A simple research about the relationship between China's urbanization rate and urban employment rate

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Abstract: As a developing country, China's urbanization is an essential process of development. The process of urbanization and urban employment will be the two major factors that influence each other in the future development. This paper has collected each Chinese province's urbanization rate and urban employment rate between 2000 and 2012, and using panel data to analyse the relationship between them. And empirical result shows that the increasing urban employment can promote the urbanization rate, but increase in urbanization would not surely improve urban employment. So our government should adopt some relevant countermeasures to promote the coordinated development of urbanization and urban employment rather than only developing urbanization.

Key words: Urbanization rate, Urban employment rate, Panel data analysis

1. Introduction

In the general sense of urbanization, it refers to the process of transforming rural population into urban population, and continuing gathering people into cities. It is also a historical process of converting the traditional agricultural society which majors agricultural population to the modern social which no more depends on agricultural production, and it is an essential symbol of modernization and industrialization. On the other hand, China's urban employment is the main method to increase residents' income to improve their life, and is the main strategy of social development and stability. Therefore, to explore the relationship between urbanization and urban employment is strongly practical and targeted.

Lewis' [1] labor liquidity and Dual Sector structure development model theory argues that as long as the general wage level of urban industrial sector is higher than the general wage of rural agricultural sector to a certain percentage, farmers are willing to leave the countryside and enter the city to seek new jobs, thereby promoting urbanization development. Qian Minze [2] started from the employment of the three major industries, using the non-primary employment ratio and the urbanization rate as indexs to study the

relationship between non-agricultural employment ratio and urbanization, and he concluded that China's urbanization level lagged behind the development of non-agricultural industries, which means the increasing of urban employment would promote the development of urbanization. To make urbanization better and more stable development, we must improve the level of urban employment and industrial development.

2. Data and research method

2.1 Urbanization Rate

Urbanization rate is the measure of urbanization, generally uses demographic index, is the proportion of urban population in total population. Urbanization rate is the most intuitive data to show the regional urbanization process as well as an important index of economic development level in a region.

This paper collected urbanization rates of Chinese provinces between 2000 to 2012 from internet, which is mainly from the website of National Bureau of Statistic of the People's Republic of China, and charted them a table as Table 1.

