Does the Process of Population Urbanization Affect China's Economic Growth?

—An Empirical Analysis Based on Provincial Panels

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Abstract. Based on the provincial panel data from 2003 to 2015 in China, an empirical study of the impact of population urbanization on economic growth and regional differences was conducted. The results show that the process of population urbanization has significantly promoted China's economic growth，after controlling for factors such as the amount of exports at the provincial level, the total industrial output value, the average number of years of education per capita, the level of foreign investment, the financing constraints of enterprises and the proportion of the output value of state-owned enterprises in the provinces. At the same time, when retesting the regional differences in the eastern, western, and central regions, it was also found that the urbanization process of population has promoted China's economic growth to be more obvious in the western region, while its influence in the central and eastern regions has been relatively weak.

Introduction

As China's economic development has entered the "new normal", "adjusting structure and stabilizing growth" has gradually become a new requirement for China's economic development. The mystery of China's economic growth brought about by this has aroused strong research interests of many scholars in both China and the West. This article takes one of the status quos of China's development: the rapid development of population urbanization as a perspective, and studies whether the development of population urbanization in China at this stage has an impact on China's economic growth. Through analysis, the impact of population urbanization on economic growth and its impact on different regions are clarified. This has important practical significance for China's economic transformation and upgrading, new urbanization strategy, and regional coordinated development.

There are two main points about the conclusions of the research on the impact of urbanization on economic growth. One view is that urbanization can significantly promote economic growth. The higher the level of urbanization, the higher the per capita GDP. Some studies have shown that when the level of urbanization increase by 1% and the per capita GDP will increase by 0.85%[1]. urbanization can promote economic growth by providing labor and accelerating human capital accumulation [2]. It is an important engine for developing countries to achieve rapid economic growth [3]. According to the study of the research group of the Development Research Center of the State Council, the increase of 10 million urban residents each year can increase the economic growth rate by about 1%[4], Urbanization is gradually becoming an important driver of economic growth. However, another view is that the impact of urbanization on economic growth is not obvious or even negative, that is, urbanization cannot effectively promote economic growth [5]. Safarzadeh, et al [6] analyzed the cross-sectional and time series data of 35 developing countries and found that there is a negative correlation between urbanization and economic growth. Coincidentally, domestic scholars have empirically analyzed China's provincial panel data from 1996 to 2011 and found that urbanization in the central region of China has a positive effect on economic growth, but in the western region, this pulling action is not significant [7]. Some scholars even believe that with the advancement of urbanization, urbanization will have a negative impact on economic growth [8].

The marginal contribution of this paper to the study of China's economic growth lies in the use of relatively new provincial panel data from 2003 to 2015 combined with multiple measurement models

for empirical analysis, showing that the urbanization of China's population at this stage has significantly promoted China's economic growth. At the same time, this article divides 30 provinces in China into three blocks in the east, middle and west according to economic development and geographical location, and conducts research respectively, and draws some conclusions worthy of pondering. It is believed that the conclusions of this paper are conducive to providing policy basis for the targeted promotion of the promotion of urbanization on economic growth in all regions.

Model and Data

Based on the content of the study, combined with the treatment of related issues in the existing literature, this paper takes into account the actual development of China and constructs the following measurement model:

$$ln\_rjgdp_{dt} = \alpha + \beta \cdot cshl_{dt} + \chi \cdot export_{dt} + \delta \cdot gqbz_{dt} + \varphi \cdot rzys_{dt} + \eta \cdot fdi_{dt}$$
$$+ \lambda \cdot ln\_gyzcz_{dt} + \vartheta \cdot ln\_rjsjynx_{dt} + \varepsilon_{dt}$$

The explanatory variable is China's economic growth level, which is measured by GDP per capita, which is expressed by the ratio of provincial GDP to total provincial population. The core explanatory variable, population urbanization level (cshl) is measured by the urbanization rate of urban population and the proportion of total population. At the same time, the export level is measured by the proportion of provincial exports to GDP. In addition, the control variables in this paper are the level of foreign investment (fdi), the level of foreign investment in GDP, and the logarithm of total industrial output (ln_gyzcz). More novel, this paper considers a financial constraint indicator (rzys) for the enterprise level and uses the ratio of the sum of the ending deposit and loan balances of the provincial financial institutions to the GDP of the year. And join the per capita term of education (ln_rjsjynx), a microscopic level of control indicators. The panel data model was used to empirically examine the impact of population urbanization on economic growth. The descriptive statistics of its important variables are shown in Table 1.

