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Migration in China:
Evidence from Village
Panel Data**

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Abstract

This paper analyzes the impact of rural-to-urban migration on income inequality and gender wage gap in source regions using a newly constructed panel dataset for around 100 villages over a ten-year period from 1997 to 2006 in China. Since income inequality is time-persisting, we use a system GMM framework to control for the lagged income inequality, in which contemporary emigration is also validly instrumented. We found a Kuznets (inverse U-shaped) pattern between migration and income inequality in the sending communities. Specifically, contemporary emigration increases income inequality, while lagged emigration has strong income inequality-reducing effect in the sending villages. A 50-percent increase in the lagged emigration rate translates into one-sixth to one-seventh standard deviation reduction in inequality. These effects are robust to the different specifications and different measures of inequality. More interestingly, the estimated relationship between emigration and the gender wage gap also has an inverse U-shaped pattern. Emigration tends to increase the gender wage gap initially, and then tends to decrease it in the sending villages.

JEL classification: O15; J61; D31; C33

Keywords: Internal Migration; Inequality; System GMM.

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1. Introduction

Inequality is closely and reciprocally intertwined with migration. On the one hand, income inequality between source and destination areas is widely believed to be one of the most important factors that drive economic migration. This is inherent in the Lewis model of dual economy and made more explicit in the Harris-Todaro model of rural–urban migration (J. R. Harris and M. P. Todaro, 1970; W. A. Lewis, 1954). Internal rural–urban migration is modeled as a response to the wage disparities between the urban and rural sectors (D. Ray, 1998).¹ By the same token, international migration can be viewed as an outcome of global inequality (R. Black et al., 2005). Large and increasing wage gaps across countries are cited as an irresistible force impelling greater labor mobility across national boundaries (L. Pritchett, 2006).

The growth of the literature on the New Economics of Labour Migration has brought about focus on the inequality within sending communities as drivers of migration: the household's relative position with respect to a specific reference group in addition to the household's absolute income serves as strong motivation for migration (O. Stark and J. E. Taylor, 1991, Oded Stark and David E. Bloom, 1985). Conversely, labor mobility generates a feedback effect on income inequality in both sending and receiving communities. In fact, one of the controversial arguments put forward to control international migration is that immigrants increase income inequality in the receiving countries because the influx of low-skilled immigrants suppresses the wage of the locals at the end of the skill distribution. However, more recent items of evidence have suggested that only 5-10 percent of wage inequalities can be attributed to immigration in the United States between 1980 and 2000, much smaller than is commonly presumed (David Card, 2009; C. D. Goldin and L. F. Katz, 2008).

This paper examines the impact of migration on inequality in the sending communities. The evidence presented is mixed. It depends on the structural factors that affect the distribution of the costs and benefits of migration and the associated selectivity of migration itself (R. Black, C. Natali and J. Skinner, 2005). If the costs of migration are sizeable and the poor face binding credit constraints, which is often the case in the context of developing countries, migration will

¹ Needless to say, the inequality among the other dimensions of life opportunities, such as education, health, civil liberty, and other dimensions are also drivers of migration.

be positively selected by the poor trapped in nonproductive activities at the source communities. This means that the rich will benefit the most from migration because migration will widen rather than narrow the income gaps in the sending communities. This is indeed what earlier research undertakings have found (R. H. Adams, 1993, 1998; M. Lipton, 1980; O. Stark et al., 1988).

Recent empirical works have challenged this traditional view. It is increasingly recognized that the impacts of migration on income inequality in the migrant sending communities crucially hinge on the selectivity of migration and how this selectivity changes over time. Although pioneer migrants may come from relatively wealthy households who can afford the cost of migration and have better information on urban employment, their migration is likely to induce more migration from people in the bottom of the income distribution for two reasons. First, the increase in relative deprivation among nonmigrants tends to boost their desire to migrate. Second, the establishment of migrant networks in the destination areas lowers the costs and risks of migration, which in turn facilitates more waves of migration of the poor. As a result, the initially negative effect of remittances on income equality might therefore be dampened or even reversed (H. de Haas, 2007; David McKenzie and Hillel Rapoport, 2007; Hillel Rapoport and Frédéric Docquier, 2005; O. Stark, J. E. Taylor and S. Yitzhaki, 1988).²

