Village Political Economy, Land Tenure Insecurity and the Rural to Urban Migration Decision: Evidence from China*

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Abstract

This paper finds that increases in the probability of facing a village-wide land reallocation is associated with a decline in the probability that a rural resident will migrate to urban China. A model is first developed to examine the village leader's reallocation decision, and then to incorporate the village leader's decision into an individual's migration decision. Crucial for our identification, the heterogeneity of patrilineal clans within a village is associated with the cost of reallocating land. Next, we show that the probability of a village-wide reallocation is a function of exogenously determined election-timing interacted with the share of households in a village belonging to the largest patrilineal clan in the first year of a panel survey. This interaction is then used to identify the effect of land tenure insecurity on migration decisions.

JEL Codes: O12, O15, J61, Q15, R23

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1 Introduction

Students of economic development have long recognized that an economy-wide structural shift from employment in agriculture to non-agricultural activities is a prominent feature of the longer-term development process.[1] At the level of the household, or family, the shift of labor from agriculture to industry and commensurate movement out of rural areas often proceeds incrementally, with individual family members migrating to urban or manufacturing areas while leaving other household members behind. An important aspect of this gradual process is that family members in rural and urban areas remain linked, and this arrangement often benefits the household in numerous ways.[2] The decision to migrate, however, is shaped by the institutional arrangements, both locally and in migrant destinations, that affect the benefits of migration and employment off-farm. To the extent that poor institutions limit the function of land, labor or credit markets, they may also reduce the expected benefits to individuals and households from moving out of agriculture, and thus slow the economic processes of urbanization and structural change. In this paper, we examine how land tenure insecurity in China influenced the decision to participate in migrant labor markets over a period from 1995 to 2003.

Considering both the scale and rapid increase in rural-to-urban migration in China over this period, it may at first seem counterintuitive to spend much time dwelling on barriers to migration. Residents of rural China, however, have faced important institutional barriers to geographic mobility throughout the reform period, and rising rural-urban income gaps offer prima facie evidence that migration flows have not proceeded rapidly enough to offset differences in productivity growth between rural and urban areas of the country (Park, 2008). Moreover, upon examination of micro data from rural China, it

[1]The movement of labor from concentration in rural agricultural pursuits to urban-based industry figures prominently in many of the classic works in development economics (e.g., Kuznets, 1955; Lewis, 1954 and 1958; Ranis and Fei, 1961).

[2]Transfers from migrants may be an important source of investment funds if local credit markets do not function well (Woodruff and Zenteno, 2007), or alternatively, migrants may provide insurance for households which remain behind (Giles, 2006; Rosenzweig and Stark, 1989).

becomes apparent that there is tremendous heterogeneity across villages in levels of out-migration over the reform period, and that this period was also characterized by sharp increases in inequality within rural areas as well (Benjamin et al, 2006; Ravallion and Chen, 2007). Considerable effort has gone into studying the consequences of the household registration system (or *Hukou* system), ranging from rural-urban inequality (Liu, 2005) to under-sized cities with unexploited economies of scale (Au and Henderson, 2006). At the same time, there is a relative paucity of work describing variation across rural China may influence migration decision, with likely implications for differences in incomes and consumption across villages.

An abundance of theoretical research suggesting that insecure property rights may have important impacts on productivity, factor allocation and economic development in China as they have elsewhere in the developed and developing world.[3] While the specific mechanisms through which property rights affect economic activity are context specific and depend on the existence of complementary institutions or endowments (Besley and Ghatak, 2009a; Katz and Owen, 2009), there are at least four mechanisms through which clear and secure property rights improve efficiencies in resource allocation and productivity (e.g., Besley and Ghatak, 2009b). First, by limiting expropriation, secure property rights may enhance investment incentives and increase output of productive assets. Second, well-defined rights reduce the cost of protecting property. Third, improvement in the protection of property rights facilitates market transactions that allow for welfare-improving gains from trade, and fourth, by allowing assets to be collateralized, secure property rights enable credit transactions.

An increasing body of empirical research based on micro-data from different countries has tested these theoretical predictions, with primary focus on the impact of rights on investments or agricultural

[3]Feder and Feeny (1991) and North (1990), for example, emphasize the importance of secure property rights in supporting economic development. Further, Acemoglu et al (2001 suggest that variations in protection of property rights across countries led to significant differences in subsequent economic performance.

production. Evidence from the literature is mixed, though several studies yield evidence supporting the view that secure land rights are investment enhancing and may affect cultivation techniques adopted.[4] Other studies, however, cast doubt on the existence of a systematic influence of land tenure security on investment, and emphasize that informal rights may provide stable entitlements (Brasselle, Gaspart and Platteau, 2002).

