

## **Has China crossed the threshold of the Kuznets curve?**

*New measures from 1987 to 2012 show declining pay inequality in China after 2008.*

By

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**Abstract:** This paper provides new estimates of the evolution of pay inequality in China, overall and by region and sector, from 1987 to 2012, using the between-groups component of Theil's T-statistic measured across regions and sectors. We find that China's overall pay inequality started to rise rapidly in the early 1990s, that it peaked in 2008, with the between-provinces component peaking as early as 2002. Since 2008 overall pay inequality has decreased, with between-province and between-sector inequality both showing steady declines. In these respects, the evolution of pay inequality in China mirrors the trajectory expected under the hypothesis of a Kuznets curve.

**Key words:** China, pay inequality, Kuznets curve

JEL Codes: D31, D63, R11, R58,

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## Introduction

As Kuznets (1955) taught, economic inequality usually increases in the early stages of development. As countries urbanize and industrialize, the gaps between town and country, factory and farm assure that inequality continues rising – until it reaches a tipping point, when the rural sector starts to lose its preeminent position in the economy. Inequality declines afterward. The rise in inequality within China has been for decades one of the most important and well-known features of Chinese development, and most observers believe that it is an ongoing phenomenon. This paper asks, is it over? Has Chinese development crossed the Kuznets threshold? And if so, when did this happen? We shall argue that the geographic threshold was crossed more than a decade ago, around 2002, and that an overall threshold for declining inequality was reached at the time of the Great Financial Crisis in 2008.

China has pursued economic reform since 1978. Favored by the open-door policy and special economic zones, a handful of coastal provinces and eastern municipalities have become the biggest beneficiaries of economic reform, while vast interior provinces remain relatively poor and underdeveloped. As Deng Xiaoping's favorite slogan described, some in China have to become rich first. But the rest do not necessarily follow. Unbalanced economic development underlies a dramatic rise of economic inequality in China, especially since the early 1990s. From the 2000s, this rise has become both a focal point of public attention and a headache for the Chinese state.

Rising economic inequality in China is well-documented. Many studies have concentrated rural-urban income inequality, its formation, direction and social and political effects (Tsui, 1991; Kanbur and Zhang, 1999; Gustafsson and Li, 2000; Benjamin, *et al.* 2005; Wu and Perloff, 2005; Sicular *et al.*, 2006; Luo and Zhu, 2008; Riskin and Gao, 2008). Driving forces range from household characteristics such as location and education (Sicular, *et al.* 2006; Luo and Zhu, 2008) to policy-related factors, such as economic restructuring and rural-urban reclassification (Benjamin, *et al.* 2005), the revival of market forces (Riskin and Gao, 2008), and the degree of decentralization (Lin, 1999; Kanbur and Zhang, 2005).

Rising interprovincial inequality is another well-covered topic (Tsui, 1993 and 2007; Gustafsson and Li, 2002; Shorrocks and Wan 2005; Fan and Sun, 2008; Gries and Redlin, 2008; Hao and Wei, 2010; Li and Wei 2010). Galbraith, Krytynskaia and Wang (2004) showed that much of the rise could be attributed to the relative gains of just few provinces and municipalities, namely Guangdong, Shanghai and Beijing. Major losers in regional (and relative) terms included the Northeast (Manchuria) and the Southwest (Sichuan). Trade, government expenditures, foreign and domestic capital investments, globalization and marketization as well as human capital have been identified as key policy determinants of rising inequality (Kanbur and Zhang, 1999; Tsui, 2007; Gries and Redlin, 2008). However, we have seen no other study suggest that inequality in China has peaked or is declining.

In this study, we aim at providing some new evidence of the evolution of China's inequality, using the Theil's T Statistics with province and sector as main groups. We are interested in exploring the main factors that may influence the inequality trend. We would also like to investigate whether China mirrors the Kuznets process that is the catch up of the Chinese economy as a whole toward the standard of development and pay set initially in a very small part of this vast country.

### **The evolution of pay inequality in China from 1987 to 2012**

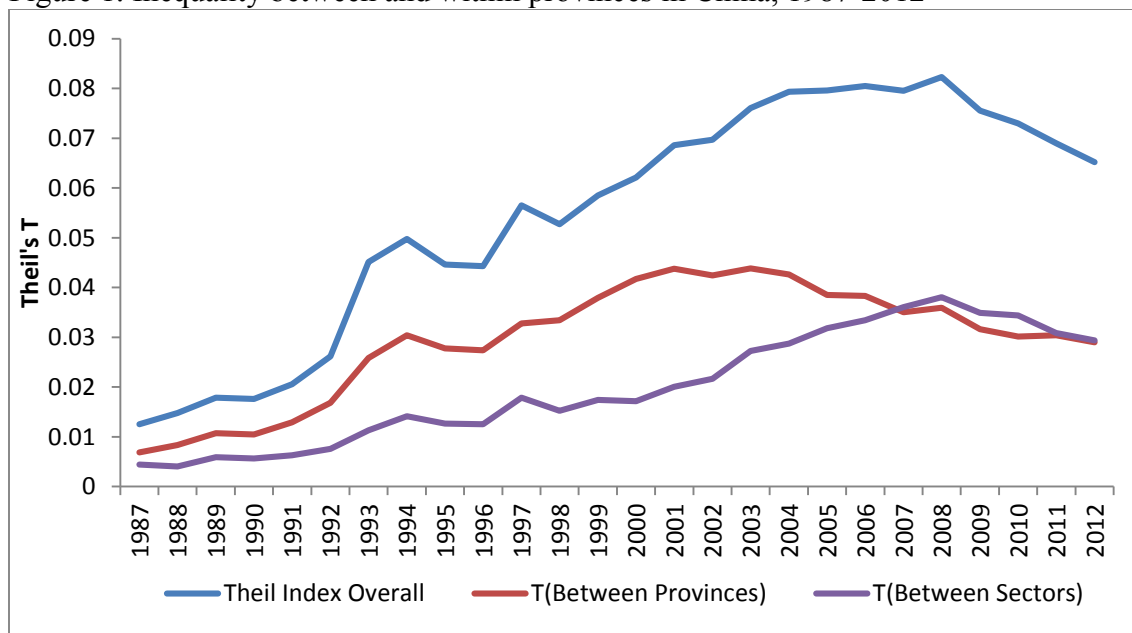
We present new estimates of the evolution of pay inequality in China from 1987 to 2012. The metric is the between-provinces and between-sectors components of Theil's T-statistic; the underlying data are wage and employment records from the annual statistical yearbooks, for which consistent classification schemes exist (or can be constructed) going back to 1988. The employment data refer to the total number of staff and workers at year-end, by sector and province. The pay data are the total wage bills for these personnel.

The coverage of these tables is not complete. According to the editors' explanatory notes (NBS, 2012), staff and workers covered are those who "work in and receive payment from units of state ownership, collective ownership, joint ownership, shareholding ownership, foreign ownership and ownership by entrepreneurs from Hong Kong, Macao

and Taiwan.” Persons employed in township enterprises, persons employed in private enterprises, self-employed persons, foreigners and persons from Hong Kong, Macao and Taiwan are not included. Total wage bills are the total remuneration to all staff and workers in all formal sectors during the reporting period. These bills include hourly-paid wages, piece-rate wages, bonuses, allowance and subsidies, overtime wages and wages paid under special circumstances. The wage bills are pre-tax and no social insurance premiums, utility bills, housing funds or subsidies are deducted (NBS, 2012).

Figure 1 presents a broad overview of the evolution of pay inequality in China, both overall and by region and sector, from 1987 to 2012. As Figure 1 shows, pay inequality in China began rising in 1992, both between-provinces and between-sectors, as well as overall. However, in the 2000s the behavior of these two dimensions of inequality diverged (Galbraith, Hsu and Zhang, 2009). Inequality between provinces peaked around 2002 and declined after 2003. In contrast, inequality between sectors continued rising and reached its apex in 2008. Combining the two factors, the growth of inequality overall slowed after 2002, peaked in 2008, and then began a pronounced decline.

