

Abstract

Urbanization in India is happening at a rapid pace, and the trend is expected to continue. However, to accommodate this urbanization, laying down sustainable policies is necessary, which is long overdue. The present research attempts to understand the characteristics of urbanization and the sustainability of Indian cities through factors and indicators, ultimately leading to the creation of policies. A sequence of four objectives comprises the current research, wherein objective one finds the determinants of urban growth, applying multiple linear regression; objective two determines the factors affecting the sustainability of Indian cities based on United Nations Sustainable Development Goals (SDGs); objective three evaluates the sustainable performance of Indian cities utilizing Data Envelopment Analysis (DEA); and objective four analyzes the impact of the proposed housing policy with the current policy employing system dynamics, as housing is one of the factors impacting sustainability.

The first objective tries to understand the factors affecting the urban growth of Indian cities using three consecutive censuses. A database on Indian cities is constructed for the analysis, and regression models are developed. Eight variables are considered from classical economics and economic geography perspective to observe their effect on urban growth. The study also recommends policy decisions based on the results. In the second objective, a sustainability index is developed for Indian cities based on the UN SDGs framework. Since there is no Indian city in the world CPI record, a sustainability database for the Indian cities is constructed. Two composite indices, namely CPI and CPI_x , are developed centered on weights assigned to different elements. The research further use scores obtained from the CPI_x index to explore the factors determining the sustainability of Indian cities. Six variables from theoretical and economic geographic perspectives are considered to find their effect on city sustainability using regression analysis.

The third objective is to find the performance of cities based on sustainability implications. The primary focus of our research has been to determine ways to quantify the efficiency of a city by applying Data Envelopment Analysis (DEA). This research entailed developing two separate models to find the sustainability-efficiency of Indian cities, focusing on undesirable output. The current research trace the relative sustainable efficiency of 37 Indian cities using key variables that are found to be the determinants of urban growth and sustainability along

with DEA literature. The study also tries to check the possibility of using DEA as a ranking method to replace the indicator-rich sustainable index.

In the final objective, the study compares the impact of two rental policies using system dynamics in India's context. The first one is the current rent control policy, and the second one is the no rent control proposed in the National Urban Rental Housing Policy 2015. To incorporate the Indian market features, the well-discussed Wheaton model is modified. The study analyses the effect of the two policies in terms of affordability and availability.

Keywords: Indian cities; Sustainable cities; Multiple linear regression; Sustainable Index; Urban agglomeration; Rental housing