More recent empirical microeconomic research has found a role of property rights in labor market outcomes, off-farm activities and migration. Do and Iyer (2008) find that a land titling program in Vietnam led to increases in the proportion of cultivated land devoted to perennial crops and facilitated shifting of land to non-farm activities. In urban Peru, Field (2007) finds that providing titles to urban residents leads to increases in labor supply of adults, as well as increasing investment in housing (Field, 2005).[5] Other work micro evidence suggests correlations between land tenure security and employment, including employment as migrants. Valsecchi (2010) finds that access to a formal land title increases Mexican emigration to the US, and de Brauw and Mueller (2009) show a correlation between land transferability rights and internal migration in Ethiopia.

Over the period under study, there was considerable variation in *de facto* land tenure security across China's villages. Under China's constitution, the rural land is the property of administrative villages, or collectives, but exclusive use rights are contracted out to individual households. As in many other developing countries, China has laws with provisions to formally protect individualistic land use

[4]Land tenure security in Ghana is associated with more tree plantings and higher probability of investment (Besley, 1995), longer duration of land fallowing and higher subsequent agricultural production (Goldstein and Udry, 2008), and higher probability of planting of tree crops and with protection of individualistic land use rights (Bandiera, 2007). Higher risk of expropriation is associated with significant reduction in application of organic fertilizer (Jacoby, Li and Rozelle, 2002) in China, and inhibited shifts into coffee production in Columbia (Sanchez, Lopez-Uribe and Fazio, 2010).

[5]The effects of titling on residential investment are consistent with those from a "natural experiment" analysis of the allocation of property rights in Argentina (Galiana and Schargrodsky, 2005).

rights, but enforcement mechanisms do not necessarily exist or function as intended (e.g, Benjamin and Brandt, 2002; Brandt et al, 2004; Dieninger and Jin, 2009; Jacoby et al, 2002).

In this paper, Section 2 first models the variation in tenure security associated with the exogenously determined timing of village elections, allowing for heterogeneity across villages in the share of the village belonging to a patrilineal clan. We then show conditions under which the prospect of a significant land reallocation within the village influences the decision of a household to allocate labor across farming and employment in an urban wage sector. Section 3 lays the empirical strategy of the paper and our identification assumptions. Results are presented in Section 4 and conclusions are presented in Section 5.

2.0 A Model

Our theoretical framework has two parts. The first outlines the land reallocation decision of a village head, with an emphasis on the head's consideration of how a reallocation may affect the subsequent village election outcome. The second part studies the effect of the prospect of a village land reallocation on the decision of a household to allocate their labor across farming and the urban wage sector.

2.1 The Land Reallocation Decision of the Village Leader

A village head seeks to maximize the expected gain from a land reallocation and only calls for a reallocation if the benefits of doing so exceed the costs. But the decision is complicated by the fact that the head is not always certain of subsequent election outcomes which may be affected by a land reallocation or a lack of it.

Assume the leader maximizes utility over two time periods. In period one he decides whether to reallocate land or not; village election, exogenously scheduled, occurs in period two and the incumbent

leader runs for reelection.[6] Land reallocation may be held for a variety of reasons. Village leaders may reallocate land in order to promote villagers' equitable access to land, to improve labor-land matching in the absence of a functioning rental market, or to seek private gains via extracting rents in the reallocation process (Brandt, Rozelle, and Turner, 2004).[7] Each land reallocation hence will not only benefit the village as a whole but also benefit the head personally; both of which are taken into account by the head. The benefits for the village are achieved through the equity or the efficiency gain. The leader's personal payoff is either in the form of monetary or in-kind bribes, or in the form of a political gain. The political gain refers to an increase in the support for the leader in the subsequent election from those who gain land in the reallocation. The cost of land reallocation has two components, with one being pure management cost (such as in organizing meetings, solving disputes and implementing reallocation etc); and the other being "political cost". The latter refers to a decrease in the support for the leader due to the loss of land for some or villagers' distastes of leader's receipts of bribes in land reallocation. Along with the costs and benefits, uncertainty plays a pivotal role in the leader's decision. Even in the absence of land reallocation, the leader would be uncertain about the election results. Land reallocation adds on to that uncertainty since not all villagers are equally affected in the reallocation and the net impact on election is undetermined *ex ante*.