Figure 1. Inequality between and within provinces in China, 1987-2012



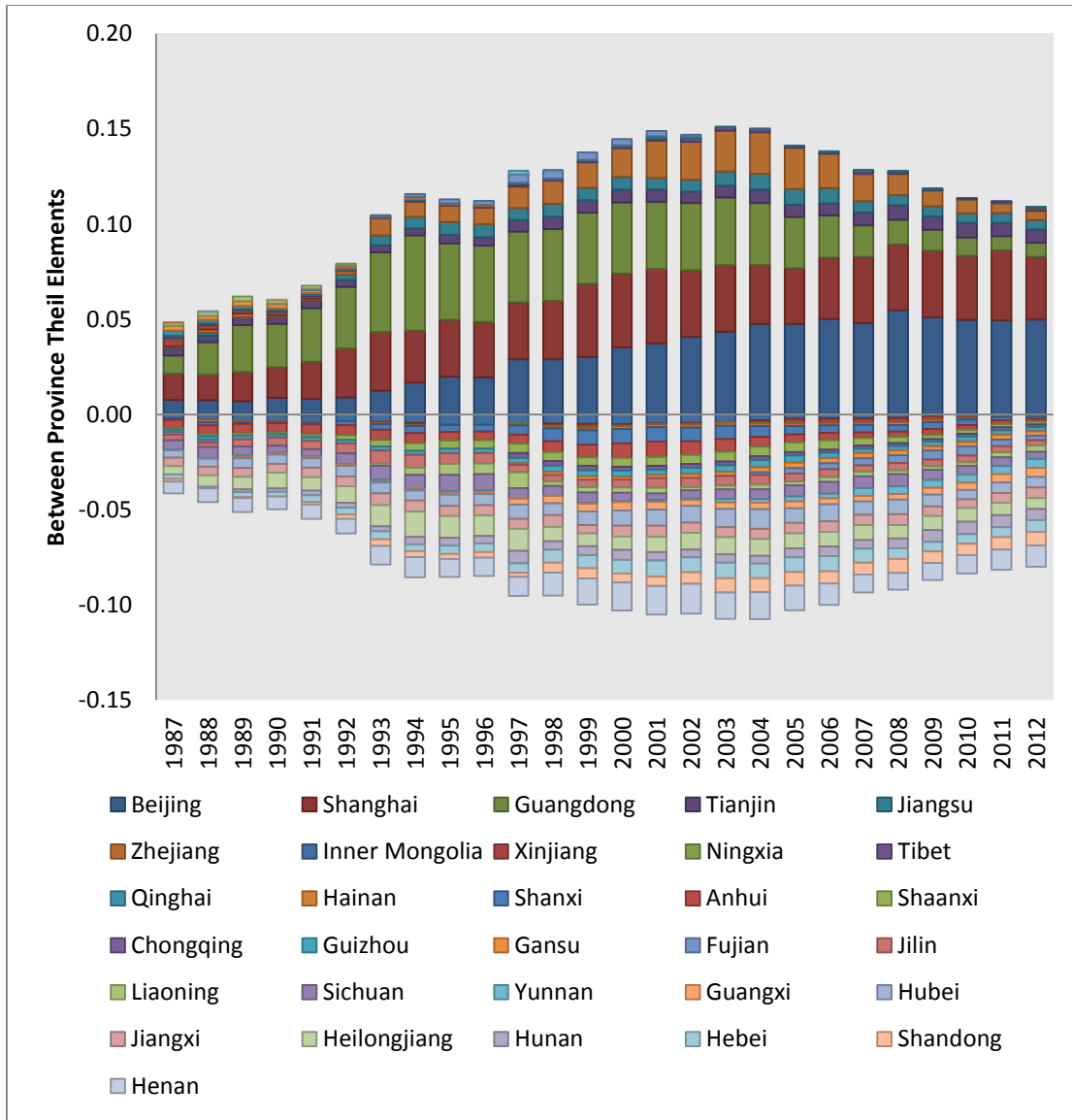
Source: China’s Annual Statistical Yearbooks and author’s calculations

### *Pay inequality between and within geographical regions*

Figure 2 breaks out the changing inter-provincial dimensions of China's pay inequality in a stacked bar graph. Each bar represents a year, and each segment represents the contribution of a province to overall inequality in that year. Each segment reflects both the population weight of the province (measured by observed employment) and the ratio between average provincial wage and national average wage. Contributions greater than zero indicate provinces with mean wages above the national average. Contributions below zero indicate provinces with mean wages below the national average. The largest positive contribution (Beijing) is placed next to the zero line, while the largest negative (Henan) is placed at the bottom of the bar.

As the figure shows, the rise of between-province pay inequality was largely attributable to the surging relative wages in Guangdong, Shanghai, Beijing, Zhejiang, Jiangsu and Tianjin, while the low wages of interior provinces such as Henan, Heilongjiang, Hubei, Sichuan, Jiangxi, Shandong and Hunan did not change. The rapid development of rich provinces and municipal cities is clustered in eastern and coastal regions. These regions absorb the majority of foreign trade and receive investments both internally and externally. However, since 2003 between-province inequality has declined, as Zhejiang and Jiangsu started to catch up with Guangdong, becoming important new centers for manufacturing in China. After 2009 the decline of inter-provincial inequality accelerated, due mainly to loss of activity in Guangdong and Zhejiang, both of which were greatly affected by the world crisis.

Figure 2. Contribution of provinces to inter-provincial inequality in China, 1987-2012.



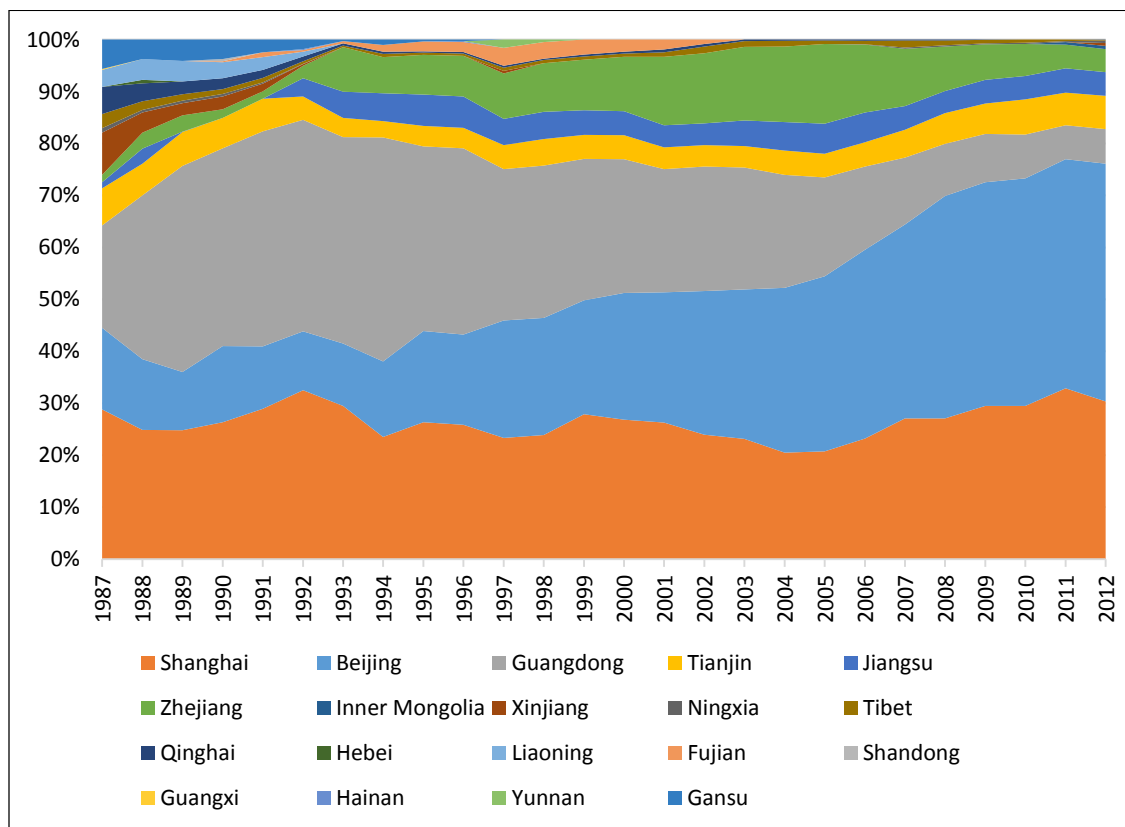
Source: China's Annual Statistical Yearbooks and author's calculations

