

## **How do building regulations increase the cost and limit supply of affordable housing? Insights from a case study in Ahmedabad, India**

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Much of the discussion on affordable housing in cities of developing countries has focused around the constraints in urban land markets that raise the cost of serviced urban land, making housing unaffordable. It is well known that urban land is being used inefficiently, resulting in the high cost of both urban land and the built space. However, land is only one of the supply-side constraints, and unreasonable building regulations pose absurdly high costs on society by preventing the formal housing market from producing affordable housing that low-income groups can actually afford. The cost of building formal sector housing increases due to building regulations that set standards for formal sector development. Building regulations establish minimum standards such as FAR, building height, setbacks and margins, open spaces, parking, elevators, and other requirements which directly increase the construction cost, and prevent land from being developed intensely by limiting the quantity of habitable floor space that can be built. Building standards directly determine how much it costs to build the cheapest formal sector housing and thus directly influence the quantity of affordable housing that is built within the formal housing market, and the rest is then pushed into the informal housing market. People who cannot access expensive and limited supply of formal sector housing are then forced to find housing in the informal sector which causes proliferation of slums.

Many governments deliberately set high housing standards to discourage rural-to-urban migration, and these have continued to this day and have contributed to the proliferation of slums (De Soto 2000) and have prevented the private sector from

supplying low income housing. Revision of building standards should form one leg of the three-legged stool to remove the supply constraints in affordable housing, along with reforming land development processes and establishing reliable land management systems (Bertaud 2010). Unaffordable standards are only one level of constraints in a complex, multi-layered, transformative process of converting agricultural land to developed housing suitable for urban consumption (Annez et al. 2010, Patel et al. 2009). While research does identify building regulations as a factor that raises the cost of formal sector housing, there is not much empirical evidence to support the same. A National Housing Board of India study found that in 2006 of the 30% of urban dwellers that live in slums, a large portion can actually afford to live in better quality small-sized homes, but there is no supply (Deb et al. 2010). Even with high levels of sustained long-term economic growth in India, millions of urban dwellers will not be able to access a low-income home in the formal sector (Agarwal et al. 2013). In the city of Ahmedabad, 30% residents live in slums, and only 40% can actually afford the existing formal sector housing (Annez et al. 2010) as good quality, small sized, affordably priced, formal sector homes are simply not available.

This paper argues that high building regulations considerably restrict the supply of affordable housing by increasing housing construction costs and by not allowing land to be used intensely. In a detailed case study of a low-income housing project in the city of Ahmedabad in India, we demonstrate how low-income housing built in accordance with prevalent building standards is too expensive. We find that a myriad of unreasonable standards when applied together prevent developers from consuming the FSI/FAR permissible on site. We explore how much does it cost to produce a minimum cost, formal sector, low income housing unit, how do regulations constrain the cost and supply of low-income housing, and to what extent, and how can we relax regulations in order to reduce the cost and increase supply of low-income housing. We develop two comparable layouts for the same site – one in accordance with building regulations and another that allowed for the modification or relaxation of a few key building regulations that were having an adverse impact on the quantity and cost of legally-built affordable housing. We illustrate that by relaxing just a few key regulations it is possible to reduce the cost of the cheapest formal sector housing by

34%, and increase supply by 75%. We stress the need to expand the understanding about the role that building regulations play in making low-income housing unaffordable, and recommend that cities in developing countries need to critically review their building regulations for the effect they have on the cost and supply of affordable housing.

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