Assume that the village head's value function at time one is $V_1(\pi^v, \theta, f^v)$ where $\pi^v = 1$ if the head calls for a land reallocation and $\pi^v = 0$ otherwise; θ denotes village characteristics unobservable to researchers; and f^v stands for family lineage composition in the village. The utility at the second period depends on whether the leader is reelected or not. Let $U_2(1)$ denotes the utility at time two if the head is reelected and $U_2(0)$ if not reelected. Assume that the head has a probability of p^* being reelected if

[6] There is no term limit for village heads, so we assume incumbent leader automatically runs for reelection. But the conclusion of the model doesn't hinge on this assumption.

[7] Empirical evidence for the equity hypothesis is very scant but both the efficiency and the rent seeking arguments are supported by their data.

he doesn't call for a reallocation; and with a probability of $(1-p^*)$ that he will lose the upcoming election. With no land reallocation ($\pi^v = 0$), the value function of the first period takes the following form:

$$V_1(0,\theta,f^v) = \beta p^* U_2(1) + \beta(1-p^*)U_2(0) \quad (1)$$

where β is the time discount factor. If the village head decides to hold a land reallocation ($\pi^v = 1$), the value function will feature reallocation's benefits and costs. Let $B^v(\theta,f^v)$ denote the benefits of the reallocation to the village as a whole, $\bar{M}$ be the head's personal gain, and $\bar{C}$ the management cost of reallocation. With reallocation, the head's reelection probability also becomes a function of the reallocation or in a "reduced form" a function of village characteristic; and it can be written as $p(\theta,f^v)$. In this case the value function takes the following form:

$$V_1(1,\theta,f^v) = B^v(\theta,f^v) + \bar{M} - \bar{C} + \beta p(\theta,f^v)U_2(1) + \beta[1-p(\theta,f^v)]U_2(0) \quad (2)$$

It follows that the difference in the above two value functions is:

$$\Delta V = B^v(\theta,f^v) + \bar{M} - \bar{C} + \beta\{[p(\theta,f^v) - p^*]U_2(1) + [p^* - p(\theta,f^v)]U_2(0)\} \quad (3)$$

The village head only calls for a land reallocation if $\Delta V_1 > 0$. As we will show shortly with empirical evidence that the need for land reallocation is lower in villages with more homogenous lineages due to their more active land rentals. It has two implications for our model. First it implies that the benefits incurred at the village level decrease with the share of households in the largest lineage clan: $\frac{\partial B^v(\theta,f^v)}{\partial f^v} < 0$. Second it means that the net political gain for the head from reallocation is smaller in the more homogenous villages, that is $\frac{\partial p(\theta,f^v)}{\partial f^v} < 0$.

Thus, the decision of the village head on whether or not to hold a reallocation before election depends crucially on the village's family lineage composition. To evaluate the heterogeneities across villages in

the land reallocation decisions of village heads, we take derivative of (3) with respect to the family lineage composition and examine the following equation:

$$\frac{\partial \Delta V_1}{\partial f^v} = \frac{\partial B^v(\theta, f^v)}{\partial f^v} + \beta \frac{\partial p(\theta, f^v)}{\partial f^v}[U_2(1) - U_2(0)] \tag{4}$$

Assume that village head prefers being reelected than not ($U_2(1) > U_2(0)$), it follows straightforwardly that $\frac{\partial \Delta V_1}{\partial f^v} < 0$. That is, the heads of the villages with more households in the largest family lineage are less likely to call for a land reallocation right before a village election. The land reallocation decision can thus be considered as a function of, among other things, the family lineage composition and the exogenously imposed election timing (E), which can be expressed in a general form as

$$\pi^v = G(\theta, f^v, E) \tag{5}$$

2.2 The Household Labor Allocation Decision

Assume a representative household, initially endowed with land L_1 and total labor T, lives for two periods. In the first period, the household allocates labor between the urban labor market and the rural farming. In the second period, the household works on farm only. The share of migrant labor is denoted by m with $0 \leq m \leq 1$; and thus the labor devoted to local farming is $(1-m)T$. Let w be the prevailing wage rate in the urban labor market; then the household income from migrant labor can be written as wmL_1. Farming follows a well behaved production function and the total agricultural output in period one can be written as: $Q_1 = f(L_1, (1-m)T)$, where the partial derivatives with respect to the first and the second argument has such features that $f_1 > 0;\ f_2 > 0;\ f_{11} < 0; f_{22} < 0$; and $f_{12} > 0$.