Figure 3 provides another representation of part of the same data; it shows the contribution of each above-average-income province to inequality as a percentage of the contribution of all provinces with income above average. The contribution of Shanghai is relatively stable during the entire period. In contrast, Guangdong has its moment early, but yields to Beijing after the mid-1990s. In particular, after Beijing won the right to host the 2008 Olympic Games in 2001, the total number of workers and staff in manufacturing and construction rose remarkably from 2001 to 2003. Second, wages in the financial and real estate sectors skyrocketed in Beijing after 2001. Third, Beijing has added many jobs

in the high-wage sectors, including IT, social services, utilities, scientific research and education.

The relative decline of Guangdong is also not accidental. As one of the first economic special zones in China established in 1980, Guangdong has attracted huge amounts of foreign investment and capital in support of its economic development. The average pay in Guangdong province was much higher than the national average. However, with the rapid rise of Shanghai, Jiangsu, and Zhejiang in the 1990s, Guangdong has gradually lost its advantage in manufacturing, and the mean wage in Guangdong has also become less attractive.

Figure 3. The percentage of contribution of the provinces from above (1987-2012)

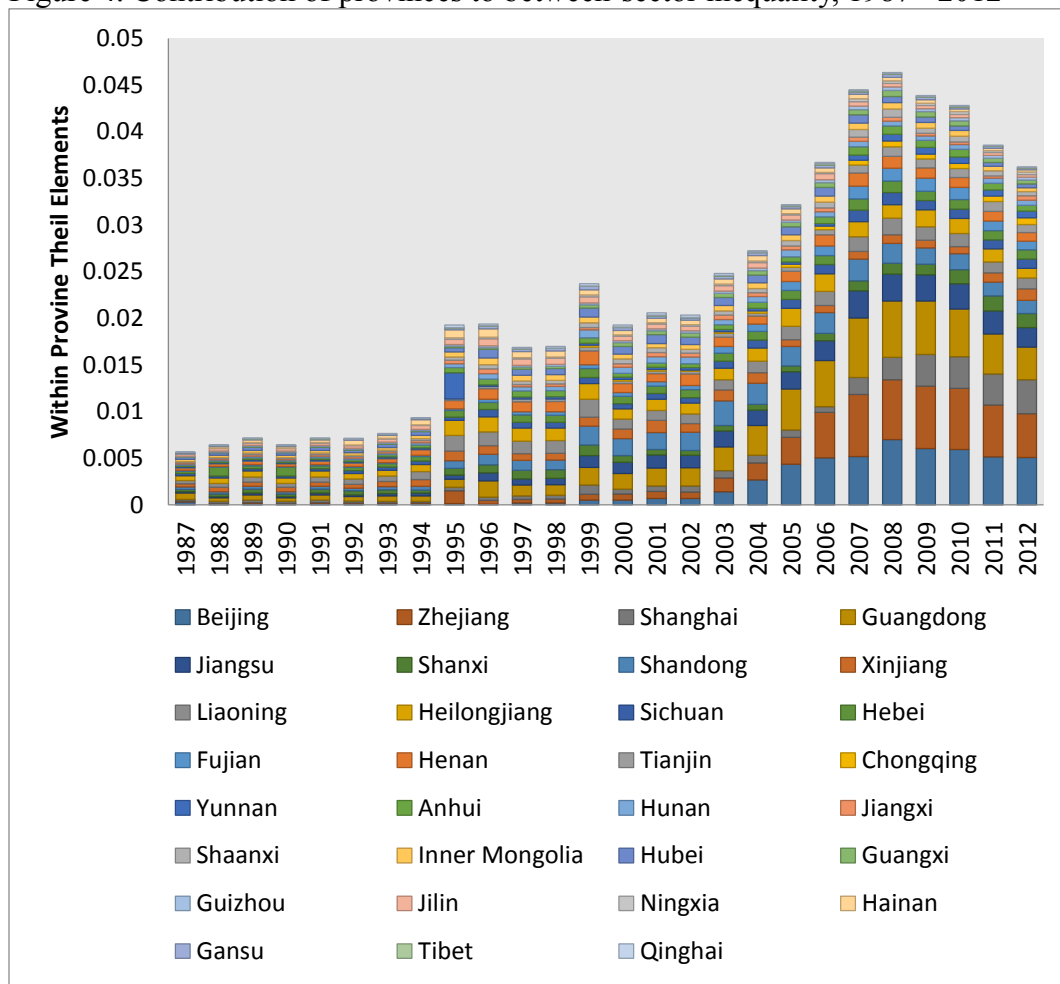


Source: China's Annual Statistical Yearbooks and author's calculations

Of course, not everyone in the rich provinces is rich. Within-province inequality may be measured as the sum of each province's between-sector inequality, weighted by that province's share of total wages. Figure 4 shows how Zhejiang, Beijing, Guangdong,

Shanghai, and Jiangsu remain the major forces widening the wage gap within provinces. During the 1990s, the contributions of these five regions were relatively small, fluctuating between 14 and 18 per cent. Nevertheless, since 1999 they have risen significantly, as the total contribution of these five regions to within-province, between-sector inequality in China has jumped from 22 to 56 per cent. This phenomenon implies that the wage difference between economic sectors in these rapidly developing regions is much higher than that in the rest of China.

Figure 4. Contribution of provinces to between-sector inequality, 1987 - 2012



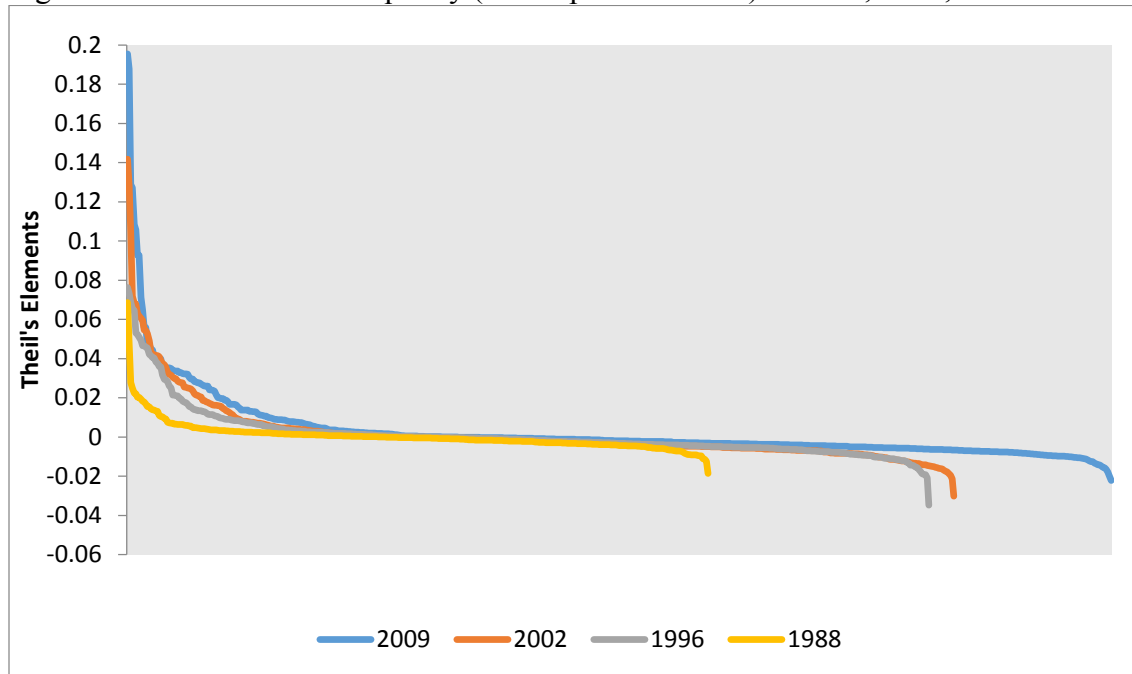
Source: China's Statistical Yearbooks and author's calculations.

