

# **Build up a Metropolis: Land Use Regulations, Spatial Mismatch, and Welfare**

Zhi Wang<sup>♥</sup>, Qinghua Zhang<sup>♠</sup>

July 18, 2023

## **Abstract**

This paper examines the impact of land use regulations on the spatial organization of economic activity and welfare within a city. We construct a quantitative model of internal urban structure that integrates agglomeration economies and commuting congestion, both endogenous to local employment densities. We estimate and calibrate the model's parameters in addition to heterogeneous local fundamental amenities (including production and consumption amenities) using a newly constructed, spatially disaggregated data set from Shanghai, the largest metropolis in China. We find evidence indicating two types of mismatch in the current land use regulations: one is between the supply of floor space and the potential market demand driven by local fundamentals across localities; another is between the allocation of floor space to different uses within a given locality and the locality's comparative advantage. Our counterfactual analyses show that re-allocating floor space supply across different localities within the city in line with local fundamental amenities can generate a welfare gain of 12–17% relative to the initial level. Furthermore, removing the tax-equivalent price wedge between business land and residential land to facilitate floor space allocation across different use types according to the relative value of production to consumption amenities can bring additional welfare gains of 3–8%. Finally, this paper also evaluates the impact of various future land development plans for Shanghai, some of which are proposed in the city's Master Plan 2017–2035. Our findings suggest that intensively developing the sub-centers according to market demand would be a sensible approach to building up Shanghai in the future.

**JEL Classification:** O18; R12; R31; R52

**Keywords:** Land use regulation; Spatial mismatch; Inner city structure; Agglomeration economies; Commuting congestion; Quantitative urban model

---

<sup>♥</sup> Correspondence. China Center for Economic Studies, Fudan University, and Shanghai Institute of International Finance and Economics. Email address: wangzhi@fudan.edu.cn.

<sup>♠</sup> Correspondence. Guanghua School of Management, Peking University. Email address: zhangq@gsm.pku.edu.cn.