



Relaxing Hukou: Increased labor mobility and China's economic geography[☆]

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ABSTRACT

China's *Hukou* system poses severe restrictions on labor mobility. This paper assesses the possible consequences of relaxing these restrictions for China's internal economic geography. We base our analysis on a new economic geography (NEG) model. First, we estimate the important model parameters using data on 264 of China's prefecture cities. Second, we use these estimates as inputs in a simulation of the full NEG model under different labor mobility regimes. We find that increased labor mobility leads to more pronounced core–periphery outcomes. Beijing, Shanghai, Guangzhou and Chongqing in particular will further strengthen their dominant place in China's urban hierarchy. In addition, two other groups of cities can be distinguished: those in China's populous heartland offering preferential access to China's enormous internal market, and more peripheral cities that are better shielded from competition with China's economic heartland by virtue of their relative remoteness.

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1. Introduction

China is one of the fastest growing economies in the world. Also, it is home to a huge (potential) internal market and a large number of very large and fast-growing cities. Arguably, China is a textbook case to analyze how agglomerating and spreading forces shape the economic landscape. To cite Krugman (2011, p. 6):

“surely the strong resemblance between China's industrial clusters today and the industrial clusters of the 19th-century [...] strikes a blow in favor of the argument for simple, common principles.”

The recent phenomenal growth record of China has been accompanied by migration from the western and central provinces to China's eastern (coastal) provinces (World Bank, 2008), mainly involving rural migrants seeking jobs in China's vibrant cities.¹ As a result China's urbanization rate has steadily risen over the last dec-

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¹ Recently, there have also been reports that production is now actually moving away from coastal regions to more westward, non coastal regions (like the province Anhwei) where wage costs are lower (see “The Next China” in *The Economist* of July 31st 2010, pp. 46–48).

ades. Recent studies (e.g. Au and Henderson, 2006a,b), however, argue that Chinese cities are still undersized due to the severe restrictions on labor mobility that are imposed through the so called *Hukou* system (see also Chan, 2008, 2009). Compared to other countries in the world at a similar stage of economic development, China has a much more evenly sized city size distribution (Fujita et al., 2004, p. 2955), which arguably keeps it from reaping the full benefits of agglomeration.

In this paper, we study the impact of the *Hukou* system on the spatial distribution of economic activity in China. In particular, we provide answers to the question what a removal of the restrictions on labor mobility imposed by the *Hukou* system will imply for China's internal economic geography. We do this by firmly basing ourselves in new economic geography (NEG) theory. In our view, NEG models are well suited to analyse the case of rapidly industrializing economies like China (see also Krugman, 2011²). In particular, the focus in most NEG models on the agricultural and manufacturing sector may seem outdated for western countries but it is (still) relevant for a country like China. Also NEG stresses the relation between cities instead of treating cities like ‘floating islands in space’, as is common in urban economics (Fujita and Mori, 2005).³

² Krugman (2011, p. 6): “Chinese economic geography is highly reminiscent of the economic geography of the advanced nations circa 1900 and it fits gratifyingly well into the new economic geography framework.”

³ The ‘floating island’ concept does not apply to Henderson (1974) because in his model cities trade due to specialization.

In this paper, we focus on the NEG model introduced by Puga (1999).⁴ A nice feature of his model, that makes it particularly suitable for our case, is that the equilibrium spatial distribution of economic activity depends explicitly on the degree of interregional labor mobility. This makes the model a natural starting point to assess the relaxation of the *Hukou* restrictions on China's internal economic geography.

Our empirical strategy consists of two steps. First, based on a sample of 264 Chinese Prefecture cities, we estimate the equilibrium wage equation that is central in NEG models. This not only allows us to empirically establish the link between a city's wages and its market access as predicted by NEG theory (see also Hering and Poncet, 2010a); more importantly it provides us with the key structural model parameters that are crucial in our second step.

It is this second step that makes our study different from recent related NEG studies for China (e.g. Ma, 2006; Lin, 2003; Hering and Poncet, 2010a,b; De Sousa and Poncet, 2011; or Amiti and Javorcik, 2008). Compared to these studies, where the estimation of the NEG wage equation is the central objective (hereby implicitly taking the spatial allocation of labor (and firms) as given), we go one step further and make use of the *complete* NEG model⁵. Using our estimates of the important model parameters as input, we simulate the full NEG model under various different regimes of labor mobility. This allows us to make model-based predictions of what the consequences of a relaxation of China's *Hukou* system could mean for its internal economic geography.

