Dynamics of Spatial Wage Inequality

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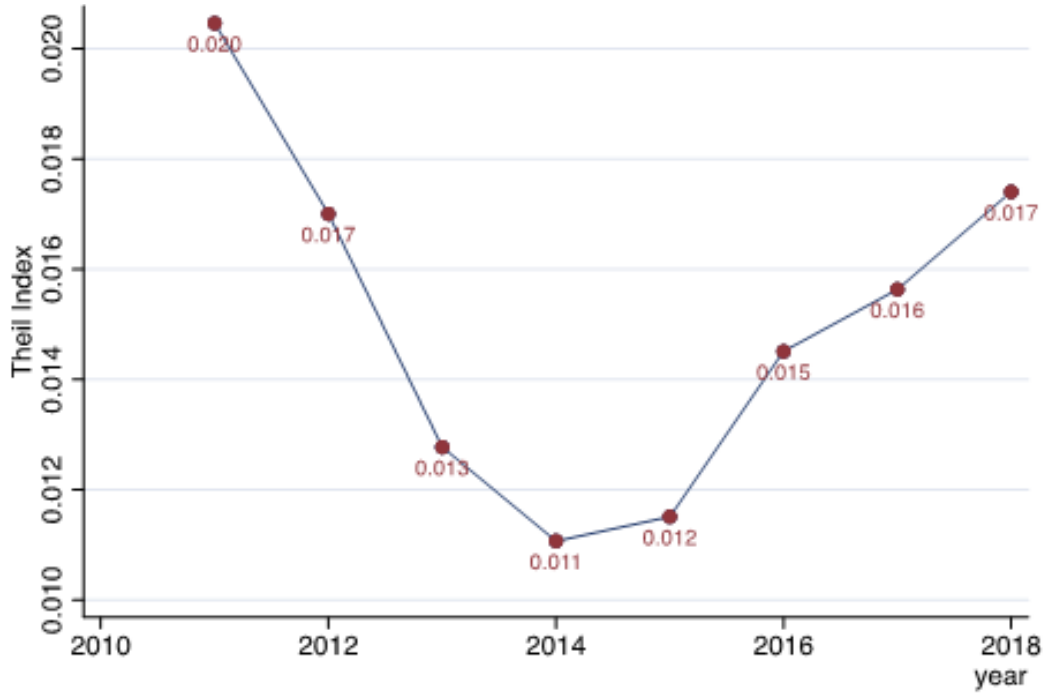
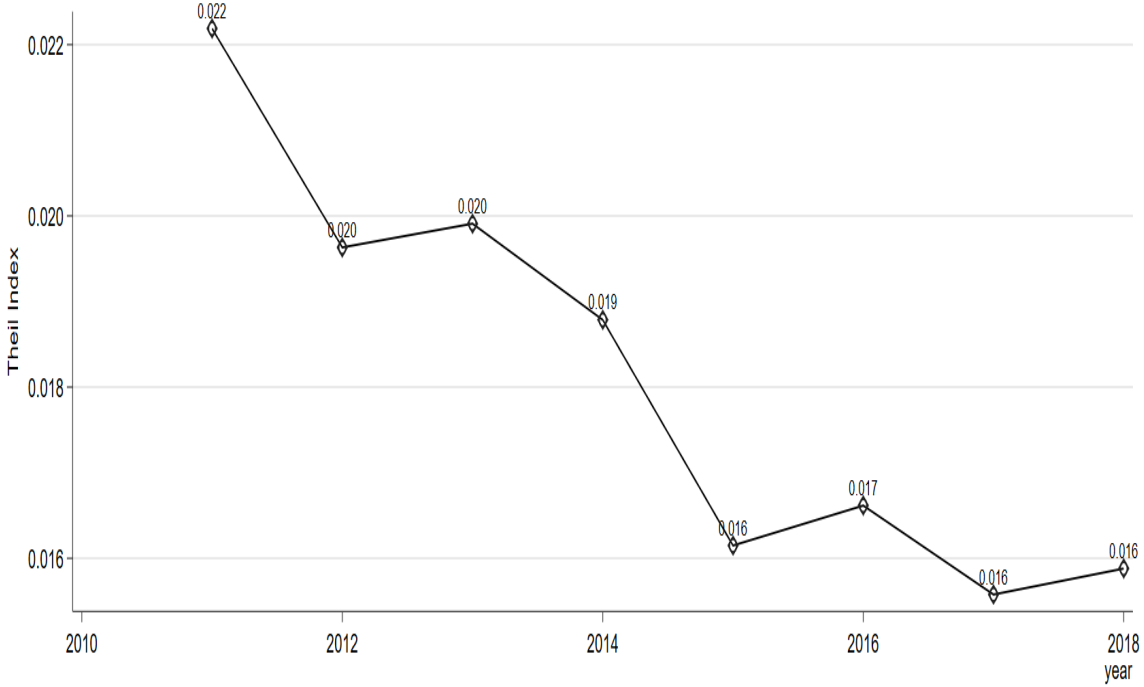
Outline