The sector-province Theil element is the smallest unit in our analysis; it represents the contribution of each sector, within each province, to pay inequality measured at the national scale. Figure 5 presents these elements ranked by size, for 1988, 1996, 2002 and 2009. The figure illustrates the importance of extreme cases. Most sector-province cells



contribute almost nothing to inequality, either because they are very small or because their pay is close to the national average. Just a few sectors (within a few provinces) drive the overall index. Note that China reclassified its industrial sector categorization twice, first in 1994 and again in 2004, each time adding new sectors to its tables. Therefore, the length of each curve is different.

Figure 5. Contribution to inequality (sector-province cells) in 1988, 1996, 2002 and 2009



Source: China Statistical Yearbooks and author's calculations.

Tables 1 and 2 show the contribution of particular sector-province cells to overall inequality in selected years. In each table, the top ten contributors from above and below are both listed. It is interesting to note that the forces pulling from both directions have changed significantly over two decades. In 1988, for instance, the farming sector in Hebei was the biggest positive contributor to overall pay inequality, while the biggest relative losers were people working in the farming sector in Heilongjiang. In 1996, the biggest winners were in the banking and insurance sectors in Guangdong. Meanwhile, Guangdong province and Shanghai each had four places among the top ten, while the other two were taken by Beijing. But this situation has changed again since 2002. In 2009, while Beijing took seven places among the top ten sectors with the highest wages, while Guangdong has disappeared from the top ten. On the other hand, the list of losers has not greatly changed.

Table 1. Province-sector contribution to overall wage inequality (2009 vs. 2002)

		2009			2002	
1	Beijing	Information Transformation and Computer Science	0.19542	Beijing	Other	0.14176
2	Beijing	Leasing and Business Services	0.18779	Beijing	Social Welfare	0.12814
3	Beijing	Wholesale and Retail Trade	0.12867	Beijing	Scientific Research	0.10462
4	Beijing	Culture Sports and Entertainment	0.12718	Beijing	Wholesale and Retail Trade	0.07189
5	Beijing	Financial Intermediation	0.10851	Beijing	Real Estate	0.06826
6	Beijing	Scientific Research Polytechnic Services	0.10561	Beijing	Bank and Insurance	0.06784
7	Heilongjiang	Financial Intermediation	0.09269	Shanghai	Bank and Insurance	0.06305
8	Shanghai	Financial Intermediation	0.09268	Shanghai	Wholesale and Retail Trade	0.06174
9	Beijing	Real Estate	0.07114	Shandong	Excavation	0.06057
10	Beijing	Hotels and Restaurants	0.06480	Guangdong	Real Estate	0.05945
580	Zhejiang	Leasing and Business Services	-0.01375	Henan	Real Estate	-0.01605
581	Henan	Culture Sports and Entertainment	-0.01416	Shandong	Wholesale and Retail Trade	-0.01619
582	Henan	Financial Intermediation	-0.01418	Hubei	Farming	-0.01636
583	Shandong	Financial Intermediation	-0.01474	Henan	Construction	-0.01701
584	Hebei	Financial Intermediation	-0.01553	Shandong	Manufacturing	-0.01745
585	Henan	Public Management and Social Organization	-0.01561	Henan	Healthcare	-0.01786
586	Tianjin	Services to Household and other Services	-0.01643	Henan	Education	-0.01875
587	Shandong	Wholesale and Retail Trade	-0.01784	Henan	Government	-0.01958
588	Henan	Wholesale and Retail Trade	-0.02021	Henan	Wholesale and Retail Trade	-0.02145
589	Liaoning	Farming Forestry Animal Husbandry Fishery	-0.02219	Heilongjiang	Excavation	-0.03016

Source: China's Annual Statistical Yearbooks and author's calculations

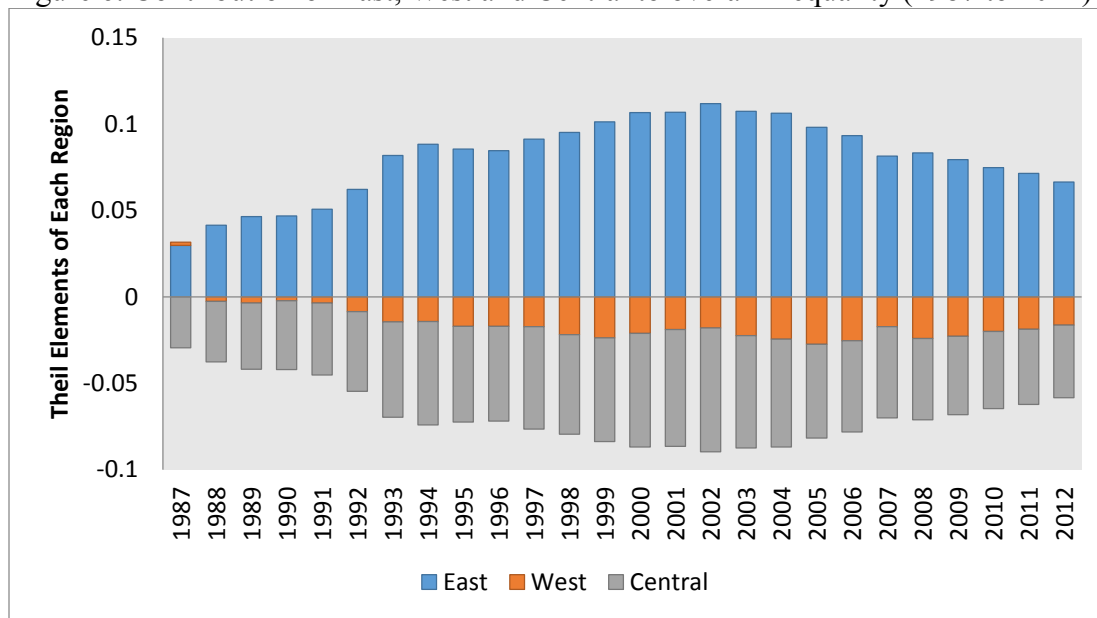
Table 2. Province-sector contribution to overall wage inequality (1996 vs. 1988)

		1996		1988		
1	Guangdong	Bank and Insurance	0.07623	Hebei	Farming	0.06857
2	Shanghai	Bank and Insurance	0.07312	Guangdong	Real Estate	0.04781
3	Guangdong	Social welfare	0.06883	Guangdong	Wholesale and Retail Trade	0.02782
4	Shanghai	Others	0.06555	Shanxi	Real Estate	0.02505
5	Beijing	Social welfare	0.06455	Xinjiang	Mining	0.02240
6	Shanghai	Wholesale and Retail Trade	0.05313	Guangdong	Finance	0.02202
7	Guangdong	Real Estate	0.05222	Beijing	Real Estate	0.02026
8	Guangdong	Wholesale and Retail Trade	0.05098	Guangdong	Transportation	0.02022
9	Beijing	Bank and Insurance	0.04927	Shanghai	Transportation	0.01928
10	Shanghai	Social welfare	0.04661	Shanghai	Wholesale and Retail Trade	0.01837
471	Heilongjiang	Bank and Insurance	-0.01465	Guizhou	Real Estate	-0.00916
472	Sichuan	Utilities	-0.01528	Heilongjiang	Real Estate	-0.00917
473	Sichuan	Transportation	-0.01546	Heilongjiang	Wholesale and Retail Trade	-0.00918
474	Henan	Others	-0.01664	Hubei	Farming	-0.00942
475	Heilongjiang	Social Welfare	-0.01759	Sichuan	Farming	-0.00954
476	Henan	Wholesale and Retail Trade	-0.01878	Guizhou	Education	-0.00960
477	Liaoning	Bank and Insurance	-0.01912	Guizhou	Transportation	-0.01111
478	Shandong	Others	-0.01928	Henan	Healthcare	-0.01124
479	Heilongjiang	Farming	-0.02092	Henan	Wholesale and Retail Trade	-0.01233
480	Heilongjiang	Others	-0.03470	Heilongjiang	Farming	-0.01855