The data in this article are mainly from China Statistical Yearbook (2004-2016), China Educational Statistics Yearbook (2004-2016) and the National Research Network Macroeconomic Database, China Economic Net Statistics Database and the relevant statistical yearbooks of various provinces. Use the relevant practices of the existing literature to delete data from the province of Tibet. Finally, the provincial panel data of 30 provinces and cities from 2003 to 2015 will be formed.

Table 1. Descriptive statistics of major variables

	(1) N	(2) mean	(3) sd	(4) min	(5) max
ln_rjgdp	390	10.12	0.713	8.190	11.59
cshl	390	0.495	0.158	0.131	0.896
export	390	0.320	0.368	0.0152	1.668
gqbz	390	0.423	0.197	0.0700	0.830
rzys	390	2.630	0.962	1.288	7.242
ln_gyzcz	390	9.286	1.314	5.513	12.04
ln_rjsjynx	390	2.144	0.112	1.798	2.492
fdi	390	0.239	0.306	0.0222	3.228

Empirical Analysis

Table 2 shows the statistical results of the model's benchmark regression. Through the analysis of the regression results, we can see that the process of population urbanization has significantly promoted China's economic growth. And the conclusions are not affected by factors such as the added value of exports, the total industrial output value, the average number of years of per capita education, the level of foreign investment, the financing constraints of enterprises, and the proportion of the output value of state-owned enterprises in the province

Table 2. Benchmark regression results

	(1) ln_rjgdp	(2) ln_rjgdp	(3) ln_rjgdp	(4) ln_rjgdp	(5) ln_rjgdp	(6) ln_rjgdp	(7) ln_rjgdp
cshl	3.8443***	4.3729***	4.2268***	4.2039***	4.1510***	3.4130***	2.9964***
	(0.1212)	(0.1519)	(0.1279)	(0.1537)	(0.1475)	(0.1379)	(0.1928)
export		0.3547***	0.5592***	0.5609***	0.3605***	0.4457***	0.3923***
		(0.0651)	(0.0568)	(0.0572)	(0.0644)	(0.0548)	(0.0569)
gqbz			-1.1067***	-1.1181***	-1.1619***	-0.4038***	-0.4497***
			(0.0863)	(0.0963)	(0.0925)	(0.0990)	(0.0991)
rzys				-0.0059	-0.0162	-0.0515***	-0.0458**
				(0.0219)	(0.0211)	(0.0180)	(0.0179)
fdi					0.3797***	0.0783	0.1015*
					(0.0638)	(0.0591)	(0.0589)
ln_gyzcz						0.1982***	0.1824***
						(0.0159)	(0.0165)
ln_rjsjynx							0.6986***
							(0.2285)
Constant	8.2217***	8.0739***	8.6803***	8.6815***	8.7255***	6.7914***	5.6689***
	(0.0629)	(0.0665)	(0.0731)	(0.0733)	(0.0706)	(0.1661)	(0.4023)
Obs	390	390	390	390	390	390	390
R^2	0.7218	0.7417	0.8189	0.8189	0.8342	0.8821	0.8849

Standard errors in parentheses, *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Considering that the selected year is longer, the panel fixing effect is conducive to obtaining a consistent estimate, In addition, whether the main conclusions of the population's urbanization process will significantly promote China's economic growth will differ due to individual level differences between provinces. Therefore, the robustness of the benchmark model is tested using a panel-based fixed effect model. The regression results are reported in Table 3. Through the analysis of the robustness test regression results, we can find that the main conclusions of this paper are still reliable.

Table 3. Regression results of robustness test

	Panel fixed effect model						
	(1) ln_rjgdp	(2) ln_rjgdp	(3) ln_rjgdp	(4) ln_rjgdp	(5) ln_rjgdp	(6) ln_rjgdp	(7) ln_rjgdp
cshl	6.5401***	6.3065***	4.3530***	4.0819***	4.0752***	0.4646***	0.4746***
	(0.1875)	(0.1841)	(0.2062)	(0.2046)	(0.2047)	(0.1242)	(0.1091)
export		0.8404***	1.1413***	0.9269***	0.8820***	0.2344***	0.1905***
		(0.1456)	(0.1200)	(0.1221)	(0.1286)	(0.0566)	(0.0499)
gqbz			-2.4772***	-2.4293***	-2.4129***	-0.0642	-0.1530*
			(0.1805)	(0.1739)	(0.1745)	(0.0938)	(0.0829)
rzys				-0.2294***	-0.2289***	-0.0252	-0.0296*
				(0.0422)	(0.0422)	(0.0185)	(0.0171)
fdi					0.0616	0.0727***	0.0544***
					(0.0557)	(0.0235)	(0.0207)
ln_gyzcz						0.6245***	0.5278***
						(0.0154)	(0.0165)
ln_rjsjynx							1.5669***
							(0.1525)
Constant	6.8883***	7.2731***	9.3847***	8.8266***	8.8246***	4.1471***	1.8438***
	(0.0937)	(0.1118)	(0.1786)	(0.2003)	(0.2002)	(0.1432)	(0.2570)
Obs	390	390	390	390	390	390	390
R^2	0.7721	0.7915	0.8635	0.8739	0.8744	0.9777	0.9828
Number of id	30	30	30	30	30	30	30

