

Urbanization and Happiness: Evidence from China

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Abstract

In recent years, China's rapid advance of urbanization has improved the living standard of the residents. However, the problems brought about by the urban expansion cannot be ignored. In this paper, data of 4 waves (2010,2012,2014,2016) from the China Family Panel Studies (CFPS) conducted by Institute of Social Science Survey at Peking University is used to explore how residents' happiness change with the increase of urbanization rate. The definition of urbanization rate is the ratio of urban population to the total population in a specific city (county). Results show that urbanization rate and happiness have a U-shaped relationship. Namely, if the urbanization rate is lower than 0.5, residents' happiness will decrease with the increase of urbanization rate. If the rate is higher than 0.5, the happiness will increase when the urbanization rate is rising. Cluster analysis is used to examine the relationship at the province level. Police makers should make more effort to develop medium cities especially cities that are conducive to industrial transfer and regional coordinated development to enhance residents' happiness.

Objective

In 2018, China's urbanization rate is 59.58%, marking the process of urbanization into a new stage, according to China's National Bureau of Statistics. The rapid advance of urbanization has played an important role in improving the living standard of the residents and the development of the national economy as a whole. The rise of urbanization rate will bring about economies of scale (the increase of public goods and other consumer products, etc.) to increase the well-being of residents. Glaeser, Kahn, & Rappaport (2008) find that one of the reasons why poor people choose to live in the city is that public transport is more convenient in the city center. Sun, Huang, Hong & Wang (2014) indicate the expansion of urban population can also bring many other positive effects, such as employment opportunities, interpersonal learning opportunities, human capital externalities, internationalization and so on.

However, the problems brought about by the rapid rise of urbanization rate cannot be ignored. The crowded effect of the city can be associated with happiness through its impact on the actual disposable income of the individual. The high cost of living and other negative factors will reduce the sense of happiness. Wang & Xia (1999) find that with expansion of the city size, there are a huge amount of public infrastructure investment and environmental management costs. Di Tella and MacCulloch (2008) find a negative correlation between happiness and the average number of hours worked, measures of environmental degradation, crime, inflation, and unemployment. Thus with the rise of urbanization rate, how will residents' happiness change? There are many studies about the relationship between happiness and urbanization. Delken (2008) studies residents' happiness in shrinking cities in German and finds that although people are worried about the city economy, this does not affect their happiness. Jiang, Lu & Sato (2012) divide cities into three levels and find that people in big cities are happier. Sun, Huang, Hong & Wang (2014) use micro-survey data and predict that urbanization rate and happiness is U-type relationship.

Based on previous studies, in this paper, we use micro indicators to analyze the impact of urbanization rate on residents' happiness. Our purpose is to explore how residents' happiness changes with the process of urbanization.

Significance

Compared to previous research, our unique contribution is estimating the urbanization effect for residents' happiness by the latest data from China and we find the urbanization in China has passed the inflection

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point of urbanization rate. Namely, residents' happiness in some big cities will increase with the rise of urbanization rate. We believe our study will have policy implications for how to further promote the development of large cities in the next stage and provide an empirical basis for the individual happiness.

Method

Design

Capello (2000) asserts that cities have different yield curves due to the different functions and grades. And Albouy (2008) find that quality of lives is slowly increasing with the size of cities, as the larger cities are located in better areas. In this paper, we assume that the benefits of urbanization can only be realized when the urbanization rate reaches a certain level. Only when the urbanization rate reaches a certain level, some higher level of education and training, medical and health institutions, subway, international airports, large-scale sports facilities are likely to be established since the construction of public facility is relatively large. Although the marginal utility of ordinary consumer goods and public goods satisfies the decreasing law, when its positive impact on happiness has not yet reached the limit, the stronger public goods supply capacity in big cities will enhance the well-being of residents.

Some less developed regions have comfortable living conditions because the pace of life isn't too fast and there is little pressure on the residents and thus will enhance their well-being. Then with the gradual urbanization, if the urbanization effect has not yet reached to a certain level or the scale effect is not enough accumulation, the negative effects of urbanization may dominate, thereby reducing the sense of well-being of residents.

Thus, we assume a U-shaped relationship between happiness and urbanization rate. Namely, residents' happiness will decline with the rise of urbanization at first and after a certain urbanization rate, it will rise with the increase of urbanization.

Data

Data of 4 waves (2010,2012,2014,2016) are collected from China Family Panel Studies (CFPS) conducted by Institute of Social Science Survey, Peking University, which records cross-sectional sample of abundant information on Chinese families. It has three levels of surveys including individual, family, and community. Xie, Hu and Zhang (2014) provide a detailed description of the CFPS.

We build our dataset with individual information including happiness, gender, age, education, employment, income, marriage and health from individual survey, while macroeconomic information including urbanization from family survey. Our final sample includes 56225 individuals from 399 cities (counties) in 30 provinces. Table is not presented due to space limitation.