Table 1: 2000-2012 urbanization rate of each province

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
北京	77.54%	78.06%	78.56%	79.05%	79.53%	83.62%	84.33%	84.50%	84.90%	85.00%	85.96%	86.20%	86.20%
天津	71.99%	72.41%	72.87%	73.45%	74.21%	75.11%	75.73%	76.31%	77.23%	78.01%	79.55%	80.50%	81.55%
河北	19.60%	20.35%	31.86%	33.52%	35.83%	37.69%	38.44%	40.25%	41.90%	43.00%	44.50%	45.50%	46.80%
山西	34.91%	35.08%	38.09%	38.81%	39.63%	42.11%	43.01%	44.03%	45.11%	45.99%	48.05%	49.68%	51.26%
内蒙古	42.68%	43.55%	42.79%	44.61%	45.87%	47.20%	48.64%	50.15%	51.71%	53.40%	55.50%	56.62%	57.74%
辽宁	54.24%	55.01%	55.51%	56.01%	56.01%	58.70%	58.99%	59.20%	60.05%	60.35%	62.10%	64.05%	65.65%
吉林	43.50%	43.79%	44.46%	44.96%	45.17%	45.19%	45.11%	45.10%	45.19%	53.32%	53.34%	53.40%	53.70%
黑龙江	51.94%	52.38%	52.60%	52.60%	52.80%	53.10%	53.50%	53.90%	55.40%	55.50%	55.66%	56.50%	56.90%
上海	74.60%	75.30%	76.40%	77.60%	81.20%	84.50%	85.80%	86.80%	87.50%	88.60%	89.30%	88.90%	89.30%
江苏	41.49%	42.60%	44.70%	46.77%	48.18%	50.11%	51.90%	53.20%	54.30%	55.60%	60.58%	61.90%	63.00%
浙江	48.67%	50.90%	51.90%	52.99%	54.00%	56.02%	56.50%	57.20%	57.60%	57.90%	61.62%	62.30%	63.20%
安徽	28.00%	29.30%	30.70%	32.00%	33.50%	35.50%	37.10%	38.70%	40.50%	42.10%	43.01%	44.80%	46.50%
福建	41.57%	42.35%	43.80%	45.20%	46.30%	47.30%	48.00%	48.70%	49.90%	51.40%	57.10%	58.10%	59.60%
江西	27.67%	30.41%	32.20%	34.02%	35.58%	37.00%	38.68%	39.80%	41.36%	43.18%	44.06%	45.70%	47.51%
山东	38.00%	40.21%	41.50%	43.01%	44.15%	45.00%	46.10%	46.75%	47.60%	48.32%	49.70%	50.95%	52.43%
河南	23.20%	24.43%	25.80%	27.21%	28.91%	30.65%	32.47%	34.34%	36.03%	37.70%	38.50%	40.57%	42.43%
湖北	40.47%	41.04%	41.70%	42.90%	43.68%	43.20%	43.80%	44.30%	45.20%	46.00%	49.70%	51.83%	53.50%
湖南	29.75%	30.80%	32.00%	33.50%	35.50%	37.00%	38.71%	40.45%	42.15%	43.20%	43.30%	45.10%	46.65%
广东	55.00%	56.45%	57.42%	58.45%	59.60%	60.68%	63.00%	63.14%	63.37%	63.40%	66.18%	66.50%	67.40%
广西	21.30%	29.10%	29.94%	30.85%	31.94%	33.62%	34.64%	36.24%	38.16%	39.20%	40.00%	41.81%	43.53%
海南	40.11%	41.42%	42.56%	43.57%	44.51%	45.20%	46.10%	47.20%	48.00%	49.13%	49.80%	50.50%	51.60%
四川	29.89%	30.88%	32.67%	33.86%	35.25%	39.10%	40.50%	41.97%	43.70%	38.70%	40.18%	41.83%	43.53%
贵州	23.87%	23.96%	24.29%	24.77%	26.28%	26.87%	27.46%	28.24%	29.11%	29.89%	33.81%	34.96%	36.41%
云南	23.36%	24.87%	26.01%	26.60%	28.10%	29.50%	30.50%	31.60%	33.00%	34.00%	34.70%	36.80%	39.31%
陕西	32.26%	33.24%	34.56%	35.46%	36.41%	37.23%	39.12%	40.62%	42.10%	43.50%	45.76%	47.30%	50.02%
甘肃	24.01%	24.51%	25.96%	27.38%	28.61%	30.02%	31.09%	31.59%	32.15%	32.69%	36.12%	37.15%	38.75%
青海	34.76%	36.33%	37.62%	38.20%	38.59%	39.25%	39.26%	40.07%	40.95%	41.90%	44.72%	46.22%	47.44%
宁夏	32.54%	33.32%	34.20%	36.92%	40.60%	42.28%	43.00%	44.02%	45.01%	46.70%	47.90%	49.82%	50.67%
新疆	33.82%	33.75%	33.84%	34.39%	35.16%	37.15%	37.94%	39.15%	39.64%	39.85%	43.01%	43.54%	43.98%

The urban employment rate refers to the ratio of the number of urban employees to the

summarize of the number of urban employed and unemployed popularity. This index reflects the extent of urban labor resources using, and is an important index to indicate the situation of economical development.

Table 2 would show the urban employment rate of Chinese provinces between 2000 to 2010.

