Modelling projected increase in Urbanisation in India

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Abstract

This paper explores the influence of wage rate, level of human development and ease of doing business across states in India on the projected increase in urbanisation for 2036 from 2011 level using a multiple regression model. Wages and the level of human development were found to be statistically significant in determining the absolute increase in the share of urban population. The study suggests that the rise in urban population in the forthcoming decades will largely be being driven by economic compulsions and welfare quanta.

Keywords: Urbanisation, Urban population projection

JEL Classification Codes: P25, Q56

Introduction

It is beyond doubt that the last three decades saw rapid rise in urban population in India. Urban population in India stood at 31.16% as per the 2011 Census. Mumbai, Delhi, Kolkata, Chennai, Bengaluru and Hyderabad were the largest urban agglomerations in India. India is also suggested (Business Standard 2012) to lead the global urban population surge in 2050 with the fastest rate of urbanisation in the world. Elmqvist et al (2008) defines Urbanization as "a global multidimensional process which manifests itself through rapidly changing human population densities and changing land cover." Urbanisation is simply the increase in the proportion of people living in urban areas. Urbanisation has been uneven across regions of India (IUSSP 2009) and the temporal and spatial changes in the nature and characteristics of urbanisation have been dramatic (Taubenböck et al 2009). In this backdrop, we explore the determinants of projected increase in urbanisation across states in India.

Data

Cross-sectional data on the share of urban population of 21 major states in India as per the 2011 census and the same projected for 2036 by the Ministry of Health and Family WelfareTechnical Group on Population Projection (2019)was used to compute the projected increase in urbanisation.The 2019 Sub-national data of HDI for India was accessed from the Global Data Lab (2020). State-wise ranking on ease of doing business for the year 2019 was accessed from RBI (2020).

Results and Discussion

The influence of wage rate, level of human development and ease of doing business across states in India on the projected increase in urbanisation for 2036 from 2011 level was explored using a multiple regression model with the following econometric specification.

$$PIU_i = \alpha + \beta_0 \ln W_i + \beta_1 HDI_i + \beta_2 EoDB_i + \upsilon_i$$

WherePIU = Absolute projected increase in Urbanisationin 2036 from 2011 level, lnW = natural log of wage rate, HDI = Human Development Index and EoDB = Ease of doing business.The proposed model was found to be statistically significant ($F(3,17) = 7.663$, $p=0.002$).

Table 1: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.758	.575	.500	5.91788

Table 2: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	805.056	3	268.352	7.663	.002
	Residual	595.363	17	35.021		
	Total	1400.418	20			

Table 3: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-115.307	33.560		-3.436	.003
	lnWage	14.413	6.222	.426	2.317	.033
	HDI	66.082	27.220	.438	2.428	.027
	EoDB	-1.843	5.946	-.052	-.310	.760

Source: Technical Group on Population Projection (2019); Global Data Lab (2020) & RBI (2020).

Note: * Statistically Significant. Wage rate was log transformed to administer diminishing marginal utility. EoDB ranks were converted into ratio of rank upon total states. This ratio was subtracted from unity so that values of this transformed variable denote a better EoDB.

Wages and human development were found to be statistically significant(p<.001) in determining the projected increase in urbanisation and the coefficients of both these variables turned up with the expected sign also. Projected increase in urbanisation increased by 14.41 units with unit increase in lnWages while a unit increase inHDI inflated the projected increase in Urbanisation by 66 units. Ease of doing business was not significant in determining the projected increase in urbanisation across the states in India.

Summing Up

The forthcoming decades will see an increase in urban residents in states with higher wage rates and human development. This suggests that the rise in urban population will largely be being driven by economic compulsions and welfare quanta.

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