1. Background and Motivation
2. Data and Description
3. Baseline Results
4. Mechanism Tests
5. Conclusion and Discussion

Rural Migrants



Urban Employees



- Dynamic Trends of Absolute Wage Differentials Among Cities

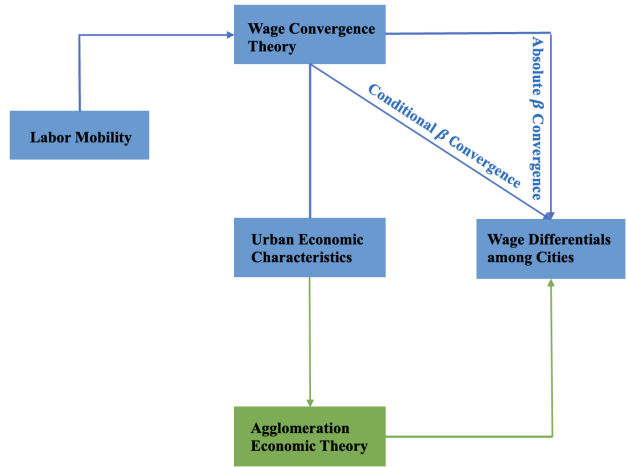
Large Wage Inequality Across Regions

- From the perspective of **regional labor market**, there exits **large wage inequality across regions** in China's labor market.
- Measure the degree of dynamic changes of wage differentials among regions: **inequality index** and **wage convergence**.
- **Two types of existing studies**:
  - **Neoclassical economic theory**: Free movement of labors will eventually lead to **wage convergence** among regions *(Blanchard et al.,1992; Barro et al., 1991; Topel, 1986;)*.
  - **New economic geography**: **Agglomeration effect** widens wage differentials among regions *(Stafford, 2003; Krugman, 1991)*. Urban scale, market potential, industrial agglomeration, ... *(Zong and Zhou, 2015; Liu Xiuyan et al., 2007; Fan Jianyong, 2006)*

Issue

- Lack of research on the interaction of the **two theoretical mechanisms**
- Lack of geographically precise discussion focusing on **cities**.
- Assume different regions have the **same economic status**. (Luo and Xue, 2015)

Assuming free labor mobility, labor will always move from lower to higher wage areas, wage differentials among regions will shrink or even disappear over time.



Agglomeration effect will widen wage differentials among regions.

Hukou Segregation

- ***Hukou* System**: In the 1950s, agricultural vs non-agricultural *hukou*.
- In the 1980s-1990s, **movement restrictions relaxed**, a large number of rural migrants flooded into urban labor market.
- ***Hukou* Segregation**: **rural migrants** and **urban residents** are unequally treated *(Meng and Zhang, 2001; Cai and Wang, 2007)*:
  - wage or income
  - employment opportunities
  - public services
  - social welfare
  - ...

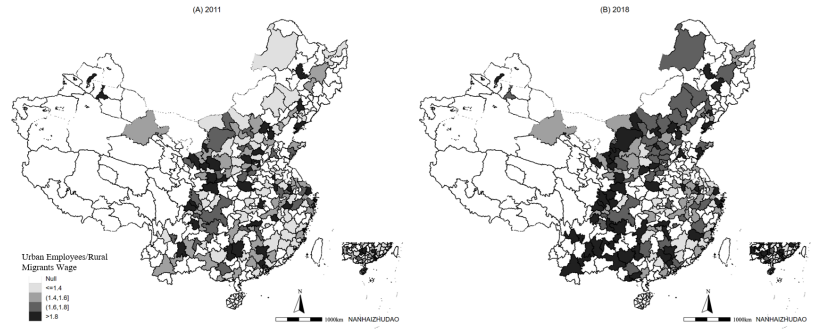
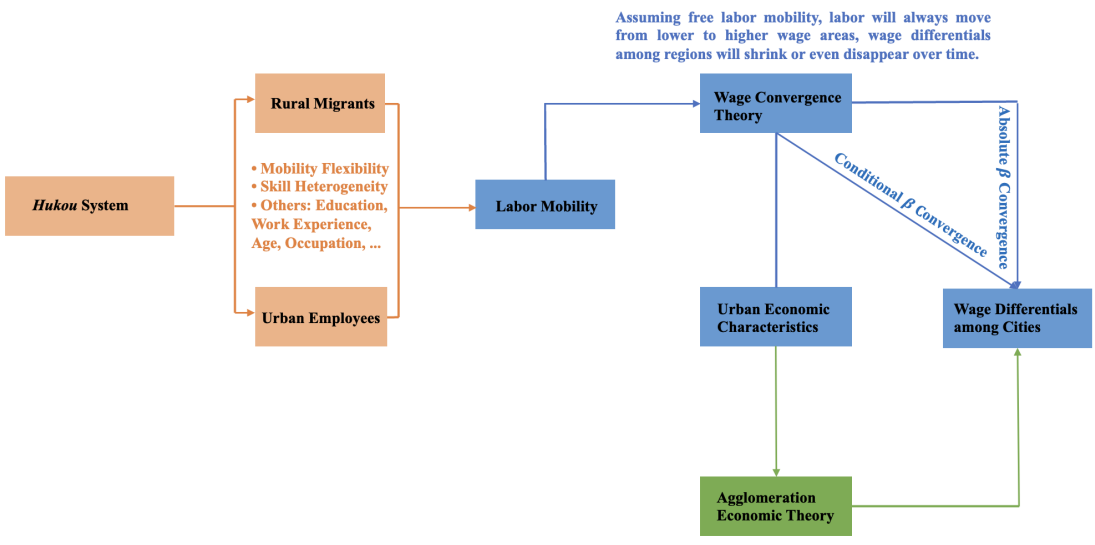