Source: China's Annual Statistical Yearbooks and author's calculations

China can be divided into three large geographical zones: East, West and Central.<sup>1</sup> On the basis of this division, the Theil index for each region was recalculated, along with the measure of each region's contribution to overall inequality. The result is a new picture of pay inequality across China. Figure 6 presents the contributions of east, west and central China to overall pay inequality from 1987 to 2012. It is evident that the average pay in eastern regions is much higher than the rest of China.

Figure 6. Contribution of East, West and Central to overall inequality (1987 to 2012)

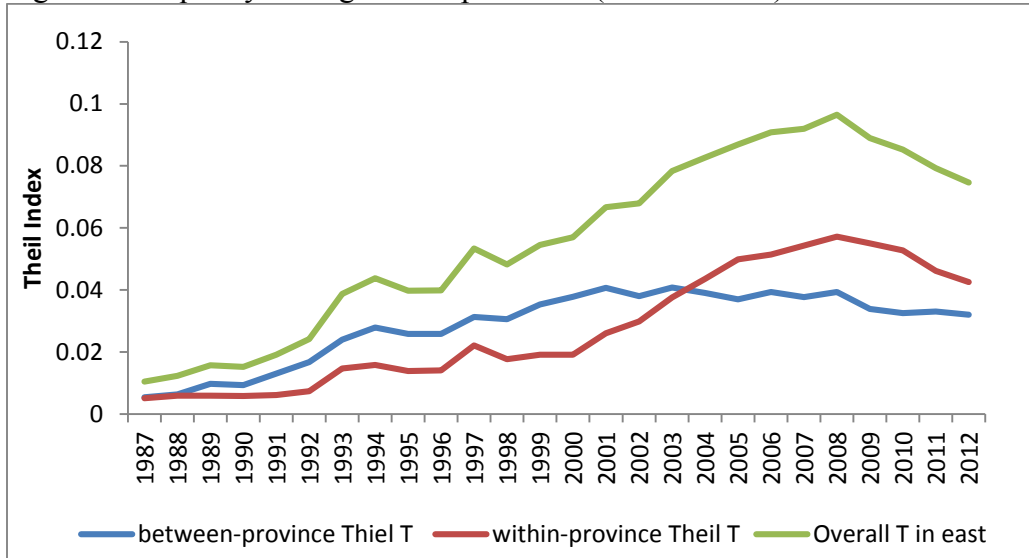


Source: China Statistical Yearbooks and author's calculations.

Figures 7, 8 and 9 present profiles of pay inequality in three large geographical units. As Figure 7 shows, the pattern of wage differences among eastern provinces follows the same trajectory as national pay inequality. However, this pattern did not occur in western and central regions. Within western and central China, the variation between provinces is very small, whereas wage differences within provinces are substantial. This observation implies that there is no obvious difference in average pay between poor provinces. The poor provinces remain poor, but they are also internally unequal.

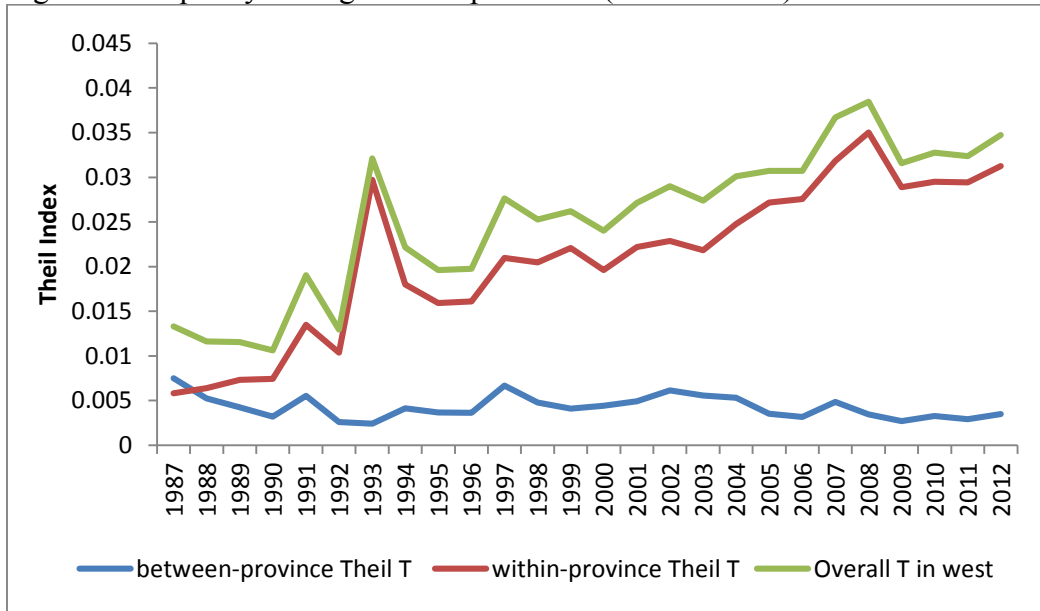
<sup>1</sup>The East includes nine provinces and three municipal cities: Liaoning, Beijing, Tianjin, Hebei, Shandong, Jiangsu, Shanghai, Zhejiang, Fujian, Guangdong, Guangxi and Hainan. The west region includes Xingjiang, Qinghai, Gansu, Ningxia, Shaanxi, Sichuan, Chongqing, Guizhou, Yunnan and Tibet. The central region consists of Heilongjiang, Jilin, Inner Mongolia, Shanxi, Henan, Anhui, Hubei, Hunan and Jiangxi.

Figure 7. Inequality among eastern provinces (1987 to 2012)



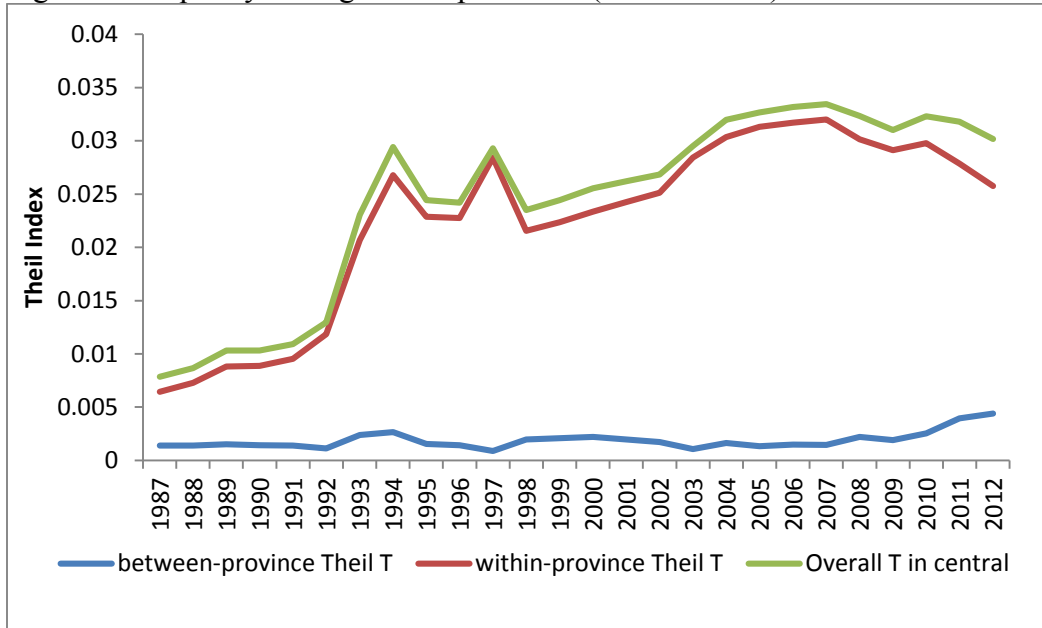
Source: China Statistical Yearbooks and author's calculations.