We find that increased interregional labor mobility will lead to more pronounced core–periphery outcomes. In the resulting much more uneven city-size distribution, China's internal demand will be a key determinant of its future economic geography. Beijing, Shanghai, Guangzhou and Chongqing in particular will further strengthen their dominant place in China's urban hierarchy. In addition, two other groups of cities can be distinguished: those in the populous heartland of China offering preferential access to China's enormous internal market, and several more peripheral cities that are shielded from competition with China's largest population centres by virtue of their substantial distance from these centres increasing both migration costs for workers and trade costs for firms.

2. Labor mobility in China and the implications from a NEG perspective

2.1. The *Hukou* system

Since the 1950s the Chinese authorities have been much concerned with internal labor migration flows and rural–urban labor migration in particular. The Chinese government alternated between periods of more and less restrictive migration policies (Zhao, 2005; Fujita et al., 2004; Chan and Buckingham, forthcoming; World Bank, 2008, chapter 5, and Chan, 2009), but ever since the 1950s the so called *Hukou* system has been a main feature of its internal migration policies. Although the system has become less restrictive over time it is still very much a prominent characteristic of the Chinese labor market (see f.i. the detailed description of the *Hukou* system in *The Economist* of May 6th, 2010). The *Hukou* system is equivalent to an internal visa arrangement that is meant to

regulate migration. In recent decades the system has been quite restrictive, not only by limiting migration flows from rural to urban areas, but also by putting a brake on inter-urban migration flows (Chan and Buckingham, forthcoming; Au and Henderson, 2006a,b; Poncet, 2006; Henderson, 2009; Zhang and Zhao, 2011). Without a visa for a particular location, a Chinese citizen has no or only limited rights to housing, sell property, education, food or social security in that location. Those rights are tied to one's official place of residence and a change in residency (if a citizen for instance would try to move from a rural area to a city) will only be matched with a transfer of these rights if the (local) authorities hand out a visa or permit for the new place of residence.

Until recently (see in particular Chan, 2009 or Chan and Buckingham, forthcoming, pp. 13–14), migration under the *Hukou* system had two equally important dimensions. The first concerns the restrictions on access to education, health care, housing, etc. alluded to above. To be entitled with the aforementioned rights to public provisions, households need a local *Hukou*. The second dimension is functional and refers to the distinction between agricultural and non-agricultural workers. Non-agricultural workers with a local *Hukou* are traditionally entitled to more rights than agricultural workers. Combined, the local and functional classification define four possible categories of residents (Chan, 2009, p. 202).

In recent years, the *Hukou* system has become less of a constraint (Chan and Buckingham, forthcoming). With urban wages outstripping rural wages, the result has been an increase in (temporary) migration into the booming cities. One important change is that currently, in many cases, the local instead of the central government decides upon the permits. This gives local governments some degree of freedom with respect to the leniency of granting these permits. A second change is that the distinction between a non-agricultural and an agricultural *Hukou* has become relatively less important (Chan, 2009). The key issue for a migrant is now foremost whether he or she has a local *Hukou*, and thus whether he or she has access to public provisions in the destination location.

Although the system has become less stringent and more differentiated, the *Hukou* system is still very restrictive. “*all these restrictions sharply reduce the benefits and raise the costs of migration, particularly into large cities. Migration is limited and most migration is short-term, or “return” migration. (...) Overall the Hukou system holds hundreds of millions of people in locations where they are not exploiting their earnings potential.*” (Fujita et al., 2004, p. 2957; see also, Zhang and Zhao, 2011). Chan (2008) estimates that between 1982 and 2006, the annual volume of *Hukou* migrants remained very stable at about 17–20 million people (see also Fujita et al., 2004). This stability suggests that neither the scrapping of the functional *Hukou*, nor the decentralization of the migration policy has had a substantial impact on the flow of permanent migrants to the cities.⁶

2.2. The effects of the *Hukou* system from an economic geography perspective

What are the consequences of the *Hukou* system for China? First, China's degree of urbanization is smaller than expected based on its level of economic development. Fig. 1 illustrates this line of argument in a stylized way (Henderson, 2009):

⁴ We extend it by adding a housing market in the spirit of Helpman (1998), and by introducing more realistic migration dynamics.

⁵ Roberts et al. (forthcoming) also use a full NEG model to provide predictions on the impact of changes in the Chinese infrastructure on the spatial distribution of economic activity. Roberts et al. (2010) however rule out labor mobility, focus on the short-run NEG equilibrium and rely on calibration instead of estimation. Also Hu (2002) relies on calibration instead of estimation and divides China into an urbanized coast and a rural inland, which dismisses the importance of inland China by assumption.

⁶ In China there are very substantial temporary migration flows to cities. As a consequence, many workers do not have a local *Hukou* of that city. In our data set, we can only deal with official city population data. For an instructive lucid summary of the *Hukou* system see <http://chunzhu.wordpress.com/2008/04/22/understanding-the-hukou-system/>. See also Chan, 2009 for a very good introduction to and assessment of the *Hukou* system.

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