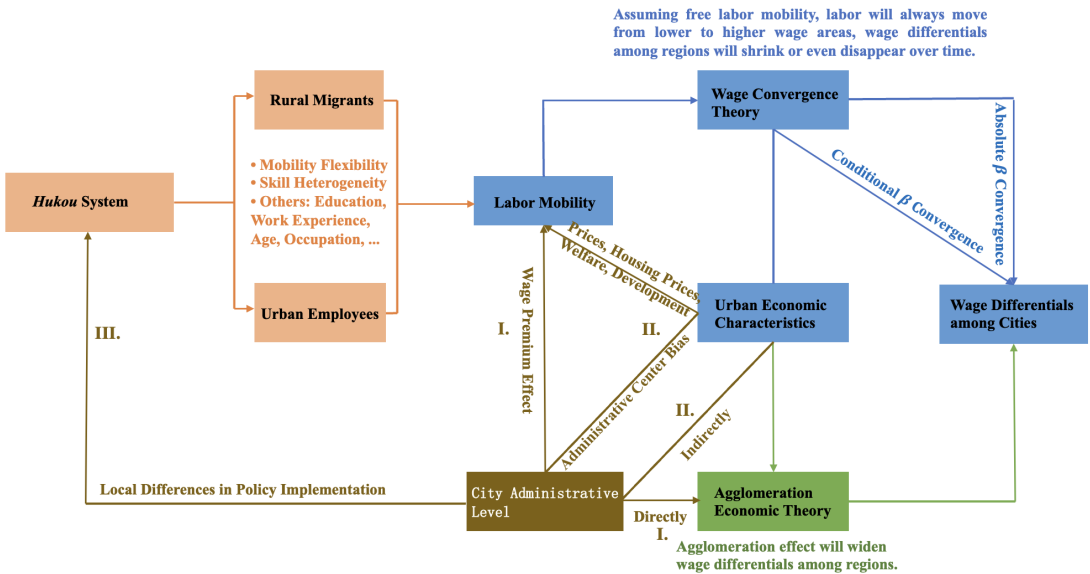
Fig. 1. The Geographical Distribution of the Urban Employees/Rural Migrants Wage (176 Cities).

- Consider the **heterogeneity of different *hukou*** rather than just see as a whole or a single group for labors.


Assuming free labor mobility, labor will always move from lower to higher wage areas, wage differentials among regions will shrink or even disappear over time.
Rural Migrants
Hukou System
• Mobility Flexibility
• Skill Heterogeneity
• Others: Education, Work Experience, Age, Occupation, ...
Urban Employees
Labor Mobility
Wage Convergence Theory
Absolute β Convergence
Conditional β Convergence
Urban Economic Characteristics
Wage Differentials among Cities
Agglomeration Economic Theory
Agglomeration effect will widen wage differentials among regions.

China's Administrative Hierarchy System

- The **unique** economic resource allocation system in China – a centralized state since ancient times.
- **"Administrative center bias"** – Important production materials are often **distributed in a cascading order** from central to local and from higher to lower level cities. *(Jiang Ting et al., 2018; Wei Houkai, 2014; Moomaw and Shatter, 1996)*
- We introduce **city administrative level** as an important **factor** into our analytical framework on wage differentials among cities.
- Establish an **comprehensive empirical analysis framework** to depict the dynamic changes of wage differentials among cities in China's labor market.


Assuming free labor mobility, labor will always move from lower to higher wage areas, wage differentials among regions will shrink or even disappear over time.
Rural Migrants
Hukou System
• Mobility Flexibility
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Urban Employees
III.
Local Differences in Policy Implementation
Labor Mobility
Wage Convergence Theory
Absolute β Convergence
Conditional β Convergence
Prices, Housing Prices, Welfare, Development
I.
Wage Premium Effect
II.
Urban Economic Characteristics
Wage Differentials among Cities
Administrative Center Bias
II.
Indirectly
City Administrative Level
Directly
I.
Agglomeration Economic Theory
Agglomeration effect will widen wage differentials among regions.

II. Data and Description

China Migrants Dynamic Survey (CMDS), 2011-2018

1. **Screening sample for rural migrants (> 400,000)**: agriculture *hukou*, employment status, wage>0, 16-60 years old, no self-employed.
2. **Urban average monthly wage of rural migrants**: using CPI.

China Urban Statistical Yearbook and Other Urban Statistical Data

1. **Urban average monthly wage of urban employees**: using CPI.
2. **Urban economic variables**: physical capital, human capital, government expenditure, foreign investment, transportation infrastructure, financial development, industrial structure, employment competition.
3. **Housing price**: from Macroeconomics and real Estate Database, National Information Center.

China's Labor Market Index Report

1. ***Hukou* index**: measures the degree.

Table 3

Administrative Level Division of 176 City Samples.

Level Type	Administrative Level Division	City Name
High-level cities (34)	Municipalities (4)	Beijing,Tianjin,Shanghai,Chongqing
	Sub-provincial cities (15)	Shenyang,Dalian,Changchun,Harbin,Nanjing,Hangzhou,Ningbo,Xiamen,Jinan,Qingdao,Wuhan,Guangzhou,Shenzhen,Chengdu,Xi'an
	General capital cities (15)	Shijiazhuang,Taiyuan,Hohhot,Hefei,Fuzhou,Nanchang,Zhengzhou,Changsha,Nanning,Haikou,Guiyang,Kunming,Lanzhou,Yinchuan,Urumqi
Low-level cities (142)	General prefecture-level cities (142)	Tangshan,Qinhuangdao,Handan,Xingtai,Baoding,Zhangjiakou,Chengde,Cangzhou,Datong,Yangquan,Changzhi,Jincheng,Shuozhou,Jinzhong,Yuncheng,Xinzhou,Linfen,Lvliang,Baotou,Wuhai,Chifeng,Tongliao,Erdos,Hulunbuir,Bayannur,Ulanqab,Anshan,Jinzhou,Liaoyang,Panjin,Huludao,Hegang,Daqing,Jiamusi,Xuzhou,Suzhou,Nantong,Lianyungang,Yangzhou,Zhenjiang,Taizhou,Jiaxing,Shaoxing,Zhoushan,Taizhou,Wuhu,Bengbu,Huainan,Maanshan,Huaibei,Anqing,Huangshan,Chuzhou,Fuyang,Chizhou,Xuancheng,Putian,Sanming,Quanzhou,Zhangzhou,Nanping,Longyan,Ningde,Jiujiang,Xinyu,Ganzhou,Shangrao,Yantai,Weihai,Dezhou,Luoyang,Anyang,Xinxiang,Jiaozuo,Luohe,Nanyang,Xinyang,Jingmen,Jingzhou,Xianning,Zhuzhou,Xiangtan,Shaoyang,Changde,Chenzhou,Huaihua,Loudi,Shaoguan,Zhuhai,Foshan,Jiangmen,Zhaoqing,Huizhou,Heyuan,Qingyuan,Dongguan,Liuzhou,Guilin,Fangchenggang,Qinzhou,Yulin,Baise,Hezhou,Hechi,Sanya,Panzhihua,Luzhou,Deyang,Mianyang,Guangyuan,Suining,Neijiang,Leshan,Nanchong,Meishan,Yibin,Dazhou,Ziyang,Liupanshui,Zunyi,Anshun,Qujing,Yuxi,Lijiang,Puer,Baoji,Xianyang,Weinan,Yan'an,Hanzhong,Yulin,Jiayuguan,Baiyin,Tianshui,Pingliang,Jiuquan,Qingyang,Shizuishan,Wuzhong,Guyuan,Zhongwei,Karamay

