beta_j^*)\overline{X}_j^C + \sum_j (\beta_j^* - \widehat{\beta}_j^F)\overline{X}_j^F\}$$

$$+ \sum_j \beta_j^* (\overline{X}_j^C - \overline{X}_j^F).$$

$\overline{\ln w^F}$ and $\overline{\ln w^C}$: average log wages for first jobs and current jobs
$\overline{X}_j^F$ and $\overline{X}_j^C$: mean values of the jth regressor
$\widehat{\beta}_j^F$, $\widehat{\beta}_j^C$, β_j^* : regression coefficients

Potential Sources of Wage Growth

- Price effects: changes in returns to characteristics or sector premiums, that is, changes in $\widehat{\beta}$.

- Experience effects: the accumulation of urban work experience, that is, increases in potential and city experience over time.

- Occupation effects: the mobility up the occupational ladder in cities, that is, changes in occupation composition.

- Reallocation effects: the mobility across sectors with different ownership composition and contract types.

Decomposition of Log Wage Growth

	Observed total change	Contribution to total change (%)			
		Price effects	Experience	Occupation	Reallocation
All migrants	0.5866	65.1	25.2	6.5	3.2
By gender					
Male	0.6142	66.9	24.4	5.3	3.4
Female	0.5404	62.7	26.3	8.8	2.2
By education					
High school and above	0.6282	53.4	33.5	8.4	4.7
Middle school and below	0.5735	68.2	23.4	5.7	2.7
By region					
Central	0.5439	59.8	31.6	6.5	2.1
West	0.5098	64.3	25.0	9.0	1.7
East	0.6321	64.8	24.8	6.0	4.3

Main Findings

- Rising factor returns and sector premiums makes the largest contribution to migrants' wage growth, followed by the accumulation of city experience, and occupational mobility.

- City experience and sectoral mobility play a more important role in the wage growth of migrant workers that are female and with high school and above education.

- Male and less-educated migrant workers' wages are affected more by the price effects.

Concluding Remarks

- Upon arrival, migrants earn substantially less than comparable urban workers.

- The wage gap between migrant and urban workers narrows in the first few years after migration, but over time the wage gap persist.

- Major sources of migrants' wage growth:
  - Rising prices of imported skills
  - Accumulation of urban experience
  - Occupational transitions

- Institutional discrimination remains a major obstacle for economic assimilation of rural migrants in urban China.