The household's initially endowed land is subject to reallocation by their village heads. However the reallocation decision is not known until the second period, which creates uncertainties when the

household allocate labor in the first period. Their labor allocation decision is based on, among other things, their perceived land tenure security. Let $\widehat{\pi^v}$ denote the perceived probability that the village will have a significant land reallocation in period two; and s be the perceived share of land that would be negatively affected if the reallocation happens. Significant village land reallocation is determined by the village head according to the model previous discussed; and it is independent of individual household's labor allocation ($\frac{\partial \widehat{\pi^v}}{\partial m} = 0$). But we assume that the perceived share of land that is negatively affected in a reallocation (s) is positively related to the labor devoted to the urban sector at the first period ($\frac{\partial s}{\partial mT} > 0$). We also assume that the share is related to household's technology parameter . The technology parameter captures agricultural productivity that is observable to the village head but not to econometricians. Since village heads care about efficiency and may be less likely to take land away from farmers with high agricultural productivity thus we assume $\frac{\partial s}{\partial \delta} < 0$. In the second period, the expected amount of land can be expressed as $L_2 = [1 - \widehat{\pi^v} s(mT, \theta)]L_1$, and the agricultural output $Q_2 = f(L_2, T)$.

Let the price for agricultural produce be normalized as 1, the optimality income equation can then be written as

$$V(U) = \max_m \{f(L_1, (1-m)T) + wmT + \beta f(\left[1 - \widehat{\pi^v} s(mT, \theta)\right]L_1, T)\} \quad (6)$$

where the household chooses the optimal share of labor as migrant workers. It follows that the first order condition for a interior solution is:

$$w = f_2 + \beta f_1 \widehat{\pi^v} s_1 L_1 \quad (7)$$

This equation dictates that the optimal share of labor allocated to the urban sector is such that the discounted value of marginal product of labor on the farm over the two periods is equal to the forgone wage rate in the urban sector.

To assess how the change of the probability of village land reallocation affect household's migration decision, we can derive the following equation from equation (2) by applying the implicit function theorem:

$$\frac{dm}{d\widehat{\pi^v}} = \frac{\beta s_1 L_1 (f_{11}\widehat{\pi^v} s L_1 - f_1)}{T[\beta f_1 \pi^v s_{11} L_1 - \beta f_{11}(\widehat{\pi^v} s_1)^2 L_1 - f_{22}]} \quad (8)$$

If the marginal cost of migration (in terms of the share of land negatively affected by land reallocation) increases with migration, or $s_{11} > 0$, then $\frac{dm}{d\widehat{\pi^v}} < 0$, that is, the share of labor allocated to the urban sector decreases when the perceived probability of significant labor reallocation in the village is higher. If the cost of migration is decreasing, or $s_{11} < 0$, then the sign of $\frac{dm}{d\widehat{\pi^v}}$ is undetermined.

This model implies that how land reallocation affects individual household's labor allocation decision is an empirical question. To identify this impact, we can utilize the information embedded in equation (5), and explore the heterogeneities of village lineage composition (f^v) and its interactions with the timing of village election(E) in the empirical analysis.

3.0 Empirical Strategy

3.1 Specification and Identification

The prediction of the model is that conditional on individual heterogeneity, an increase in the probability of land reallocation in the village should decrease individual's propensity of out-migration. So the model suggests estimating an equation for migration of individual i in village j at time t denoted by M_{ijt}, which is a function of land tenure insecurity measured by the likelihood of significant land reallocation at time *t+1* in the village R_{jt+1}, characteristics of the individual (X_{ijt}), his/her household (H_{ijt}) and village (V_{jt}), province-specific year effects $D_{p\times t}$, individual fixed effects v_{ij} and village fixed

effects e_j . To allow village fixed effects impact migration growth over time, we interact e_j with a time trend *T* . With the idiosyncratic error term denoted as ε_{ijt} , the estimation equation can be written as:

$$M_{ijt} = \alpha_0 + \alpha_1 R_{jt+1} + X_{ijt}\alpha_2 + H_{ijt}\alpha_3 + V_{jt}\alpha_4 + D_{p\times t} + v_{ij} + e_j T + \varepsilon_{ijt} \quad (9)$$