Note: The parentheses indicate the number of cities at this level.

Table 4

Descriptive Statistics.

	Obs.	2011	2012	2013	2014	2015	2016	2017	2018
Physical capital (mean of high-level cities)	34	0.664	0.6156	0.6588	0.7025	0.7056	0.7216	0.6997	0.6736
Physical capital (mean of low-level cities)	142	0.7406	0.6734	0.735	0.8057	0.8652	0.9062	0.9315	0.8661
Human capital (ln, mean of high-level cities)	34	6.3437	6.3663	6.3926	6.4507	6.4599	6.4931	6.4822	6.4516
Human capital (ln, mean of low-level cities)	142	4.4058	4.4288	4.4424	4.4717	4.5231	4.5629	4.6043	4.6142
Government expenditures (mean of high-level cities)	34	0.1259	0.1335	0.1371	0.1411	0.1408	0.1528	0.1565	0.1521
Government expenditures (mean of low-level cities)	142	0.1725	0.174	0.187	0.1911	0.1912	0.209	0.2126	0.2128
Foreign capital introduction (USD/10,000 people, mean of high-level cities)	34	411.8401	463.8081	519.8875	574.7773	582.8085	554.813	583.912	536.9934
Foreign capital introduction (USD/10,000 people, mean of low-level cities)	142	132.3146	151.1121	169.9452	187.4562	191.3295	178.378	175.3303	164.3202
Transportation infrastructure (mean of high-level cities)	34	0.0237	0.023	0.0231	0.0234	0.0212	0.0185	0.0198	0.0189
Transportation infrastructure (mean of low-level cities)	142	0.0109	0.0115	0.0119	0.0114	0.0116	0.011	0.0106	0.0111
Financial development (mean of high-level cities)	34	0.7975	0.7509	0.7633	0.7726	0.7477	0.7677	0.7763	0.8001
Financial development (mean of low-level cities)	142	0.6521	0.6273	0.6608	0.6907	0.725	0.7843	0.8279	0.8444
Industrial structure (mean of high-level cities)	34	0.8036	0.8372	0.7938	0.7902	0.7449	0.6903	0.6489	0.6383
Industrial structure (mean of low-level cities)	142	1.5515	1.6404	1.5883	1.4673	1.3394	1.1853	1.083	1.0222
Job search competition (mean of high-level cities)	34	0.2092	0.2304	0.2381	0.263	0.2704	0.2716	0.2627	0.257
Job search competition (mean of low-level cities)	142	0.089	0.0953	0.0978	0.1207	0.1196	0.121	0.1168	0.1134
housing price (RMB/m^2, mean of high-level cities)	34	7,880.54	8,171.90	8,885.24	9,043.82	9,829.72	11,173.39	12,509.62	14,064.56
housing price (RMB/m^2, mean of low-level cities)	142	4,013.84	4,260.38	4,632.01	4,754.79	4,838.53	4,999.25	5,614.89	6,310.71
hukou index (mean of high-level cities)	34	0.5887	0.5949	0.6051	0.6123	0.6396	0.6946	0.7152	
hukou index (mean of low-level cities)	142	0.4639	0.4699	0.4933	0.5045	0.6109	0.8354	0.8549	

Note: All variables use values of one period lag.

III. Baseline Results

In 2011-2018 for rural migrants:

- The wage convergence among low-level cities changes from strong to weak.
- Taking 2014 as the turning point, the wage convergence among high-level cities turns into divergence.