Figure 8. Inequality among western provinces (1987 to 2012)



Source: China Statistical Yearbooks and author's calculations.

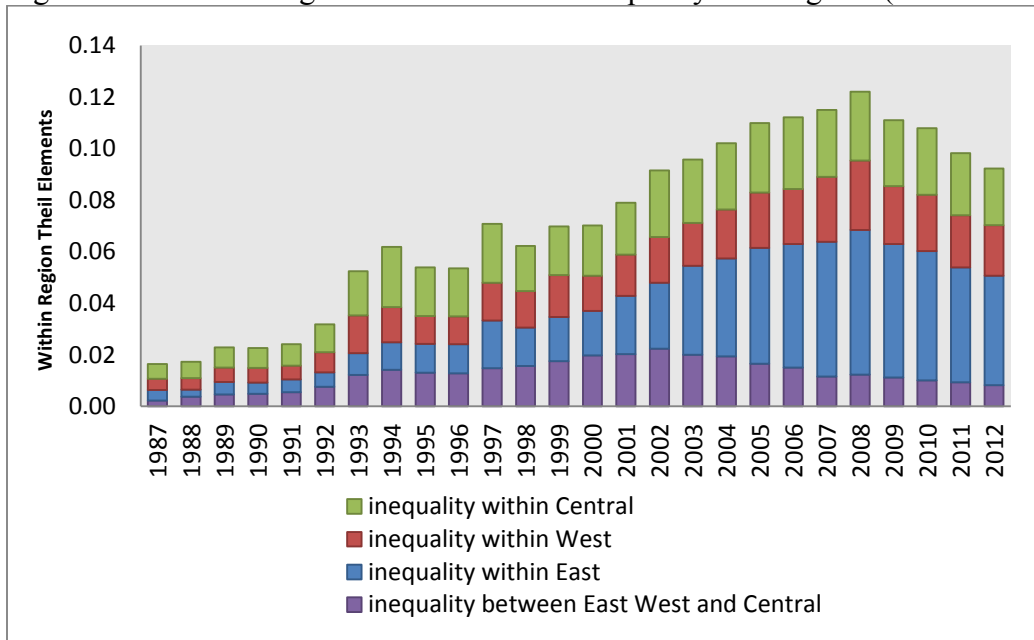
Figure 9. Inequality among central provinces (1987 to 2012)



Source: China Statistical Yearbooks and author's calculations.

Figure 10 shows that variation within three different regions is getting larger, particularly in East. This may be due to the fact the eastern region contains both the richest communities, such as Beijing and Shanghai, as well as some of the poorest provinces, such as Liaoning, where many ill-performing state-owned enterprises are concentrated.

Figure 10. Income-weighted between-sector inequality with regions (1987 to 2012)

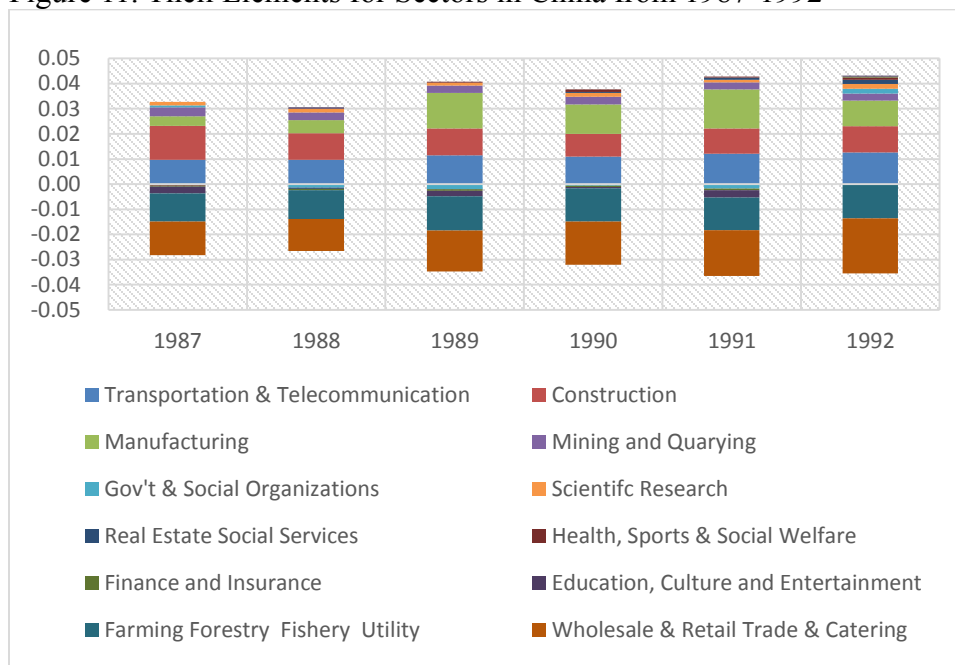


Source: China Statistical Yearbooks and author's calculations.

### *Pay inequality between and within sectors*

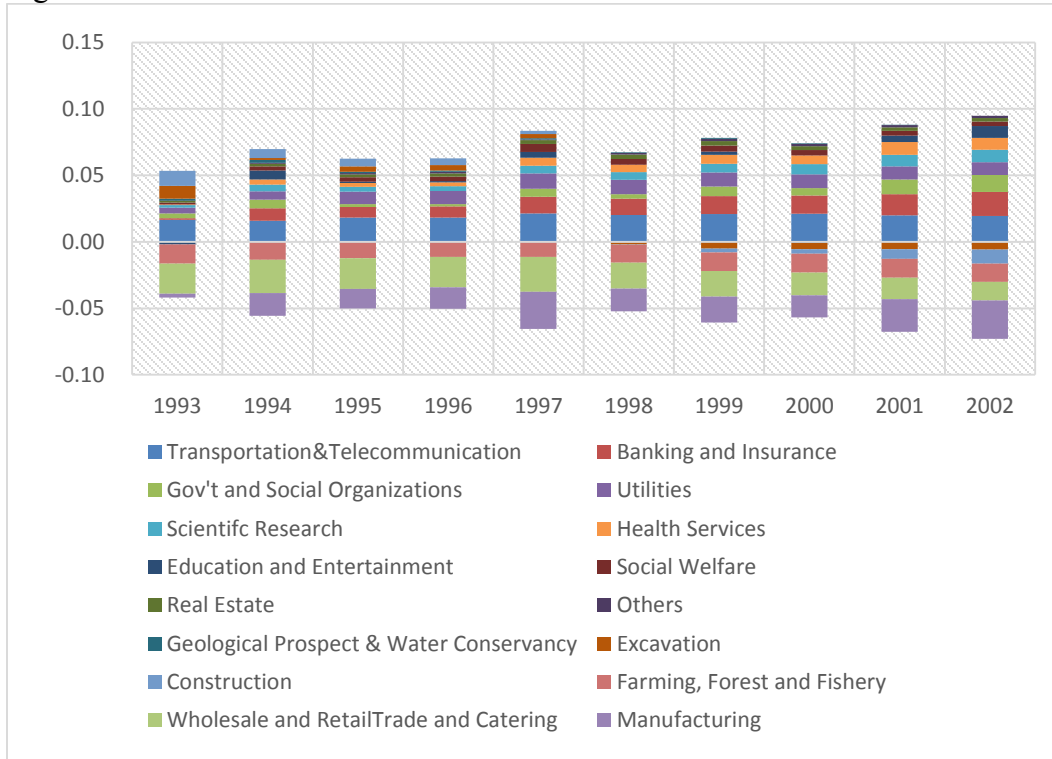
Between-sector inequality rose rapidly to a summit in 2008. Figures 11, 12 and 13 display the contributions of each economic sector to inter-sectoral inequality from 1987 to 2012. During the 1980s, transportation, construction and manufacturing were major winners with relatively high wages. However, during the 1990s, these original high wage industries gradually lost their advantages and were replaced by other sectors, including transportation and telecommunications, banking and insurance, and utilities, as the new high wage industries. From 2003 to 2007, finance is the biggest winner, followed by IT, government agencies, utilities and scientific research. Favored by government policies, they have become China's boom sectors. The top three losers were manufacturing, construction and farming. Since 2008, the rise of between-sector pay inequality has stopped. Finance remains the top contributor to between-sector pay inequality, but government agencies and social organizations have stepped down from pinnacle.