Standard errors in parentheses, *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Considering that China has a large area, the economic development in the eastern, central and western regions differs significantly. Therefore, it is necessary to analyze the effects of population

urbanization under different geographical regions on China's economic growth. Combined with the economic development level and geographical location factors, this paper will divide the provinces of Beijing, Tianjin, Hebei, Shanghai, Jiangsu, Zhejiang, Fujian, Shandong, Guangdong, Hainan and Liaoning into the eastern region; Shanxi, Anhui, Jiangxi, Henan, Hubei, The provinces of Hunan, Heilongjiang and Jilin are divided into the central region; Inner Mongolia, Guangxi, Sichuan, Chongqing, Guizhou, Yunnan, Shaanxi, Gansu, Qinghai, Ningxia and Xinjiang are divided into the western region. The regression results are reported in Table 4. The regression results show that there are obvious regional differences in the impact of population urbanization on economic growth. Among them, urbanization in the western region has the greatest contribution to economic growth, followed by the central region and the eastern region. This is also in line with China's current economic development status.

Table 4. Re-examination in different regions

| | Panel fixed effect model | | | | | |
| | eastern region | | central region | | western region | |
	ln_rjgdp	ln_rjgdp	ln_rjgdp	ln_rjgdp	ln_rjgdp	ln_rjgdp
cshl	6.1616***	0.0125*	7.8318***	0.3534**	6.2486***	0.4771***
	(0.3164)	(0.1376)	(0.3812)	(0.2234)	(0.2908)	(0.1609)
export		0.1344***		1.4266***		0.8341***
		(0.0424)		(0.2221)		(0.1781)
gqbz		-0.4124***		0.1441		-0.3242*
		(0.0831)		(0.1506)		(0.1710)
rzys		0.0267		-0.1604***		-0.0822***
		(0.0204)		(0.0311)		(0.0267)
fdi		0.0464***		0.4123**		0.0789
		(0.0147)		(0.1882)		(0.2016)
ln_gyzcz		0.5118***		0.5535***		0.5715***
		(0.0208)		(0.0295)		(0.0272)
ln_rjsjyn x		1.8708***		0.8710***		1.4842***
		(0.2101)		(0.2334)		(0.2144)
Constant	6.7815***	1.5001***	6.3806***	3.1624***	7.2901***	2.1854***
	(0.1964)	(0.3413)	(0.1742)	(0.4317)	(0.1196)	(0.4061)
Obs	143	143	104	104	143	143
R^2	0.7433	0.9892	0.8163	0.9928	0.7789	0.9870
Number of id	11	11	8	8	11	11

Standard errors in parentheses, *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Conclusion

Through the above empirical analysis of Chinese provincial panel data, the results show that, in addition to factors such as export volume, total industrial output value, foreign investment level, and corporate financing constraints, the urbanization process of population has significantly promoted China's economic growth. At the same time, when retesting the regional differences in the eastern, western, and central regions, it was found that the effect of the population urbanization process on promoting economic growth was more pronounced in the western region and weaker in the central and eastern regions.

In summary, in the current critical period of "structural adjustment and steady growth", all regions in China should actively promote the process of population urbanization, promote the transformation and upgrading of industrial structure, change the mode of economic development, increase productivity, and Exert the engine effect of urbanization on economic growth. It is necessary to make overall plans for the coordinated development of the region. In particular, we must focus on accelerating the construction of a new type of urbanization in the western region, promote the development of regional linkages, and then promote the coordinated and sustainable growth of China's regional economy. Specific to the current status of China's urbanization development and the

impact of economic growth differences, depending on the characteristics and resources of different regions for industrial adjustment and upgrading.

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