Controlling for heterogeneity between individuals is likely to be important in satisfactorily explaining their migration behavior. To this end the rich information in the RCRE household and village panel data from 1995 to 2003 together with the supplementary survey data collected in 2004 is potentially very useful, and it allows us to include a large set of control variables in the regression analysis. More specifically, we include in X_{ijt} variables of individual gender, age, years of schooling. Since previous analysis shows that parents health condition affects adult children's migration decision and its impact varies with the number of siblings (Giles and Mu, 2007), in X_{ijt} we also control for whether father or mother is still alive and the number of siblings the individual has. Household characteristics such as land holding per capita, consumption per capita, working age (16-60) men and women (excluding individual *i*) as share of total household members are included in H_{ijt} . In addition, we control for the number of young women (age 19-24) and the number of young men (age 21-26) in the family, proxies for potential household demographic changes caused by marrying-out or marrying-in which may be correlated with both land reallocation risk and household member's migration decision. Among village characteristics variables V_{jt} are village population size, income per capita, land per capita, the number of village cadres, share of village cadres with high school education or above, village land gini index, and four variables capturing village election timing: if the year is one year or two years before the regularly scheduled election, and if the year is one year or two years after.

With this large set of control variables, we still can't rule out that individual unobservable traits, such as individual's agricultural productivity and risk aversion, can affect both their migration decision

and their exposure to land reallocation risk. Given the specification in equation (9), a sensible way of controlling for individual fixed effects is to take a differencing. The model can be written as:

$$\Delta M_{ijt} = \beta_1 \Delta R_{jt+1} + \Delta X_{ijt}\beta_2 + \Delta H_{ijt}\beta_3 + \Delta V_{jt}\beta_4 + \Delta D_{p\times t} + e_j + \Delta\varepsilon_{ijt} \quad (10)$$

Any effect of land tenure insecurity is now identified from variation in individual migration decisions over time. Note that village fixed effects e_j such as historical migration network, geographic location and past migration regulations are explicitly allowed to affect migration *change* over time. Moreover, we still incorporate in equation (10) variables on individual gender and years of schooling since they are likely to affect changes in individual's migration decision even though these variables are time invariant.

The identification in equation (10) eliminates any fixed determinants of migration. However, time-varying determinants of migration that can be correlated with changes in land tenure security still need to be accounted for. For example, local economic shocks may change individual migration decisions, and so may demographic changes in the village. Both of these time varying factors can also affect the occurrence and the scope of land reallocation in the village, thus biasing the estimate of β_1.

To obtain consistent estimates of the effect of land tenure security in equation (10), we consequently construct instruments for the change in village land reallocation that are not direct determinants of changes in individual's migration. For this purpose, we exploit the interaction of two variations at the village level to help identifying the impacts of significant land reallocation in the village. The first variations are in the timing of the village election (E_{jt}), and the second are the differences in the family lineage compositions across villages (F_{j0}). With these two components and their interactions, the occurrence of land reallocation at time *t* can be characterized by the following expression

$$R_{jt+1} = G(E_{jt}) + \gamma F_{j0} + F_{j0} \times G(E_{jt}) \quad (11)$$

The rational for using information of E_{jt} in identifying the timing of land reallocation starts with the fact that by law the villagers' committees, the primary self-governance organization in rural villages, has legal authority over reallocation of the land in the village.[8] The selection procedure of the chair of villager committees, also known as the village head, has undergone stages of reforms, but by 1998, ten years after the enactment of a provisional law on the election of villagers' committees, many villages across China started to elect their village head through popular vote.[9] Previous studies have shown that village elections seem to affect both the frequencies and the scales of land reallocations.[10] Our data point to a clear correlation between the timing of village election and the timing of significant land reallocation in the village. As shown in Figure 1, land reallocations most likely to occur around years of village election. In particular, most of reallocations happen in one year before an election, one year after an election or in the election year.

One important feature of the timing of village election is that it is largely exogenously determined at the county level, or occasionally at the township level, by the "leading group of village elections".[11] The leading group at the county level is the most important agent in planning, organizing and supervising elections in the villages under their administration, and in some provinces the leading

[8] Article 5 of the the Organic Law of Villagers' Committees enacted in 1998 stipulates, "The villagers committee shall, in accordance with the provisions of laws, administer the affairs concerning the land and other property owned collectively by the peasants of the village."

[9] The 1987 provisional Organic Law of Villagers' Committee mandated that all villages conduct elections to select village committee members. The provisional law took effect in 1988 and was implemented in a decentralized and experimental manner. By 1993, 22 provinces had formulated procedures of implementing the provisional Organic Law in village elections (CRLSRT, 2000). In 1998 the Organic Law was further amended and formally took effect. Based on the revised Organic Law, provinces updated their procedures of implementations of the law.

