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Review article

The socioeconomic impact of low-income housing programs: An interregional input-output model for the state of Sao Paulo and the rest of Brazil☆

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ABSTRACT

The public policies programs for low-income housing in Brazil started in the 1930s. The most recent well-advertised program *Minha Casa, Minha Vida* (MCMV) by the Federal government has the goals to improve the quality of life of poor people, to reduce the housing deficit, and to foster the economy. The objective in this research is to evaluate socioeconomics impacts of low-income housing on regional economic system, highlighting housing public policies developed by the state and the federal government. Under an emerging low-income housing policy, the state of Sao Paulo created the so-called CDHU. The question raised by this paper is how important was the contribution of these programs to the economic growth in the state of São Paulo and in the rest of Brazilian economy in previous years? Thus, a specific interregional input-output model is estimated for two regions, state of São Paulo and rest of Brazil, with the usage of six different typologies of low income housing ranging from a single families housing to gated community housing. The impacts are measured in terms of GDP, tax collection, production, and employment in the State of São Paulo and in the rest of Brazil. The results show that the effect in the economy is different depending on the chosen housing typology investment; in other words, the estimated model provide tools to decide about the best housing type for promoting economic growth. The MCMV program and the CDHU's program affect the state economy system by expanding the demand for inputs for the construction of new buildings (direct effect); by expanding the demand in other sectors due to the feedback effect (indirect effect), and by expanding the income of families - it also increases the demand for goods and services in the economy (induced effect).

Contents

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1. Introduction

The construction sector is one of the most important sector to the economic development. This affirmative is supported, for example, when we take into account the construction sector composition in added value, labor absorption, and gross fixed capital formation, as well as its high participation in the industrial production gross value (Chenery, 1960). Further, this sector provides the public and physical infrastructure to many productive activities in the private sector (Polenske and Sivitanides, 1990). Therefore, the sector is able to influence capital productivity through infrastructure supply and production of capital goods (Hirschman, 1958; Perobelli, Campos, Lazarini, & Vale, 2016).

Among the activities of the construction sector, it is possible to list the construction of hospitals, schools, offices, homes, urban infrastructure (including water supply, sewerage, drainage), roads, ports, airports, railways, energy infrastructure systems, irrigation and agricultural systems and telecommunications systems. Due to the heterogeneity within this macro sector and the multiple possible research approaches, the choice in this paper falls on how to understand the impact of low-income housing in the economy of Sao Paulo (SP) and the rest of Brazil (RB) with an Input-Output model.

Housing in Brazil only became a social right in 2000 with the Brazilian Constitutional Amendment 26. However, the Universal Declaration of Human Rights already considered housing as a fundamental human right since 1948 and since 1970's international organizations (United Nations Centre for Human Settlements – UNCHS-Habitat –, World Bank and United Nations Developed Programme) have deeply paid attention to housing issues (van Lindert, 2016).

Housing has an important role in the welfare of individuals and families, not only as a good *per se,* but also due to the access to other goods and services it provides that households demand, for example public transportation, sanitation, public health, and safety. According Turok (2016), the housings in cities have also the potential to support sustainable routes out of poverty by providing economic and social opportunities and to integrate less-skilled groups into the urban economics system. Moreover, better housing conditions have a direct impact on long-term human capital (Rothwell and Massey, 2015), which also affects firm productivity. Shortly, housing policies must combine dwelling quality and connectivity among all supplied public goods to reach the best results in terms of productivity and wellbeing.

Historically, in Brazil plenty of public policies[2] have invested in the construction sector in order to improve the infrastructure provision and to promote economic growth. These efforts allow demonstrating the link between industrialization and urbanization and the construction industry. Over the recent Brazilian economic history, important policies have included the decree-laws in the Vargas period (1930–1945), the *Sistema Financeiro de Habitação*[3] (SFH), *Banco Nacional de Habitação*[4] (NHB) and, most recently, *Minha Casa, Minha Vida*[5] Program (MCMV). All of these public policies were promoted at the federal level of government.

Although public policies promoted at federal level may have multiple foci on multiple income ranges (social classes), the creation in 1949 of *Companhia de Desenvolvimento Habitacional e Urbano*[6] (CDHU) was focused on low-income housing at the state level (São Paulo). In the period 1966–2014, the CDHU released 330,621 low-income housing units (HU) using public funding as subsidies. In 2009, the CDHU built 27.927 HU (Brasil, 2009) in the state of Sao Paulo.

These kind of public policies aim to reduce the housing deficit in the country. According to the 2010 Census 84% of the Brazilian population live in urban areas, which deepens the need for targeted housing policies. In Sao Paulo municipality 1% of the population lived in slums in 1970. By 1995 this figure increased to 20% (Instituto da Cidadania, 2000). According to Lima Neto, Furtado and Kruse (2013), the compositional housing deficit in Brazil is concentrated among the most vulnerable families, that is, 73.6% of the total deficit corresponds to households totaling up to three minimum wages.[7] Meanwhile, the housing deficit is 21% for the households' group with three and ten minimum wages. These data are for the year 2012, where the housing deficit was 5,53 million households.

Having highlighted the housing deficit and its concentration amongst the most vulnerable population, this research addresses this relevant research area by applying an inter-regional input-output model that uses the underlying low-income housing typologies (e.g., buildings with and without elevators, houses, low-income house complex and low-income residential complex with and without elevators). Existing input-output literature has focused on macro-construction industry without having considered such heterogeneity within the construction sector, such as infrastructure, real estate (houses of different standards, corporate, sheds, etc.), maintenance and repair, etc. Seeking to overcome this weakness, this paper will focus on detailed information about the housing typologies.

A necessary condition to justify the application of research to public policy is that it has real effects on market outcomes. Taking this into account, the main objective of this article is to answer: what is the impact on jobs, production, taxes (ICMS[8] and IPI[9]) and GDP? Further, is it possible to answer: a) what is the low-income housing interaction structure with the other productive sectors of the economy? and b) what is the spillover to the rest of the country when Sao Paulo state invests in low-income housing?

To be able to answer these questions, we will use the Brazilian inter-regional input-output matrix for the year 2009. According to Bon (1988), the use of input-output modelling becomes important to provide a structure that allows studying the direct and indirect resource as well as their interdependencies. This methodology allows evaluating the sector in three ways: a) potential for job creation, b) role in the economy, and c) identification of the supplier structure.

This paper contributes to the literature by providing a new dimension of discussion regarding the assessment of the housing market of social interest. In this context, we bring to the debate the construction industry heterogeneity and shed light on low-income housing as well as its impact on the state of Sao Paulo and rest of Brazil's economic systems. The results afford information about opportunity cost among the six typologies aforementioned and permit to assess state and national housing policies in the state of

[2] Import Substitution Process; Economy Action Program of Government; “Goals Plan” (Plano de Metas); I and II Nationl Development Plan (Plano Naiconal de Desenvolvimento – PND); Growth Acceleration Program (Programa de Aceleração do Crescimento – PAC); “My House, My Life Program” (Programa Minha Casa, Minha Vida – MCMV).

[3] In free translation: Housing Financial System.

[4] In free translation: National Housing Bank.

[5] In free translation: My House, My Life Program.

[6] In free translation, Housing and Urban Development Company.

[7] The minimum wage in Brazil is defined by Federal-law. 2009–2011 period, minimum wage evolution were US$ 232.8, US$ 289.7 and US$ 322.3, respectively (current price).

[8] It is a state tax that charges on goods and service circulation.

[9] It is a federal tax that charges on industrialized goods.