Variables

Dependent variable:

We use the subjective self-reported happiness as the dependent variable, labeled HAPPINESS_i for individual *i*. Original question asks, "How happy do you think you are?", and answers come from very unhappy scoring 1 to very happy scoring 5. The mean happiness score of the sample is 3.718, which shows an optimism trend in general.

Independent variable:

Our main concern is how urbanization rate influences happiness. Since cities (counties) in the dataset are reported by ID rather than specific names due to information security issue, we need to estimate urbanization rate by self-reported information. We redefine urbanization rate as the urban population percentage, which is the ratio of urban population to the total population in a specific city (county) with identical ID. The average level of urbanization is 0.373, and the standard deviation is 0.326. Furthermore, according to the literature, happiness has been related to income, gender, age, education, health, marriage, employment, so we include all these variables into the model as control variables.

Data Analyses

With the variables mentioned above, linear regression model can be written as:

$$\text{HAPPINESS}_i = \beta_0 + \beta_1 \text{URBAN}_i + \beta_2 \text{URBAN}_i^2 + \sum \alpha_j Z_i + \varepsilon_i$$

where β_1 - β_2 are coefficients to be estimated for focused independent variables, URBAN_i is local urbanization level for i . α_j is a vector of coefficients for control variables and Z_i is a vector of control variables. We run OLS regression to test the effects of urbanization, which estimates the regional development level, on happiness.

Results

Descriptive Statistics of the Sample

The gender distribution is balanced with 28,524 males and 27,731 females, and the mean age is 46. The maximum income is 1800,000, while the mean is 10,543.25 with a quite large variance. The education time ranges from 0 (including young children below school age and illiteracy) up to 22 years. Therefore, the sample includes various population groups and it should be representative in our research.

Results for Testing H1: U-shape relationship between urbanization rate and happiness

We run OLS regressions to test, and table 1 shows the result. Our findings about urbanization rate and happiness are consistent with hypothesis. The coefficient of urbanization rate is -0.320 (significant at 0.01), and the coefficient of square of urbanization rate is 0.319 (significant at 0.01), which implies a U-shape relationship between urbanization rate and happiness, with an inflection point at 0.5. It means that under an urban population percentage lower than 0.5, there is a negative relationship between general happiness and urbanization rate probably due to problems rising at the initial stages of urbanization. However, people should be happier with higher urbanization level after this point where economic benefits could be a dominant factor.

Robustness test

To check the robustness of our results, we use the ordered probit model approach, which estimates the probability of each score in happiness. Table 1 shows the result. Almost the same pattern is found—urbanization rate and the square of urbanization rate are both significant at the 0.01 level.

Cluster Analysis

Our theoretical analysis has verified our hypothesis, but it is still hard to draw some detailed conclusions for specific cities due to the restricted access to the city (county) name. Next, we introduce the cluster analysis, and try to test our results on the province level. Table 2 shows the result. First, urbanization is used in the process of clustering, and the outcome shows five groups of cities (counties), named cluster 1 to cluster 5 with decreasing urbanization level. A most reality-based result can be found—in cluster 1 with the highest urbanization level, only Beijing and Shanghai are included. Also, we find each province has cities distributed in the following clusters, and the outcome is consistent with economic performance in general.

Finally, we calculate the average happiness score under each cluster. Beijing and Shanghai in cluster 1 report highest average happiness score of 3.837, suggesting that happiness rises with respect to urbanization rate after a certain level. Cluster 2, cluster 3, cluster 4, and cluster 5 shows average happiness score of 3.729, 3.741, 3.403 and 2.000 respectively. Generally speaking, there is a quasi-positive relationship between urbanization rate and happiness, which indicates that the urbanization in China has passed the inflection point.

Conclusions

Using micro-survey data from 2010 to 2016, we have shown in this study how happiness may be affected with the process of urbanization. It is not a simple linear relationship. Only when the urbanization rate reaches a certain level, its benefit can dominate and increase residents' happiness. These results are consistent with previous literature such as Sun et al. (2014) also predict that city size and happiness is U-type relationship.

Our findings suggest that police makers should make more effort to develop medium cities especially cities that are conducive to industrial transfer and regional coordinated development. Government can guide immigrants to expand secondary cities and develop some small cities around them, thus forming a more reasonable urban system to enhance residents' well-being. Our primary contribution is estimating the urbanization effect for resident's happiness by the latest data of China and we find the urbanization in China has passed the inflection point of urbanization rate.

There are also limitations about the paper. Since the county information of families recorded in CFPS only has code number, we cannot analyze the specific county and add GDP per capita, population or other variable to measure the degree of urbanization. More information is needed for further researches about the specific optimal urbanization rate. We can also explore the impact of urbanization on immigrants' happiness and its mechanism.