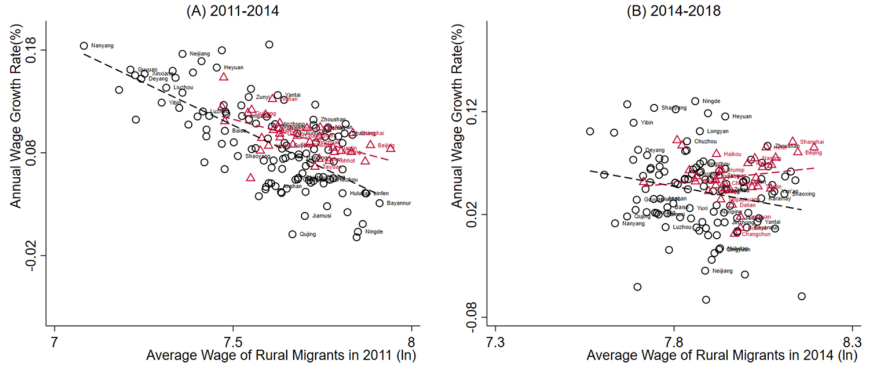


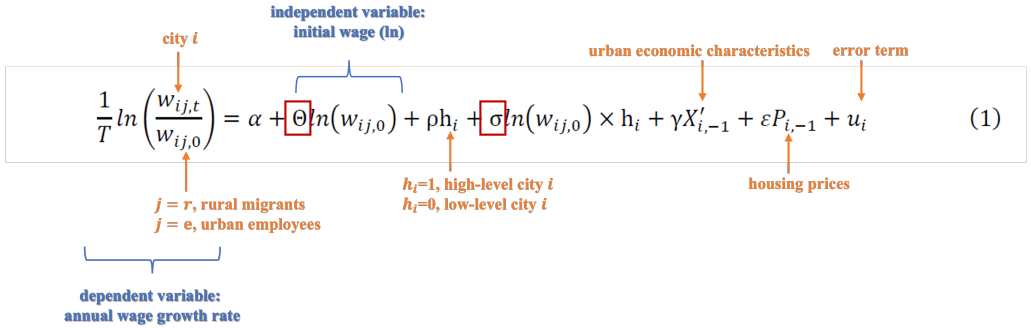
Fig. 4. Two Stage Dynamic Trends of Relative Wage Differentials Among Cities for Rural Migrants (β−convergence).

In 2011-2018 for urban employees:

- The degree of wage convergence among low-level and high-level cities is basically unchanged.

Fig. 5. Two Stage Dynamic Trends of Relative Wage Differentials Among Cities for Urban Empolyees (β−convergence).

β-Convergence OLS Regression



- Convergence coefficient of **low-level cities**: Θ
- The effect of administrative level on the **degree** of wage convergence: σ
- Convergence coefficient of **high-level cities**: $\Theta + \sigma$
- If the convergence coefficient is **significantly negative**, there exits wage convergence.
- If the **absolute value** is greater, the degree of convergence is greater.

i. Absolute β-Convergence OLS Regression Results

Table 5

Baseline Regression Result: Wage Convergence Among Cities.

	β-Convergence OLS Regression					
	Unconditional		Conditional			
	(1)	(2)	(3)	(4)	(5)	(6)
	2011-2014	2014-2018	2011-2014	2014-2018	2011-2014	2014-2018
Panel A: Rural Migrants						
Initial wage(Wr0)	-0.2367***	-0.1340***	-0.2462***	-0.1489***	-0.2555***	-0.1893***
	(0.0197)	(0.0302)	(0.0196)	(0.0341)	(0.0194)	(0.0329)
High-level cities(hi)	-1.0901***	-1.3379***	-0.8127**	-1.1523**	-0.5182	-0.4111
	(0.2522)	(0.3675)	(0.3225)	(0.4660)	(0.3328)	(0.4139)
Initial wage*High-level cities(Wr0*hi)	0.1458***	0.1711***	0.1043**	0.1473**	0.0652	0.0521
	(0.0328)	(0.0463)	(0.0419)	(0.0585)	(0.0431)	(0.0520)
R-squared	0.5471	0.1922	0.6323	0.2140	0.6465	0.3362
Panel B: Urban Employees						
Initial wage(We0)	-0.0984***	-0.0761***	-0.1161***	-0.0614***	-0.1368***	-0.0736***
	(0.0174)	(0.0139)	(0.0155)	(0.0148)	(0.0156)	(0.0163)
High-level cities(hi)	-0.4941**	-0.3836**	-0.5216**	-0.1903	-0.3846*	-0.1154
	(0.2076)	(0.1879)	(0.2210)	(0.1722)	(0.2070)	(0.1614)
Initial wage*High-level cities(We0*hi)	0.0632**	0.0474**	0.0659**	0.0243	0.0489*	0.0153
	(0.0257)	(0.0224)	(0.0272)	(0.0205)	(0.0255)	(0.0192)
					(0.0065)	(0.0055)
R-squared	0.2756	0.2123	0.3485	0.3918	0.4317	0.4177
Urban Economic Characteristics	N	N	Y	Y	Y	Y
Housing prices	N	N	N	N	Y	Y
Obs.	176	176	176	176	176	176

- **2011-2018, rural migrants: the wage convergence among low-level cities changes from strong to weak.**

Table 5

Baseline Regression Result: Wage Convergence Among Cities.

	β Convergence OLS Regression					
	Unconditional		Conditional			
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	2011-2014	2014-2018	2011-2014	2014-2018	2011-2014	2014-2018
Panel A: Rural Migrants						
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	(0.0197)	(0.0302)	(0.0196)	(0.0341)	(0.0194)	(0.0329)
High-level cities(hi)	-1.0901***	-1.3379***	-0.8127**	-1.1523**	-0.5182	-0.4111
	(0.2522)	(0.3675)	(0.3225)	(0.4660)	(0.3328)	(0.4139)
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R-squared	0.5471	0.1922	0.6323	0.2140	0.6465	0.3362
Panel B: Urban Employees						
Initial wage(We0)	-0.0984***	-0.0761***	-0.1161***	-0.0614***	-0.1368***	-0.0736***
	(0.0174)	(0.0139)	(0.0155)	(0.0148)	(0.0156)	(0.0163)
High-level cities(hi)	-0.4941**	-0.3836**	-0.5216**	-0.1903	-0.3846*	-0.1154
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	(0.0257)	(0.0224)	(0.0272)	(0.0205)	(0.0255)	(0.0192)
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Urban Economic Characteristics	N	N	Y	Y	Y	Y
Housing prices	N	N	N	N	Y	Y
Obs.	176	176	176	176	176	176

- **2011-2018, rural migrants: taking 2014 as the turning point, the wage convergence among high-level cities turnes into divergence.**

Table 5

Baseline Regression Result: Wage Convergence Among Cities.

