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# Heterogeneity in the intergenerational transmission of education and second generation rural-urban migrants<sup>☆</sup>

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## ABSTRACT

Two facts are widely recognized regarding urban China: the population of rural-urban migrants is dramatically increasing with China's rapid growth, and urban disparity is being caused by the hukou system. This paper derives an intergenerational transmission function that can theoretically explain how the hukou system can give rise to different patterns for the intergenerational transmission of human capital from urban residents and rural-urban migrants to their children. Further, it empirically examines the existence of heterogeneity using multiple Chinese household datasets and different subsamples. Compared to urban residents, we find lower marginal positive effects of migrated parental educational attainment on children's schooling outcomes. The heterogeneity can only partially be explained by the observed socioeconomic characteristics. Although the hukou system plays an adverse role, evidence suggests that there is potential upward mobility for migrants, as staying longer with parents in an urban area improves the migrated children's school performance. This comparative study elucidates policy options for improving opportunity equality and modifications of urban segmentation.

## 1. Introduction

As the largest developing country, China has experienced substantial economic growth since the 1990s. One concomitant is an increasing population of rural-urban migrants in urban areas. Specifically, the number of rural-urban migrants increased over 200 million from 1978 to 2002, and there were 260 million in 2014 (Chen, Lu, & Zhong, 2015). Rural-urban migrants are playing an important role in city development. However, the current household registration system, the hukou system, has given rise to urban segmentation and played an adverse role in the welfare of migrants. For example, discrimination exists in the urban labor market against migrants (Chan & Buckingham, 2008; Friedman & Lee, 2010; Wang, Appelbaum, Degiuli, & Lichtenstein, 2009). Also, it is difficult for migrants to equally access public resources and urban social welfare coverage because they do not have urban hukou (Lu & Wan, 2014). The hukou arrangement has further distorted their economic performance, for example, consumption habits and household resource allocation (Chen et al., 2015).

In the meantime, the children of migrants living with their parents also encounter unfair treatment, for example, higher fees for

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enrollment into local public schools (Chan & Buckingham, 2008). By comparing migrant students who are able to enroll in public schools with their counterparts who are unable, Feng and Cheng (2013) find that the latter group performs worse in Chinese and Mathematics. Experiments conducted by Afridi, Li, and Ren (2015) show that the hukou identity negatively impacts the performance of students with a rural hukou compared to those with an urban hukou. However, education is one of the important and relevant forms of integration as well as acculturation into new communities for immigrants (Kilpi-Jakonen, 2011). Continuation to the upper education level can increase the competitive power of rural-urban migrant children in the urban labor market, improve their economic performance, and help them integrate into the urban environment. The widely observed urban segmentation caused by the hukou system is likely to hinder the advancement of migrant children and further to augment the existing disparities between local urban residents and rural-urban migrants through intergenerational transmission. If policy makers aim to provide equal educational opportunities and reduce social disparities for long-term growth, it is necessary to understand whether intergenerational transmission patterns vary between urban residents and rural-urban migrants and the role that hukou plays in this mechanism.

On the whole, three determinants are fundamental for the intergenerational transmission of educational attainment: genetics (endowments), parental behavior and environmental factors (Bauer & Riphahn, 2007; Haveman & Wolfe, 1995). Improving parental education can affect children's educational attainment through the channels of higher permanent income and better nurturing, allocation of household resources and labor-leisure decisions (Behrman & Rosenzweig, 2002; Björklund et al., 2004, 2006; Plug & Vijverberg, 2003; Pronzato, 2012; Sacerdote, 2007). This robust positive correlation between parental education and children's schooling has motivated policy makers to improve parental education in developing countries for poverty reduction. For example, there are policies and programs aimed at achieving "equality of opportunity": providing free primary education, enforcing mandatory education to certain level and issuing education vouchers (Black, Devereux, & Salvanes, 2005; Chevalier, 2004; Holmlund, Lindahl, & Plug, 2010; Maurin & McNally, 2008; Oreopoulos, Page & Stevens, 2006).

While literature investigating this positive correlation has increased in recent decades, research on the heterogeneity of intergenerational transmission across populations is still in its infancy, especially in developing countries. Bauer and Riphahn (2007) study the second generation of Swiss natives and international immigrants and find substantial heterogeneity in the intergenerational transmission of educational attainment. Jensen and Rasmussen (2011) explore the case of Denmark, Cobb-Clark and Nguyen (2010) examine heterogeneity across population groups in Australia, and Kilpi-Jakonen investigates the first transition in the Finnish education system between natives and international immigrants. All of these papers focus on heterogeneous performance between natives and international immigrants in developed countries. From this perspective, this paper pioneers the evaluation of heterogeneity in intergenerational education transmission for developing countries and the role of institutional interventions. Similar to the existing literature, we will take genetic factors as homogeneously given and examine how a unique institutional arrangement, the hukou system, generates heterogeneity in intergenerational transmission.

Firstly, we derive the intergenerational transmission function based on the utility-maximizing behavior of the household head and theoretically propose how less social welfare coverage, extra charges and labor market discrimination induced by migration status can generate heterogeneity in urban China. Then we test the propositions of the model using Chinese household survey data. The data yield substantial heterogeneity in the intergenerational transmission of education between rural-urban migrants and urban residents. This heterogeneity can only be partially explained by observed socioeconomic characteristics (annual income, minimum educational expenses, labor hours, marital status, ethnicity, public educational resources, etc.). The estimation results consistently support a lower marginal positive effect of parental educational completion on children's schooling outcome for migrants using subsamples and other data sets. Moreover, we find an adverse role of the hukou system in the transmission mechanism and perform a variety of robustness checks that consistently show that the heterogeneity is largely attributable to migration status. For example, multi-group comparisons between permanent urban hukou owners, new earners and rural-urban migrants imply that current hukou identity really matters regardless of the timing and regional origins. Exploring a quasi-natural experiment (the Send-Down Movement), we find that parental migration experience is not necessary to generate this heterogeneity but that it stems from institutional intervention, the hukou identity. Also, difference-in-difference estimates based on various types of exposure to hukou constraints across cities indicate that hukou segmentation contributes to the heterogeneity in the intergenerational transmission of education. Additionally, evidence suggests that if children stay longer in urban areas with their migrated parents, they can benefit through more educational attainment and through the potential existence of upward intergenerational mobility for rural-urban migrants. Correspondingly, modifications of the hukou system are vital to alleviating urban disparities, and policies that equalize public service are necessary.

This paper is organized as follows. Section 2 presents the theoretical framework. Section 3 proposes the empirical models and describes the data. Section 4 presents the empirical results and provides robustness checks. Section 5 offers concluding remarks.

## 2. Theoretical framework and empirical model

### 2.1. A model of heterogeneous intergenerational transmission

Similar to Becker and Tomes (1979, 1986) and Goldberger (1989), we construct a simple three-period overlapping generations model and derive the intergenerational transmission function based upon the utility-maximizing behavior of the household head. Based on the intergenerational function, we theoretically explain the existence of heterogeneous intergenerational transmission and its potential channels caused by institutional arrangements within a developing country framework, specifically, the hukou system in urban China.

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