Figure 11. Theil Elements for Sectors in China from 1987-1992



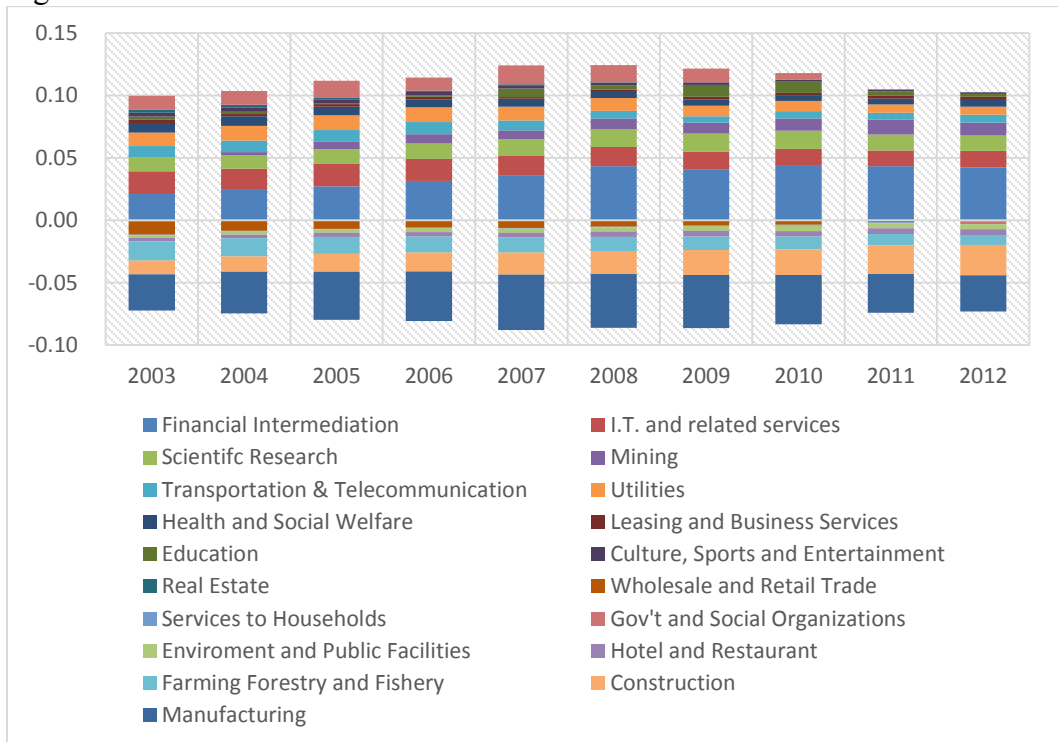
Source: China's Statistical Yearbooks and author's calculations

Figure 12. Theil Elements for Sectors in China from 1993-2002



Source: China's Statistical Yearbooks and author's calculations

Figure 13. Theil Elements for Sectors in China from 2003-2012



Source: China's Annual Statistical Yearbooks and author's calculation



The source of changing inequalities can be either changes in relative earnings or changes in employment share. Generally speaking, changes in either wage or employment may have different effects on inequality in high and low-wage sectors.<sup>2</sup> In high-wage sectors, inequality will rise if relative wage increases or employment share increases; inequality will drop if either dimension declines. However, if the behavior of relative wage and employment share diverge in high-wage sectors, more evidences is needed to determine the inequality trend. In low-wage sectors, inequality will rise if the relative wage drops or employment share increases. But, if either dimension encounters a decrease or increase in low-wage sectors, further investigation will be needed. Table 3 summarizes how the compositional change of relative wage and employment share may influence inequality trend.

Table 3. The impact of compositional change of relative wage and employment share on inequality in both high-wage and low-wage sector

<i>The compositional change of relative wage and employment share</i>	<i>The change of inequality</i>	
	<i>In high-wage sectors</i>	<i>In low-wage sectors</i>
<i>Relative wage (+)</i> <i>Employment share (+)</i>	Rise	More evidence needed
<i>Relative wage (+)</i> <i>Employment share (-)</i>	More evidence need	Drop
<i>Relative wage (-)</i> <i>Employment share (-)</i>	Drop	More evidence needed
<i>Relative wage (-)</i> <i>Employment share (+)</i>	More evidence needed	Rise

Note: (+) represents an increase of relative wage or employment share; (-) represents a decrease of relative wage or employment share.

Table 4, 5 and 6 show these compositional effects in different sectors during three periods. As displayed in Table 4, from 1993 to 2002 nine sectors experienced great growth in both relative wage and employment share. They are: 1) banking and insurance, 2) real estate, 3) education and entertainment, 4) healthcare and sports, 5) utilities, 6) scientific research, 7) social welfare, 8) government agencies and social organizations, and 9) transportation and telecommunication. Among these, the banking and insurance

<sup>2</sup>The high-wage sectors refer to sector whose average wage is higher than the national mean whereas low-wage sectors are sectors that have average wage lower than the national mean.

sector and the real estate sector saw the most rapid growth in both relative wage and employment share, which, to a large extent, reflects the financial boom and real property prosperity of the 1990s in China. Conversely, the low-wage sectors, such as manufacturing, construction, wholesale and retail trade, farming and fishery, excavation and geological prospecting and water conservancy, all declined considerably in both dimensions. But shrinking employment in these sectors cannot offset the dramatic decrease in their relative earnings, since the change of employment share is significantly smaller than the change of relative wage. Therefore, they continue to widen the wage gap from below.

Table 4. The compositional change of relative wage and employment share of 15 sectors and its impacts on inter-sector inequality (1993 – 2002)

	The change of relative wage	The change of employment share	The impact on inequality
<b>High wage-sectors</b>			
Banking and Insurance	141.62%	68.94%	Rise
Real Estate	127.27%	129.55%	Rise
Education and Entertainment	91.80%	76.97%	Rise
Healthcare and Sports	89.08%	62.50%	Rise
Social Welfare	89.08%	37.86%	Rise
Utilities	81.12%	73.08%	Rise
Scientific Research	70.54%	27.68%	Rise
Gov't and Social Organizations	53.85%	44.09%	Rise
Transportation & Telecommunication	6.675%	4.50%	Rise
<b>Low-wage sectors</b>			
Wholesale & Retail Trade and Food Services	-43.86%	-42.64%	Rise
Excavation	-34.35%	-18.30%	Rise
Manufacturing	-33.06%	-25.25%	Rise
Construction	-31.97%	-8.38%	Rise
Farming Forestry and Fishery	-37.91%	-7.73%	Rise
Geological Prospecting and Water Conservancy	-18.35%	-6.19%	Rise

Source: China Statistical Yearbooks and author's calculations.