	β-Convergence OLS Regression					
	Unconditional		Conditional			
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	2011-2014	2014-2018	2011-2014	2014-2018	2011-2014	2014-2018
Panel A: Rural Migrants						
Initial wage(Wr0)	-0.2367***	-0.1340***	-0.2462***	-0.1489***	-0.2555***	-0.1893***
	(0.0197)	(0.0302)	(0.0196)	(0.0341)	(0.0194)	(0.0329)
High-level cities(hi)	-1.0901***	-1.3379***	-0.8127**	-1.1523**	-0.5182	-0.4111
	(0.2522)	(0.3675)	(0.3225)	(0.4660)	(0.3328)	(0.4139)
Initial wage*High-level cities(Wr0*hi)	0.1458***	0.1711***	0.1043**	0.1473**	0.0652	0.0521
	(0.0328)	(0.0463)	(0.0419)	(0.0585)	(0.0431)	(0.0520)
R-squared	0.5471	0.1922	0.6323	0.2140	0.6465	0.3362
Panel B: Urban Employees						
Initial wage(We0)	-0.0984***	-0.0761***	-0.1161***	-0.0614***	-0.1368***	-0.0736***
	(0.0174)	(0.0139)	(0.0155)	(0.0148)	(0.0156)	(0.0163)
High-level cities(hi)	-0.4941**	-0.3836**	-0.5216**	-0.1903	-0.3846*	-0.1154
	(0.2076)	(0.1879)	(0.2210)	(0.1722)	(0.2070)	(0.1614)
Initial wage*High-level cities(We0*hi)	0.0632**	0.0474**	0.0659**	0.0243	0.0489*	0.0153
	(0.0257)	(0.0224)	(0.0272)	(0.0205)	(0.0255)	(0.0192)
					(0.0065)	(0.0055)
R-squared	0.2756	0.2123	0.3485	0.3918	0.4317	0.4177
Urban Economic Characteristics	N	N	Y	Y	Y	Y
Housing prices	N	N	N	N	Y	Y
Obs.	176	176	176	176	176	176

-0.0909*** -0.0371***

- **2011-2018, urban employees: the degree of wage convergence among low-level cities and high-level cities is basically unchanged.**

Table 5

Baseline Regression Result: Wage Convergence Among Cities.

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Panel A: Rural Migrants						
Initial wage(Wr0)	-0.2367***	-0.1340***	-0.2462***	-0.1489***	-0.2555***	-0.1893***
	(0.0197)	(0.0302)	(0.0196)	(0.0341)	(0.0194)	(0.0329)
High-level cities(hi)	-1.0901***	-1.3379***	-0.8127**	-1.1523**	-0.5182	-0.4111
	(0.2522)	(0.3675)	(0.3225)	(0.4660)	(0.3328)	(0.4139)
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	(0.0328)	(0.0463)	(0.0419)	(0.0585)	(0.0431)	(0.0520)
R-squared	0.5471	0.1922	0.6323	0.2140	0.6465	0.3362
Panel B: Urban Employees						
Initial wage(We0)	-0.0984***	-0.0761***	-0.1161***	-0.0614***	-0.1368***	-0.0736***
	(0.0174)	(0.0139)	(0.0155)	(0.0148)	(0.0156)	(0.0163)
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	(0.0257)	(0.0224)	(0.0272)	(0.0205)	(0.0255)	(0.0192)
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R-squared	0.2756	0.2123	0.3485	0.3918	0.4317	0.4177
Urban Economic Characteristics	N	N	Y	Y	Y	Y
Housing prices	N	N	N	N	Y	Y
Obs.	176	176	176	176	176	176

-0.0352** -0.0287**

ii. Conditional β-Convergence OLS Regression Results

Table 5

Baseline Regression Result: Wage Convergence Among Cities.

	β-Convergence OLS Regression					
	Unconditional		Conditional			
	(1)	(2)	(3)	(4)	(5)	(6)
	2011-2014	2014-2018	2011-2014	2014-2018	2011-2014	2014-2018
Panel A: Rural Migrants						
Initial wage(Wr0)	-0.2367***	-0.1340***	-0.2462***	-0.1489***	-0.2555***	-0.1893***
	(0.0197)	(0.0302)	(0.0196)	(0.0341)	(0.0194)	(0.0329)
High-level cities(hi)	-1.0901***	-1.3379***	-0.8127**	-1.1523**	-0.5182	-0.4111
	(0.2522)	(0.3675)	(0.3225)	(0.4660)	(0.3328)	(0.4139)
Initial wage*High-level cities(Wr0*hi)	0.1458***	0.1711***	0.1043**	0.1473**	0.0652	0.0521
	(0.0328)	(0.0463)	(0.0419)	(0.0585)	(0.0431)	(0.0520)
R-squared	0.5471	0.1922	0.6323	0.2140	0.6465	0.3362
Panel B: Urban Employees						
Initial wage(We0)	-0.0984***	-0.0761***	-0.1161***	-0.0614***	-0.1368***	-0.0736***
	(0.0174)	(0.0139)	(0.0155)	(0.0148)	(0.0156)	(0.0163)
High-level cities(hi)	-0.4941**	-0.3836**	-0.5216**	-0.1903	-0.3846*	-0.1154
	(0.2076)	(0.1879)	(0.2210)	(0.1722)	(0.2070)	(0.1614)
Initial wage*High-level cities(We0*hi)	0.0632**	0.0474**	0.0659**	0.0243	0.0489*	0.0153
	(0.0257)	(0.0224)	(0.0272)	(0.0205)	(0.0255)	(0.0192)
					(0.0065)	(0.0055)
R-squared	0.2756	0.2123	0.3485	0.3918	0.4317	0.4177
Urban Economic Characteristics	N	N	Y	Y	Y	Y
Housing prices	N	N	N	N	Y	Y
Obs.	176	176	176	176	176	176

Hukou Reform

- Chinese government **accelerated** *Hukou* Reform after 2010.
- At **the end of 2013**, the document proposed:

"fully relax Hukou restrictions of towns and small cities, orderly relax Hukou restrictions of medium-sized cities, reasonably determine the requirements for Hukou in large cities, and strictly control the population size of megacities."

Table 1

Implementation of Household Registration System Reform in Jiangsu Province.