The difference in the results may also come from the differences in the methodology. Earlier studies treated remittance income as an exogenous transfer, and compared Gini coefficients with and without the inclusion of remittance income, whereas more recently, remittances have been treated as a potential substitute for home earnings. In addition, the observed income distribution with remittances are compared to a counterfactual scenario in

² Docquier et al. (2006), propose a dynamic theoretical framework that goes part of the way towards reconciling the conflicting results from empirical studies and complements the "networks" view in showing that the same predictions may be obtained with exogenous (i.e., constant) migration costs. They investigate the impact of migration on income and inequality both via the direct effect of migrants' households increase in their income via higher wages abroad and also the indirect effects of the outbound flow of individuals on the local labor market. They do so in a way that demonstrates the importance of the pre-migration distribution of wealth in determining the impact of migration on the dynamic path and long-run levels of income and wealth inequality. They show that migration and remittances always lower wealth inequality. In contrast, although income inequality is also reduced in the long run, it may either increase or decrease in the short run, depending on the initial distribution of endowments. That is to say, the short- and the long-run effects on the income distribution may be of opposite signs and display an inverse U-shaped relationship.

which no migration takes place, but includes an imputed level of home earnings (R. Black, C. Natali and J. Skinner, 2005; Nong Zhu and Xuebei Luo, 2008). Although the earlier approach is unrealistic in assuming that remittance-earning migrants are separate entities from their households in the rural areas and excludes their income in destination areas, the improvement that the counterfactual model provides is limited because the selection into migration is difficult, if not impossible, to model.³ This led some researchers, after reviewing the literature, to conclude that any overarching generalization about impacts on inequality is unlikely to be robust (R. Black, C. Natali and J. Skinner, 2005).

In addition to these methodology challenges, the usefulness of earlier literature is also tempered by the cross-section nature and the small sample size. The lack of panel data at the community level seriously limits the researchers' ability to quantify the temporal dimension of migration and inequality. The alleged inequality-reducing effect of migration over time remains elusive. Moreover, it is primarily based on anecdotes rather than evidence. Without a large sample of communities, previous literature focuses mainly on the examination of the effect of migration on inequality in only a couple of communities (see McKenzie and Rapoport 2007 for a detailed review). The external validity of these studies is questionable, at best. McKenzie and Rapoport (2007) contribute to the literature by constructing cross-section data of 57 rural communities from the Mexican Migration Project (MMP) survey and short panel data of 214 rural communities in Mexico from the national demographic dynamics survey (ENADID) in 1992 and 1997. This identification strategy essentially estimates the effect of the development on emigration on the change in inequality. Community-level emigration rates are instrumented by the historic state-level migration rates and U.S. labor market conditions to deal with the endogeneity of migration.

McKenzie and Rapoport (2007) find that further migration reduces inequality among communities with reasonably high initial levels of migration experience. Furthermore, migration

³ In earlier studies of this strand for example, an econometric model does not control for the selection problem involved in the original migration decision. The migrant and non-migrant were treated as drawn randomly from the population (Barham and Boucher, 1998). In Barham and Boucher (1998), they estimate individual earnings equations in a double-selection model involving migration choices and non-migrants' labor force participation decisions. However, these kinds of selection models require at least one additional exogenous instrument for each selection. Otherwise the identification will only come from non-linearity.

has positive but insignificant effects on inequality in communities with smaller migration networks. Employing the panel data for a sample of communities observed in 1992 and 1997, they find suggestive evidence for an inverse U-shaped Kuznets relationship between migration and inequality, with migration increasing inequality at first before subsequent migrations lower it. However, since they have observed the same communities only twice in time, they essentially use the contemporary variation across communities in migration to proximate the effect of changes in migration on inequality.

This paper analyzes the impact of rural-to-urban migration on inequality using the panel data derived from around 100 villages in rural China as observed four times (1997, 2000, 2004, and 2006) over a ten-year period. To our best knowledge, this is the first paper that examines the dynamic aspects of migration and income inequality using a dynamic panel data analysis. First, we are able to construct a relatively long panel of variables of many communities with a range of different migration experiences from individual and community level panel surveys on both incomes and migration, which are ideal in studying the dynamics of migration and income inequality (David McKenzie and Hillel Rapoport, 2007). In our study, the large sample size (N) is critical because we exploit both cross-section and time-series variations in the panel data. The large N provides the precondition for the asymptotic property of linear regressions to hold. Furthermore, the relatively long panel allows us to examine the dynamic aspects of migration and income inequality using a linear dynamic panel analysis.⁴ Second, unlike earlier studies focusing exclusively on remittances, our data include the total labor earnings of migrants in the destination areas, which allow us to capture the general equilibrium effects. Third, we also look at the impact of migration on gender wage inequality within the sending communities, which is calculated from the key informant interview in the community panel survey. Last but not least, the massive wave of rural urban migrants in China, since its reform in 1980s, provides a unique context to test the relationship between migration and inequality at the community level. The structural barriers of integration into the urban society and the economic and psychological security offered by the home villages cause temporary migrants to maintain strong linkage with the source communities through remittances and return (R. Murphy, 2002). Therefore, the