Real estate, leasing and business services, scientific research, government agencies and social organizations, IT, education and construction all gained in employment share and relative wage from 2003 to 2007. Among these sectors, only construction is a low-wage sector. It is noteworthy that even though the relative wage in construction improved, this

limited improvement was not enough to counteract the rise of inequality resulting from a huge increase of new jobs in this sector. The relative wage and employment share in low-wage sectors like agriculture and fishery, wholesale and retail trade, and hotels and restaurants all shrank. Nevertheless, the rate of employment shrinking in these sectors was unable to counterbalance the dramatic decrease in their relative earnings, leading to a widening wage gap between sectors. Furthermore, while the relative wage decreased in public facilities and manufacturing, the employment share in both sectors gained. This compositional change in low-wage sectors kept increasing between-sector wage inequality. For high-wage sectors, the relative wage increased in financial intermediation, but the employment share decreased by a small percentage. This also drove up inequality, since fewer people shared an increasing amount of high wage. In the meantime, the relative pay and employment share both decreased in the culture and entertainment sector, resulting in a possible decrease of inequality. However, this small impact did not play a role in hampering the overall growing tendency of inter-sector inequality. Thus, inequality continued rising from 2003 to 2007.

Table 5. The compositional change of relative wage and employment share of high-wage and low-wage sectors and its impacts on inter-sector inequality (2003 – 2007)

	The change of relative wage	The change of employment share	The impact on inequality
<b>High-wage sectors</b>			
Financial intermediation	21.87%	-0.37%	Rise
Leasing and Business Services	12.05%	21.88%	Rise
Real Estate	11.02%	28.16%	Rise
Scientific Research	6.65%	1.02%	Rise
Gov't and Social Organizations	3.75%	0.91%	Rise
I.T. and related services	3.56%	21.21%	Rise
Education	0.37%	12.98%	Rise
Health and Social Welfare	-0.96%	1.33%	Rise
Culture and Entertainment	-10.49%	-10.34%	Drop
<b>Low-wage sectors</b>			
Construction	4.07%	14.11%	Rise
Agriculture, Forestry and Fishing	-30.14%	-23.06%	Rise
Wholesale and Retail Trade	-21.43%	-25.53%	Rise
Hotel and Restaurants	-13.45%	-1.32%	Rise
Environment and Public Facilities	-10.45%	1.28%	Rise
Services to households	-7.32%	0.00%	Rise
Manufacturing	-0.12%	6.37%	Rise

Source: China's Annual Statistical Yearbooks and author's calculations

After 2008, almost half of high-wage sectors, such as utilities, transportation and telecommunication, education, culture and entertainment, mining, dropped in both dimensions, resulting in a declining tendency of between-sector inequality. For low-wage sectors, construction, wholesale and retail trade, and hotels and restaurants all gained momentum in relative wage and employment share, again contributing to a reduction in inter-sector inequality. Manufacturing encountered a rise in relative wage and a decline in employment share, which also led to declining inequality. In the farming and fishing sector, more people left as the average earning continued to drop, which ironically resulted in narrowing the inter-sector pay gap.

Table 6. The compositional change of relative wage and employment share of high-wage and low-wage sectors and its impacts on inter-sector inequality (2008 – 2012)

	The change of relative wage	The change of employment share	The impact on inequality
<b>High-wage sectors</b>			
Financial Intermediation	11.67%	22.20%	Rise
I.T. and related services	4.56%	1.46%	Rise
Health and Social Welfare	2.05%	1.38%	Rise
Utilities	-18.35%	-12.27%	Drop
Culture and Entertainment	-14.69%	-12.58%	Drop
Transportation and Telecommunication	-11.91%	-13.41%	Drop
Education	-16.07%	-16.18%	Drop
Leasing and Business Services	-6.21%	1.92%	Drop
Mining	-5.17%	-9.26%	Drop
Scientific Research	-1.66%	4.06%	Drop
<b>Low-wage sectors</b>			
Construction	63.65%	56.44%	Drop
Wholesale and Retail Trade	25.51%	10.46%	Drop
Hotels and Restaurants	13.62%	12.45%	Drop
Manufacturing	2.95%	-3.25%	Drop
Agriculture, Forest and Fishing	-23.41%	-29.33%	Drop
Services to Households	-15.26%	-6.45%	Rise
Environment and Public Facilities	-5.63%	2.84%	Rise
Gov't and Social Organization	-20.50%	-9.82%	Drop
Real Estate	26.11%	31.76%	Drop

Source: China's Annual Statistical Yearbooks and author's calculation

The real estate and government related sectors have changed from high-wage in 2008 to being low-wage sectors in 2012. In 2008, real estate had average pay 1,254.4 yuan higher than national average wage. Then it dropped significantly in 2009 and 2010 to 982.4 yuan lower than national mean. The average pay in real estate rebounded in 2011 and became slightly higher than national mean. But it dropped below national average pay again in 2012. The same happens to the sector of government agencies and social organizations. Although the average pay in this sector increased every year during this period, it increased at a much slower rate than the national average. Thus, until 2012 the average pay of government agencies and social organizations has dropped below the national average and become a relatively low-wage sector.

In the meantime, sectors such as finance and information technology have also shown declining growth rate of the average pay and shrinking employment. The withering of these high flyers after the global financial crisis has directly resulted in a decline in inter-sector inequality. This is also evident in Figure 14. Figure 14 presents the inequality between and within boom and non-boom sector from 2003 to 2012. The boom sectors are identified as the sectors which have experienced the biggest increase in their relative average wage during the 1990s and the 2000s. They are sectors, like banking and insurance, real estate, education and entertainment, health, utilities, scientific research and government related sectors (See Table 4). Prior to the crisis of 2008, inequality between these boom sectors and the rest economy steadily increased. After the crisis, we see a sharp decline of inequality between boom and non-boom sectors. Inequality within boom and non-boom sectors also follow similar declining trends from 2009 to 2012.

Figure 14. Inequality between and within Boom and Non-Boom Sectors



Source: China Statistical Yearbooks and author's calculations.

## Conclusion

Pay inequality in China started to rise in the early 1990s, increased rapidly until it peaked in 2008 and has since fallen. With some provinces catching up in the early 2000s to the early leaders, the inter-province wage gap already began to narrow in 2002. However, the wage difference between sectors kept growing. Since 2009 the overall inequality has steadily decreased with both-province inequality and between-sector inequality showing declining tendencies. The decline of the overall inequality after the crisis of 2008 could be attributed to many factors. One hypothesis is that the global financial crisis has extremely hit China's most developed regions. This has directly led to the narrowing wage gap between the rich provinces/sectors and the rest of the economy. But this is not the only force at work.

According to Kuznets, urbanization induced by industrialization is a primary driver of inequality in developing countries in their early stage of development. As a country develops and urbanizes, inequality will grow until reaching a threshold and start to decline afterward. In this vein, we found that the urbanization initiated in the mid-1980s

enormously increased China's regional disparity and led the formation of several megalopolises, such as Greater Beijing, Greater Shanghai and Greater Guangzhou. The rapid growth of these super-sized urban centers has further enlarged the wage gap both between regions and within regions. Although urbanization plays a significant role in rising inequality, accelerating mega-trend urbanization in underdeveloped regions has been recently repackaged by Chinese policymakers as one of main policy tools to combat inequality. In March 2014, the administration under Xi Jinping unveiled its landmark urbanization plan for 2014 to 2020, aiming at lessening inequality through better integrating migrant workers into cities and spreading urbanization out into less developed regions of the country.

This new urbanization plan leads us to rethink the Kuznets hypothesis. If expanding urbanization has become an effective tool to reduce inequality in the current stage of China's development, does it mean China has attained the development level at which inequality start to decline as the country industrialize more and urbanize on a larger scale? Does it imply that China has reached the Kuznets threshold? Our findings suggest that the inter-provincial threshold was crossed already a decade ago. Since then, overall inequality had remained relatively stable until it finally declined in 2009, as the global collapse compounded the inter-provincial decline. Kuznets, it appears, was on to something.

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