地区	文件名称	时间	主要内容
江苏省	*江苏省政府关于进一步推进户籍制度改革的意见*	2015. 02. 09	①全面放开**小城市**落户限制：有**合法稳定住所**（含租赁）的人员，可落户。 ②有序放开**中等城市**落户限制：**合法稳定就业并有合法稳定住所**（含租赁），同时按照国家规定**参加城镇社会保险达到一定年限**的人员，可落户。 ③合理确定**大城市**、严格控制**特大城市**落户条件：**合法稳定就业达到一定年限**并有**合法稳定住所**（含租赁），同时按照国家规定**参加城镇社会保险达到一定年限**的人员，可落户。 ④重点解决进城时间长、就业能力强、可以适应城镇产业转型升级和市场竞争环境的人员落户问题。不断提高高校毕业生、技术工人、留学回国人员等常住人口的城镇落户率。
南京市	*南京市积分落户实施办法、南京市户籍准入管理办法*	2016. 12. 22	①申请落户积分的五个条件：持有本市有效的《江苏省居住证》；在本市城镇有合法稳定住所；在本市合法稳定就业且**连续缴纳社保满2年；累计积分达到100分**；无严重刑事犯罪记录。 ②无需积分可落户的条件主要有军转干部安置、符合人才引进政策的、符合亲属间投靠政策的、南京生源高校毕业生回原籍等几种条件，购房落户已经被废除。
无锡市	*市政府关于印发无锡市户籍准入登记规定的通知*	2017. 07. 05	①人才落户条件：海外留学人才、各类优秀和紧缺人才，不受落户人原户口性质的限制。 ②**外来务工人员落户条件**：被我市企业合法录(聘)用并**参加我市基本养老保险实际缴费累计满5年**、在本市**自购人均建筑面积达18平方米以上住房**的外来务工人员；具有**中专或技校毕业以上学历**、被我市企业合法录(聘)用并**参加我市基本养老保险实际缴费满3年**、在本市**自购人均建筑面积达18平方米以上住房**的外来务工人员；具有**大专以上学历**、被我市企业合法录(聘)用并**参加我市基本养老保险实际缴费满2年**、在本市**自购人均建筑面积达18平方米以上住房**的外来务工人员。
徐州市	*市政府关于进一步推进户籍制度改革的意见*	2017. 05. 19	①有合法稳定住所的人员或有合法稳定就业并参加城镇社会保险的，可落户。 ②有序放开市区落户限制。在市区有**合法稳定住所**的申请登记常住户口，**在市区合法稳定就业达到3年**并按照国家规定**参加城镇社会保险达到3年**的人员可以申请登记集体常住户口，具备条件的可以办理家庭户口。 ③重点解决农村学生升学和参军进入城镇的人口、在城镇就业和居住 5 年以上的人口、以及举家迁徙的农业转移人口等 4 类群体。 不断提高大中专院校毕业生、技术工人、留学回国人员等常住人口的城镇落户率。
常州市	*常州市户籍准入和迁移管理规定*	2017. 06. 07	①实行以合法稳定职业、合法稳定住所为基本条件的准入制。 ②准入人员主要有下列几类：符合本市规定**引进的各类优秀、紧缺人才**；本市行政单位录用的公务员，事业单位聘用的工作人员，机关、企事业单位调入人员；符合毕业生就业政策接收的大中专、技（职）校毕业生；本市用人单位录用的外来就业人员（包括：在本市获得县级以上荣誉的、取得技师以上职业资格证书的、参加社会保险满2年，具有大专以上学历或中级以上技术职称的、参加社会保险满2年，具有高级工职业资格证书的、参加社会保险满2年，获得本市市级以上（含市级）职业技能竞赛奖项的、参加社会保险满2年的往届技（职）校毕业生，且在本市具有合法稳定住所的、参加社会保险满5年，且在本市具有合法稳定住所的）。 ③在本市具有**合法稳定住所**，并具有**合法稳定职业**的，房屋所有权人及其配偶和未婚子女的户口可以迁入本市，其中迁入市区的房屋面积不小于50平方米（含50平方米），迁入后人均居住面积不小于25平方米（含25平方米）；在本市**租赁住房**，具有**合法稳定职业，参加社会保险满5年，连续居住5年以上**，并征得房屋所有权人同意，可落户。

Note: All information was filtered from the website of the Jiangsu provincial government (http://www.jiangsu.gov.cn/). Just several cities are shown in the table due to space limitation.

- The policy shows **two facts**:
  - Different intensity of policy implementation for different administrative-level cities *(Zhang Jipeng and Lu Chong, 2019)*.
  - Different preferences for different *hukou* or skill of labor.
- We can **compare** the **difficulty of obtaining local *hukou*** from hard to easy (*hukou* index):
  - rural migrants: high-level cities, low-level cities
  - urban employees: high-level cities, low-level cities
  - high-level cities: rural migrants, urban employees
- Test whether *hukou* reform **promotes** wage convergence.
  - **Easier** of obtaining local *hukou*, **more** likely wage convergence occuring.

i. Mechanism: Interaction Term Test

hukou index

$$\frac{1}{T} ln\left(\frac{w_{ij,t}}{w_{ij,0}}\right) = \alpha + \Theta ln(w_{ij,0}) + \rho \mathrm{h}_i + \sigma ln(w_{ij,0}) \times \mathrm{h}_i + AE'_{i,-1} + Bln(w_{ij,0}) \times E'_{i,-1}$$
$$+ CE'_{i,-1} \times \mathrm{h}_i + Dln(w_{ij,0}) \times \mathrm{h}_i \times E'_{i,-1} + \gamma X'_{i,-1} + \varepsilon P_{i,-1} + u_i \qquad (2)$$

- The impact of *hukou* index on wage convergence among **low-level cities**: **B**
- The impact of *hukou* index on wage convergence among **high-level cities**: **B+D**

- **In 2014-2018, *hukou* reform in low-level cities is stronger, attracting not only urban employees but also rural migrants.**

Table 6

Mechanism of Inspection: Interaction Term Test.