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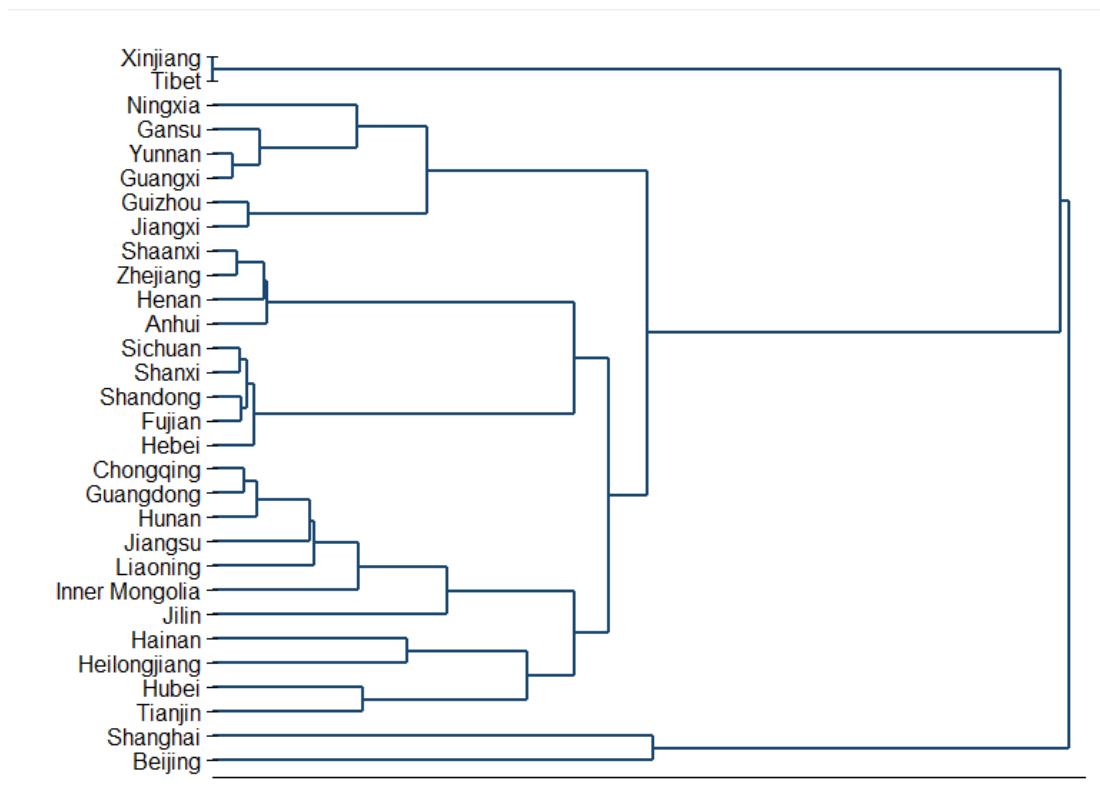
Table 1. OLS regression and ordered probit regression

VARIABLES	OLS Happy	O-probit Happy
Urbanization	-0.320*** (0.0863)	-0.183*** (0.0526)
Urbanization2	0.319*** (0.0879)	0.220*** (0.0504)
Age	-0.0179 (0.0168)	0.00373*** (0.000401)
Income	2.53e-07 (2.95e-07)	1.11e-06*** (2.58e-07)
Health	0.00917* (0.00480)	-0.0317*** (0.00396)
Gender	0.157 (0.192)	-0.0801*** (0.00950)
Edutime	0.0165*** (0.00485)	0.0149*** (0.00109)
Employment	0.0337** (0.0172)	0.00525 (0.0118)
Married	-0.164** (0.0664)	0.0729*** (0.0174)
Cohabitation	-0.0956 (0.176)	-0.0470 (0.0891)
Divorced	-0.311* (0.159)	-0.470*** (0.0433)
Widowed	0.0454 (0.127)	0.0609 (0.0431)
Constant	4.593*** (0.750)	
Observations	56,255	56,255
Number of pid	31,217	
R-squared	0.098	

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 2. Cluster Analysis



	Provinces	Urbanization (Mean.)	Happiness (Mean.)
Cluster1	Beijing, Shanghai	0.867	3.837
Cluster2	Tianjin, Hubei, Heilongjiang, Hainan, Jilin, Inner Mongolia, Liaoning, Jiangsu, Hunan, Guangdong, Chongqing	0.536	3.729
Cluster3	Hebei, Fujian, Shandong, Shanxi, Sichuan, Anhui, Henan, Zhejiang, Shaanxi	0.318	3.741
Cluster4	Jiangxi, Guizhou, Guangxi, Yunnan, Gansu, Ningxia	0.165	3.403
Cluster5	Tibet, Xinjiang	0.000	2.000