Table 2: 2000-2010 urban employment rate of each province

	2000年	2001年	2002年	2003年	2004年	2005年	2006年	2007年	2008年	2009年	2010年
北京市	45.40%	45.41%	47.73%	48.30%	57.21%	57.09%	57.45%	56.25%	55.39%	53.67%	52.58%
天津市	48.64%	48.64%	48.92%	50.53%	51.54%	52.02%	52.36%	55.06%	55.04%	55.14%	56.10%
上海市	50.73%	50.89%	51.00%	51.27%	51.65%	52.09%	52.33%	52.79%	53.31%	53.92%	53.73%
辽宁省	42.88%	42.77%	42.60%	44.34%	44.22%	44.72%	46.26%	47.03%	47.32%	47.58%	47.17%
江苏省	44.76%	44.81%	45.56%	42.13%	42.88%	43.33%	43.53%	44.52%	45.14%	46.48%	47.92%
浙江省	49.04%	49.34%	48.19%	47.95%	49.73%	50.23%	49.83%	50.74%	50.94%	52.46%	52.97%
福建省	43.40%	43.38%	43.96%	44.47%	45.11%	45.61%	45.92%	46.38%	46.87%	47.35%	47.75%
山东省	42.05%	41.79%	42.04%	42.31%	44.04%	45.78%	46.67%	47.79%	48.43%	49.06%	50.40%
海南省	51.48%	47.50%	48.44%	48.39%	53.31%	51.28%	51.18%	49.63%	49.19%	48.16%	47.36%
广东省	60.30%	60.29%	60.39%	60.34%	60.31%	60.34%	60.46%	60.57%	60.56%	60.52%	60.42%
河北省	58.25%	59.14%	59.85%	60.09%	60.75%	62.13%	62.55%	66.05%	66.89%	68.08%	66.75%
河南省	56.63%	56.51%	56.97%	57.52%	57.89%	59.96%	61.23%	62.41%	63.83%	65.05%	67.99%
安徽省	48.69%	48.70%	49.23%	50.16%	51.40%	52.53%	54.38%	55.80%	57.15%	59.16%	60.70%
黑龙江	49.67%	49.09%	50.46%	50.97%	51.68%	52.81%	53.49%	54.25%	54.65%	55.17%	56.00%
吉林省	60.48%	60.56%	60.86%	61.60%	62.40%	63.16%	64.02%	64.92%	65.71%	66.46%	66.77%
内蒙古	58.73%	57.74%	57.44%	57.27%	57.50%	60.37%	60.89%	61.67%	61.89%	62.71%	64.24%
江西省	59.95%	60.35%	60.70%	61.14%	61.55%	61.94%	62.60%	62.89%	63.16%	63.32%	63.63%
湖北省	54.52%	54.70%	54.98%	55.45%	55.94%	60.09%	60.58%	61.11%	61.29%	61.43%	60.62%
湖南省	46.12%	46.47%	46.76%	49.05%	51.39%	54.63%	54.83%	55.30%	55.31%	56.16%	56.23%
广西省	54.01%	53.84%	53.69%	53.55%	53.83%	58.00%	58.49%	58.07%	58.12%	58.65%	62.97%
山西省	42.40%	42.51%	43.57%	44.43%	45.37%	45.81%	45.74%	47.34%	47.82%	49.14%	50.59%
四川省	55.93%	57.29%	57.55%	57.28%	57.99%	57.26%	57.72%	58.21%	58.25%	58.11%	59.32%
贵州省	49.69%	54.44%	54.89%	55.43%	55.99%	52.13%	52.93%	51.56%	51.92%	52.08%	50.90%
云南省	54.12%	54.18%	54.03%	53.78%	54.39%	55.31%	56.16%	57.02%	58.08%	58.74%	60.10%
陕西省	49.75%	48.86%	51.17%	52.07%	52.73%	53.55%	53.69%	54.29%	54.84%	55.27%	55.53%
甘肃省	58.71%	59.01%	59.29%	59.55%	59.84%	54.67%	55.02%	55.52%	56.70%	58.26%	58.58%
青海省	54.91%	54.62%	54.39%	54.27%	53.88%	53.60%	53.68%	54.09%	54.33%	54.45%	54.64%
宁夏省	49.73%	49.56%	49.37%	50.24%	50.70%	50.27%	51.01%	50.74%	49.17%	52.56%	51.50%
新疆省	36.37%	36.53%	36.82%	37.29%	37.93%	39.38%	39.60%	39.64%	39.77%	40.12%	40.95%

2.2 panel data analysis

As Huang Ming[3] studied in his research, he took 2000 to 2011 urbanization rate(which is expressed as *czhl*) and urban employment rate(as *czjyl*) of all Chinese provinces, using panel data to testify the roots, and figured out that the *czhl* is not stable, so he changed it into the growth rate of urbanization rate(as *czhzzl*). Because of the stability of *czjyl* and *czhzzl*, he respectively used *czhzzl* and *czjyl* as the dependent variable to work out two error correction models, so that we can know the relationship between them.