	Annual Wage Growth Rate			
	Rural Migrants		Urban Employees	
	(1)	(2)	(3)	(4)
	2011-2014	2014-2018	2011-2014	2014-2018
Initial wage(Wj0)	-0.2573***	-0.0795	-0.1312***	-0.0323
	(0.0422)	(0.0640)	(0.0323)	(0.0260)
Wj0*hi	0.0623	-0.1138	0.1020	-0.0271
	(0.0981)	(0.1046)	(0.0646)	(0.0371)
B Wj0*Hukou index	-0.0550	-0.1988*	-0.0730	-0.1169**
	(0.0705)	(0.1132)	(0.0613)	(0.0507)
Wj0*hi*Hukou index	0.0514	0.2880**	-0.0123	0.1141*
	(0.1477)	(0.1271)	(0.1029)	(0.0626)
Urban Economic Characteristics	Y	Y	Y	Y
Housing prices	Y	Y	Y	Y
Obs.	176	176	176	176
R-squared	0.6735	0.3912	0.4539	0.4960

- **In 2014-2018, in high-level cities, the restrictions on rural migrants are severe, but urban employees are expected to be attracted.**

Table 6

Mechanism of Inspection: Interaction Term Test.

	Annual Wage Growth Rate			
	Rural Migrants		Urban Employees	
	(1)	(2)	(3)	(4)
	2011-2014	2014-2018	2011-2014	2014-2018
Initial wage(Wj0)	-0.2573***	-0.0795	-0.1312***	-0.0323
	(0.0422)	(0.0640)	(0.0323)	(0.0260)
Wj0*hi	0.0623	-0.1138	0.1020	-0.0271
	(0.0981)	(0.1046)	(0.0646)	(0.0371)
B Wj0*Hukou index	-0.0550	-0.1988*	-0.0730	-0.1169**
B+D	(0.0705)	(0.1132)	0.0892* (0.0613)	(0.0507) -0.0028*
D Wj0*hi*Hukou index	0.0514	0.2880**	-0.0123	0.1141*
	(0.1477)	(0.1271)	(0.1029)	(0.0626)
Urban Economic Characteristics	Y	Y	Y	Y
Housing prices	Y	Y	Y	Y
Obs.	176	176	176	176
R-squared	0.6735	0.3912	0.4539	0.4960

ii. Mechanism of Inspection: DID Test

$$\frac{1}{T} ln\left(\frac{w_{ij,t}}{w_{ij,0}}\right) = \beta_0 + \Theta ln(w_{ij,0}) + \beta_1 \text{Treat} \times ln(w_{ij,0}) + \beta_2 \text{Post} \times ln(w_{ij,0})$$
$$+\beta_3 \text{Treat} \times Post \times ln(w_{ij,0}) + \gamma X'_{i,-1} + \varepsilon P_{i,-1} + u_i \qquad (3)$$

- **Exogenous policy impact**: the *hukou* reform **accelerated** in 2014.
- Treatment group **(Treat** $= 1$**)**: high-level cities
  Control group **(Treat** $= 0$**)**: low-level cities
- Before 2014 **(Post** $= 0$**)**: two groups have no difference in *hukou* reform.
  After 2014 **(Post** $= 1$**)**: high and low-level cities have different intensity of *hukou* reform.
- **Treatment effect**: $\beta 3$

- **After the *hukou* reform accelerated in 2014, rural migrants face stronger *hukou* restrictions in high-level cities than in low-level cities.**

Table 7

Mechanism of Inspection: DID Test.

	Annual Wage Growth Rate			
	Rural Migrants		Urban Employees	
	(1)	(2)	(3)	(4)
Initial wage(Wj0)	-0.0853***	-0.1442***	-0.0876***	-0.1114***
	(0.0179)	(0.0167)	(0.0110)	(0.0116)
Wj0*Treat	-0.0002	-0.0018**	0.0027***	0.0021***
	(0.0010)	(0.0009)	(0.0007)	(0.0007)
Wj0*Post	-0.0025***	-0.0020**	0.0031***	0.0026***
	(0.0009)	(0.0008)	(0.0005)	(0.0005)
Wj0*Treat*Post	0.0010	0.0018**	-0.0008	-0.0003
	(0.0009)	(0.0008)	(0.0007)	(0.0006)
Urban Economic Characteristics	Y	Y	Y	Y
Housing prices	N	Y	N	Y
Obs.	352	352	352	352
R-squared	0.4382	0.5309	0.2745	0.3534

V. Empirical Results

Main results:

- The wage convergence of **rural migrants** among low-level cities decreases from strong to weak, while among high-level cities, it first converges and then diverges with 2014 as the turning point.
- The wage convergence of **urban employees** among low-level and high-level cities remained constant.
- **Why rural** migrants among high-level cities diverges after 2014? Rural migrants face stronger *hukou* restrictions in high-level cities.

Discussion:

- Remove **administrative barriers** to labor mobility, a unified national market.
- Relax the ***hukou* restrictions** and promote fair distribution of public welfare.

- 8月3日公安部召开新闻发布会，公安部将探索户籍准入同城化，试点实施灵活落户政策，大力推进以人为核心的新型城镇化，全面放宽Ⅰ型大城市落户条件，完善超大特大城市积分落户政策。

- 长期来看，此政策会使经济资源和人口客观上向大城市集中，发挥经济发展的规模效益。大城市及周边的都市圈范围在促进创业就业，提高劳动生产率等方面的增长极作用会越来越明显。户籍制度从小城市开始改革，但最终还是要在一线和准一线城市循序推进。（陆铭，8月6日）

THANK YOU!