⁴ Recall that the panel data used by McKenzie and Rapoport (2007) only observed the same villages twice, in 1992 and 1997.

impacts of migration on the sending communities are more palpable than in the other contexts. Moreover, there are evidences to prove that selectivity for temporary migrants in particular has declined using the 1990 and 2000 Census data (Cindy Fan and Mingjie Sun, forthcoming). This decline in selectivity for temporary migrants provides suggestive evidence that migration, among other factors, has the potential to reduce inequalities within the sending communities in the long term.

Since income inequality is time-persisting, we used the system GMM to control the lagged income inequality in estimating the effect of emigration on income inequality in the sending villages. At the same time, contemporary emigration is instrumented in the GMM framework because of the unobserved time-varying community shocks that correlate with emigration and income inequality, and the potential reverse causality from income inequality to emigration. We found a Kuznets (inverse U-shaped) pattern between migration and income inequality in the sending communities. Specifically, contemporary emigration increases income inequality, while lagged emigration has strong income inequality-reducing effect in the sending villages. A 50- percent increase in the lagged emigration rate translates into one-sixth to one-seventh standard deviation reduction in inequality. Contemporary emigration has slightly smaller effects in raising the income inequality within villages. These effects are robust to different specifications and different measures of inequality. More interestingly, the estimated relationship between emigration and gender wage gap also has an inverse U-shape. Emigration tends to increase gender wage gap initially, and then decrease it in the sending villages.

The remainder of the paper is structured as follows: Section 2 gives the background of the rural–urban migration in China and briefly reviews the literature on migration and inequality in China. Section 3 presents the empirical strategy, a linear dynamic panel data analysis. Sections 4 and 5 describe the data and report the empirical results. Section 6 briefly discusses the implications and concludes the paper.

2. Background: Rural–urban migration in China

2.1 The *Hukou* system and its reform

Modeled after the *propiska* system in the Soviet Union and with roots that date back to ancient China, the Residence Registration System (*hukou*) was established in 1958; it ties citizens to a specific location within China through residency permits (K. W. Chan and W. Buckingham, 2008). The *hukou* also outlines an individual's rights to entitlements: in an agricultural area, the *hukou* entitles the holder to farmland, while a *hukou* in an urban area grants the holder access to jobs, housing, food, and other public services. The 1984 reform liberalized the movement of the rural poor, but without changing the *hukou* system; and without a local *hukou* (i.e., permanent change in residency) they are not fully entitled to social benefits (e.g., government housing) or public services (e.g., urban education system) or access to jobs in the destination areas. As in other areas of reform, the Chinese government has chosen a gradual and partial approach: providing labor rights but falling short of full abolishment of the *hukou* system. Analogous to the point-based system in host countries for international migrants, the *hukou* system engineered a two-tier migration scheme, whereby changes in permanent *residency* may be permitted for the highly skilled and college-educated migrant urbanites, but only temporary *residency* is usually granted for the less-skilled and less educated rural-to-urban migrants (Cindy Fan, 2008).

From the late 1980s to the mid-1990s, many city governments offered the “blue-stamp” *hukou* to well-off migrants who were able to make sizable investments. Training of rural–urban migrants is one of the foci in the early 1990s. The Migration Work Registration Card at the migrants' place of *hukou* origin and the Employment License at the place of destination were created to facilitate job searching and give migrants access to employment service from government agencies. In 1997, the State Council approved a pilot scheme to grant urban *hukou* to rural migrants who held stable jobs and had resided in selected towns and small cities for more than two years (Cindy Fan, 2008). In recent years, governments have undertaken reforms to establish a unified *hukou* regime to effectively eliminate the distinction between agricultural and non-agricultural *hukou*. Experiments in 12 provinces have been underway since 2007, although in general, small cities and towns have liberalized faster than the big metropolitan areas where