Table 3: using *czhzzl* as the dependent variable

Dependent Variable: CZHZZL?				
Method: Pooled EGLS (Period SUR)				
Total pool (balanced) observations: 279				
Variable	Coefficient	Std. Error	t – Statistic	Prob.
_BEIJING – – CZJYL_BEIJING	0.008340	4.23E – 06	1971.385	0.0000
_TIANJIN – – CZJYL_TIANJIN	0.006934	4.32E – 06	1604.117	0.0000
_HEBEI – – CZJYL_HEBEI	0.020128	4.33E – 06	4651.897	0.0000
_SHANGHAI – – CZJYL_SHANGHAI	0.000569	4.36E – 06	130.6914	0.0000
_JIANGSU – – CZJYL_JIANGSU	0.016245	4.32E – 06	3761.724	0.0000
_ZHEJIANG – – CZJYL_ZHEJIANG	0.013047	4.32E – 06	3017.356	0.0000
_FUJIAN – – CZJYL_FUJIAN	0.010790	4.33E – 06	2489.138	0.0000
_SHANDONG – – CZJYL_SHANDONG	0.011672	4.31E – 06	2707.955	0.0000
_GUANGDONG – – CZJYL_GUANGDONG	0.009590	4.28E – 06	2241.001	0.0000
_HAINAN – – CZJYL_HAINAN	0.010739	4.31E – 06	2490.185	0.0000
_SHANXI – – CZJYL_SHANXI	0.021885	4.30E – 06	5089.428	0.0000
_ANHUI – – CZJYL_ANHUI	0.016327	4.34E – 06	3762.525	0.0000
_JIANGXI – – CZJYL_JIANGXI	0.017846	4.31E – 06	4138.272	0.0000
_HENAN – – CZJYL_HENAN	0.016654	4.30E – 06	3869.473	0.0000
_HUBEI – – CZJYL_HUBEI	0.006376	4.35E – 06	1467.150	0.0000
_HUNAN – – CZJYL_HUNAN	0.015602	4.35E – 06	3589.238	0.0000
_NEIMENGGU – – CZJYL_NEIMENGGU	0.012985	4.34E – 06	2989.664	0.0000
_GUANGXI – – CZJYL_GUANGXI	0.012759	4.33E – 06	2947.192	0.0000
_CHONGQING – – CZJYL_CHONGQING	0.018513	4.34E – 06	4267.752	0.0000
_SICHUAN – – CZJYL_SICHUAN	0.013939	4.36E – 06	3200.215	0.0000
_GUIZHOU – – CZJYL_GUIZHOU	0.007095	4.34E – 06	1635.497	0.0000
_YUNNAN – – CZJYL_YUNNAN	0.012330	4.34E – 06	2840.407	0.0000
_XIZANG – – CZJYL_XIZANG	0.005664	4.36E – 06	1298.336	0.0000
_SHANXIA – – CZJYL_SHANXIA	0.012964	4.33E – 06	2997.261	0.0000
_GANSU – – CZJYL_GANSU	0.009918	4.30E – 06	2304.409	0.0000
_QINGHAI – – CZJYL_QINGHAI	0.008251	4.33E – 06	1907.200	0.0000
_NINGXIA – – CZJYL_NINGXIA	0.015821	4.35E – 06	3633.252	0.0000
_XINJIANG – – CZJYL_XINJIANG	0.007034	4.32E – 06	1626.564	0.0000
_LIAONING – – CZJYL_LIAONING	0.006365	4.38E – 06	1451.594	0.0000
_JILIN – – CZJYL_JILIN	0.004208	4.33E – 06	971.0104	0.0000
_HEILONGJIANG – – CZJYL_HEILONGJIANG	0.004605	4.36E – 06	1057.094	0.0000
R – squared	0.999994			

From Table 3, we can know the influence of *czjyl* on *czhzzl* is positive and the coefficient is between 0.004 to 0.02, it means that the increase of urban employment rate could improve the growth of urbanization.

And Table 4 is that the influence of *czhzzl* on *czjyl*.

