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## The role of higher education in China's inclusive urbanization

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### ABSTRACT

One momentum of rural–urban transition in China is for university graduates to work and live in the city where they pursued tertiary education. Against this background, we investigate the role of higher education for urban growth in China. A panel data analysis reveals that an increase of share in the population with at least a bachelor's degree induces regional population to grow. Nevertheless, contrary to other developed countries, inflow of high caliber immigrants from the countryside or cities of lower tiers in China in fact brings down real wages. We hypothesize that in China where education resources are limited, higher education attainment induces faster urban growth through breaking the barriers to rural–urban transition for new job market entrants, but at the cost of lower real wages due to affluent labor supply. However, the increase of population share with high education has insignificant direct impact on housing price, indicating that new talented migrants may not be the major home buyers. Yet, through the trigger of a faster urbanization process, housing prices are jettied up indirectly in provinces with higher proportions of degree holders. It poses pressing challenges to China where the country is advocating the idea of inclusive urbanization. This paper will discuss some of the key issues in relation to the provisions of education and housing services in China such that local governments can be more embracing to rural degree holder migrants, who will play a contributing role in urban growth.

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### 1. Introduction

China accommodates one fifth of the world's population, and its urbanization is quickening up. After over thirty years' rapid expansion, China is facing increasing economic, social, environmental pressures and constraints. At the crossroads, “New Urbanization” has been proposed in 2013. According to Premier Li's speech (CCP, 2013), New Urbanization focuses on the people, stimulates huge consumption and investment demand, creates more job opportunities, and makes peasants rich and people happy. It is combined with agriculture modernization. Compared to Justin Lin's proposal of “New Countryside” in 2006 which focused on increasing rural infrastructure investment for job creation in the rural area, New Urbanization refers to more job creation in the urban area to attract inflows from rural migrants. Regarding this government driven policy initiative, the dynamics of urban growth need to be further explored. China's economic growth was featured by fierce regional competition. To take the lead in political promotion tournament, local governments have motivation to encourage construction projects and provide public facilities when the commodity housing market provides extra fiscal income for them (Lu, 2010a, 2010b; Li, Chiang, & Choy, 2011). Although local governments are actually in control of land transaction, legal access to land use rights is not easy,

especially for rural land acquisition in recent years. Investigation of how home registration system (Hukou) prevents ruralurban transition has provided a first perspective to study the mechanism of urban growth in China.

However, migration in the 1990s was largely driven by the unbalanced economic development in China (Shen, 2013). A second perspective thus involves more fundamental theory which has been tested in developed economies (e.g. Glaeser, Yourko, & Saks, 2006): A boost in labor quality can bring forth an increase of real wage and housing price. Enhanced labor quality then stimulates urban growth. Previous studies suggest that migrants from rural areas enjoy faster increase of wages than urban natives in China (Qu & Zhao, 2014). The context is particularly consistent with what happened to China over the past 15 years: Since 1998, the higher education system has undergone profound institutional reforms to reshape the structure of universities and colleges. More government sponsored, second-tier or below universities have been merged into first-tier universities, known as the “985 Universities”, which refers to a group of top Chinese universities aiming at developing into world-leading research institutions. Expansion of universities allows more young people from rural areas to access higher education resources which enhance their productivity.

While these top universities have attracted talented student intakes across the nation, in most cities where these universities are located the housing prices have also escalated to record high. Although significant institutional changes have taken place in urban land and housing markets, a series of socio-economic conflicts have also arisen, such as high

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housing price and vacancy rate, increasing income inequality, overbuilding, deterioration of living environment, and over-exploitation of natural resource. Rocketing housing prices, suppressed real wages and worsening environment could bring about urban sprawl and brain strain problems. Facing unprecedented complexity in speeding up the urbanization process, local governments are in quest for sustainable and balanced regional growth.

The previous decade has witnessed an increasing level of exclusive urbanization, i.e., gated communities in China's major cities due to moral distinction between urban and rural classes that leads to social exclusion (Pow & Kong, 2007). In response to this trend, China has been advocating the idea of inclusive urbanization lately (World Bank and DRCSC, 2014). The main thrust is to make appropriate provisions in cities such that rural-to-urban migration can be made more embracing, efficient and sustainable. One momentum of rural–urban transition in China is for university graduates to work and live in the city where they pursued tertiary education. It poses both opportunities and challenges. While the high caliber rural migrants will become major driving forces of economic growth in cities, real wages and housing prices will respond which in turn may make city lives unaffordable to them. This study thus attempts to investigate the dynamics of urban growth from a human capital resource perspective. Following Glaeser et al. (2006), we carry out a panel data analysis based on 30 provincial level units in China to investigate the impact of higher education on urban growth across regions. We intend to clarify the mechanism by examining the roles of education levels on housing prices, real wages, and employment. Drawing conclusions from the empirical results, we will discuss the key policy issues in the education and housing markets for inclusive urbanization. The remainder of this study is organized as follows. Section 2 reviews theoretical and empirical studies on major determinants of urban growth. Section 3 describes the empirical model based on Glaeser et al. (2006). Section 4 provides the estimation results. Section 5 discusses the research implications. Section 6 elicits the policy implications for inclusive urbanization with respect to the empirical results. Section 7 concludes the findings.

## 2. Literature review

The long-run interaction between economic development and urban growth has been well documented in western societies. Increasing urban population raises the demand for housing construction and hence housing production (Hendershott & Weicher, 2002). Peak and Wilcox (2006) found that the positive impact brought by population growth on housing investment in the US was declining. Fisher and Gervais (2007) found that declines in household formation and increased delay in marriage caused less volatility in housing investment. Green, Malpezzi, and Mayo (2005) estimated the price elasticity of housing supply across regions. Metropolitan areas which are heavily regulated always suggest lower elasticity. Fast growing communities tend to suggest higher elasticity. In addition, population density also plays a role in determining supply elasticity. Glaeser et al. (2006) presented a theoretical framework to integrate heterogeneous conditions of housing supply and urban development. Their empirical findings are consistent with the theories that differences in nature of housing supply across metropolitan areas determine how cities respond to productivity increase.

Concerning determinants of housing price, Ozanne and Thibodeau (1983) identified the sources of inter-city rents and housing prices in 54 metropolitan statistical areas during the period 1974–1976. Empirical results suggest that household income, the number of households, distance to ocean or lake, population growth, price of non-housing goods, land use restrictions, construction costs, taxes, wages and utilities are all significant in explaining housing rentals. For property prices, most of the factors are insignificant except land use regulations and land prices. Potepan (1996) modeled the market dynamics of housing price, housing rent and urban land price among 55 US metropolitans from

1974 to 1983. Household income and construction cost are identified as the common factors contributing to the price variations in the three inter-related submarkets. Fortura and Kushner (1986) discovered that demand side factors are major determinants of inter-city housing price differentials, including household income and anticipated inflation. Manning (1988) studied the impact of local specific and non-tradable amenities, such as mild climate and better environment, on the inter-metropolitan housing and land price differentials. They concluded that topographical restriction and climate change have positive effect on housing prices, while income, population, legal land use restriction, air pollution and crime rate have no impact.

There have been a growing number of empirical studies on the interaction between socio-economic-demographic factors and urban growth in China (e.g. Liu, Yun, & Zheng, 2002; Anderson & Ge, 2004; Peng, Tam, & Yiu, 2007; Chen & Zhu, 2008; Wu, Gyourko, & Deng, 2010; Chen, Funke, & Mehrotra, 2011). Han (1998) estimated the population growth elasticity of housing construction to be approximately one. Fu, Zheng, and Liu (2008) suggested that the demand shocks contribute an extra 70% of cross-city variations in population growth compared to housing consumption growth. Availability of infrastructure, cost of urban development and income inequality are also determinants of the supply elasticity. Zhang and Kahn (2008) indicated that Beijing's urban form can be explained by the mono-centric model. Specifically, population density, land and housing prices decline with distance from the city center. They also found that proximity to public transit, clean air, prestigious schools and universities, and amenities are capitalized into housing prices in Beijing. Interestingly, residential building heights and housing unit sizes have no significant relationship to distance from the city center, indicating that stringent urban planning policies may prevent market forces to adjust. Ngai and Lu (2010) found that the new generation of peasant-workers is fascinated by urban lifestyle and unwilling to return to the rural area, thus resulting in more urban housing demand. Choy, Ho, and Mak (2011) maintained that increase in urban population, household income and business confidence have positive impact on residential investment in China. Mak, Choy, and Ho (2012) suggested that changes in population and housing prices are most important determinants of housing start differentials. Choy, Ho and Mak (2013) observed that FDI inflows only have modest impact on boosting economic growth, and its spillover effects may be marginal. He, Huang, and Wang (2013) found that substantial cultivated land has been changed for urban, industrial and infrastructure uses, thus stimulating economic growth. On the legal aspect, incomplete property rights would lead to inefficient industrial land use in the urbanization process, thus resulting in poorer economic performance (Choy, Lai & Lok, 2013).

While these studies have looked into the urban growth dynamics from various perspectives, they are mainly focused on the economic-urban nexus, or in other words the capital resource aspect. Another strand of studies has investigated the urban growth dynamics from the human resource aspect. Urban growth and city size expansion were identified to account for increasing income inequality (Haworth, Long, & Rasmussen, 1978). Black and Henderson (1999), by pre-assuming endogenous economic growth and exogenous population growth, found that local information spills over to promote agglomeration while human capital accumulation increases city size. Clark, Lloyd, Wong, and Jain (2002) maintained that culture plays an increasingly important role in elevating urban economic vitality. Storper and Scott (2009) raised the question "Do jobs follow people or do people follow jobs?" and came up with evidence that amenities have potent effect on the migration patterns of highly educated human capital, but subject to the location of firms where they worked in. Huber (2014) found that in most European Union countries commuters are more skilled than non-commuters but less educated than migrants.

Regarding the relationship between human capital enhancement and employment, Simon (1998) found that city level employment growth was positively and persistently associated with human capital

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