Table 4: using *czjyl* as the dependent variable

Dependent Variable: CZJYL?				
Method: Pooled EGLS (Cross – section weights)				
Total pool (balanced) observations: 279				
Variable	Coefficient	Std. Error	t – Statistic	Prob.
C	0.963227	0.000390	2471.426	0.0000
_BEIJING – – CZHZZL_BEIJING	–0.154837	0.080837	–1.915415	0.0568
_TIANJIN – – CZHZZL_TIANJIN	0.037695	0.056257	0.670061	0.5035
_HEBEI – – CZHZZL_HEBEI	0.179540	0.056641	3.169804	0.0017
_SHANGHAI – – CZHZZL_SHANGHAI	–0.181874	0.464338	–0.391685	0.6957
_JIANGSU – – CZHZZL_JIANGSU	–0.540230	0.220498	–2.450044	0.0151
_ZHEJIANG – – CZHZZL_ZHEJIANG	0.047373	0.180505	0.262446	0.7932
_FUJIAN – – CZHZZL_FUJIAN	–0.123999	0.077940	–1.590951	0.1131
_SHANDONG – – CZHZZL_SHANDONG	–0.075906	0.166536	–0.455794	0.6490
_GUANGDONG – – CZHZZL_GUANGDONG	–0.073980	0.101417	–0.729457	0.4665
_HAINAN – – CZHZZL_HAINAN	0.002611	0.172739	0.015115	0.9880
_SHANXI – – CZHZZL_SHANXI	0.088372	0.044336	1.993223	0.0475
_ANHUI – – CZHZZL_ANHUI	–0.476190	0.311220	–1.530077	0.1275
_JIANGXI – – CZHZZL_JIANGXI	0.103972	0.090236	1.152224	0.2505
_HENAN – – CZHZZL_HENAN	–1.185390	0.133893	–8.853277	0.0000
_HUBEI – – CZHZZL_HUBEI	–0.257282	0.183138	–1.404850	0.1615
_HUNAN – – CZHZZL_HUNAN	–0.385097	0.132130	–2.914542	0.0039
_NEIMENGGU – – CZHZZL_NEIMENGGU	0.305696	0.213824	1.429662	0.1543
_GUANGXI – – CZHZZL_GUANGXI	–0.197747	0.084984	–2.326886	0.0209
_CHONGQING – – CZHZZL_CHONGQING	–0.088484	0.080176	–1.103627	0.2710
_SICHUAN – – CZHZZL_SICHUAN	–0.147940	0.096736	–1.529323	0.1276
_GUIZHOU – – CZHZZL_GUIZHOU	0.016263	0.104423	0.155745	0.8764
_YUNNAN – – CZHZZL_YUNNAN	0.311740	0.380080	0.820195	0.4130
_XIZANG – – CZHZZL_XIZANG	–0.005634	0.117909	–0.047781	0.9619
_SHANXIA – – CZHZZL_SHANXIA	–0.219412	0.348113	–0.630289	0.5292
_GANSU – – CZHZZL_GANSU	–0.213168	0.168769	–1.263078	0.2079
_QINGHAI – – CZHZZL_QINGHAI	0.249762	0.053209	4.694021	0.0000
_NINGXIA – – CZHZZL_NINGXIA	–0.040430	0.020161	–2.005365	0.0462
_XINJIANG – – CZHZZL_XINJIANG	–0.113771	0.085384	–1.332473	0.1841
_LIAONING – – CZHZZL_LIAONING	–0.457542	0.689643	–0.663447	0.5077
_JILIN – – CZHZZL_JILIN	–0.121929	0.388565	–0.313793	0.7540
_HEILONGJIANG—CZHZZL_HEILONGJIANG	0.058069	0.189691	0.306126	0.7598
R – squared	0.934860			

From Table 4, we can see the influence of *czhzzl* on *czjyl* are not very significant, even some of them are negative. It means that nobody can improve urban employment rate only depending on developing urbanization. And this result is corresponded to the theoretical hypothesis of many experts.

3. Main results

From the panel data analysis, the results are mainly about the relationship in microcosmic theories:

i: The increase in urban employment rate could improve the growth of urbanization, and every region is different.

ii: The increase in urbanization makes insignificant influence on urban employment.

Above all, urban employment can speed up urbanization, and urbanization can offer jobs to adopt improving employment in turn. However, some regions are not as good as we image, so we should continually improve our labor's abilities to make sure the urbanization develop smoothly.

Reference:

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