[10] For example, Brandt, Rozelle and Turner (2004) find that contested election in the year of land reallocation or the year prior to the land reallocation shorten the duration between two land reallocations, and it also reduces the size of the reallocation. Deininger and Jin (2009) shows that after the passing of Rural Land Contracting Law in 2003 illegal land reallocation (land reallocation without ratification from villagers' assembly and permissions from township and county government) has been much less frequent in villages where both their village head and communist party secretary are elected.

[11] See the appendix table on related regulations of the four provinces (Anhui, Henan, Jiangsu and Shanxi) on the organizational structure and the timing of village elections.

group at the township level is charged with the same responsibility (CRLSRT 2000).[12] One of the major responsibilities of the leading groups is to educate villagers about the protocols of elections and encourage voter turnout. For this purpose, they often launch a county wide (or township wide) information campaign before each election. Consequently, the timing of village elections, in terms of election year, is fairly uniform within one county (Zhang et al. 2004), although the timing of election varies within a province (Table 3) and even more so across regions (O'Brien and Li, 2000).[13]

Even though election years, specified by county or township leading groups, are generally exogenous to the characteristics of each village, we can't rule out the possibility that some specific village elections may be initiated by endogenous leader turnovers. Therefore, we screen out the elections occurred right after a resignation or a firing of a village head. The timing of the resulting "regularly scheduled elections" should reflect only the stipulation of the county or township election leading groups, but with potential measurement errors.

Measurement errors in election years are inevitable for two reasons. First, the election information is collected retrospectively, thus is prone to recall errors. Second, in many counties elections are scheduled around the Chinese New Year in order to encourage turnouts of migrants who always come back to their home villages to visit families during the time (Tang, 2004). Some survey respondents' use of lunar calendar[14] and others' of western calendar in their reporting can create measurement errors and generate seemingly within-county variations in the data on election years (Mu and Zhang, 2010). Measurement errors in election timing imply that we need to allow flexibility in specifying how the timing of election is related to the timing of significant land reallocation. We

[12] The leading group at the county or township level is composed of multiple county or township officials, often from different agencies such as the bureau of civil affairs, the department of public relations, the bureau of public security etc.

[13] The exact date of election can vary across villages within a county because an election committee at the village level has the right to decide on its voting date and place (see the related documents in the appendix table).

[14] Chinese New Year is based on lunar calendar, and it always comes after the western New Year by up to two months.

therefore use four variables – if the year is one year before, two years before, one year after or two years after the regularly scheduled election – to predict the timing of land reallocation:

$$G(E_{jt}) = G(v_1 OneYearBefore_{jt} + v_2 TwoYearsBefore_{jt} + v_3 OneYearAfter_{jt} + v_4 TwoYearsAfter_{jt}) \quad (12)$$

Composition of family lineage (F_{j0}), the second component in (11), has long been regarded as the most important determinant of informal institutions in rural China. People belonging to the same lineage have shared patrilineal descent and maintain close social ties, therefore family lineage can substitute for formal institution in solving information and enforcement problems to mitigate social conflicts and improve local governance (Xu and Yao, 2009). Tsai (2007) also argues that villages with more homogenous family lineages generally enjoy better provisions of public goods. In our data, the relation between homogeneity of family lineage and incidence of village land reallocation is clearly negative – the more homogenous a village is with regard to patrilineal clan composition in the initial year of 1995, the less likely it would have a significant land reallocation during 1995-2003 (Figure 2).

This negative correlation can possibly be explained by two distinct features from which more homogenous villages differ from less homogenous ones. First, mutual trust between villagers built through common family lineage may facilitate land rental transactions and ease the need for land reallocation. To provide evidence for this, albeit indirect, we turn to data on measures of conflicts within villages as well as land rental activities. Figure 3 shows that both the number of civil disputes and the number of criminal decreases with the share of households in the largest family lineage.[15] Moreover, disputes over land are far less likely to the major cause for conflicts among villagers in villages with large family lineages, but they are often the most important source of conflict in villages without (Figure 4). The data on the share of households engaged in rental activities confirms that land rental activities are

[15] Xu and Yao (2009) reports that if villages whose elected head is from the largest family lineage have less civil disputes and crime cases than those otherwise.

much less frequent in villages without major family lineage clans (Figure 4). With a relatively active land market, villages with large family lineages may rely less on reallocation to improve the match between labor and land, therefore on average land reallocation is less frequent in such villages as shown in Figure 1. Second, if village leaders use land reallocation as a rent-seeking tool, then villages with large family lineage may have less reallocation because leaders are better monitored in such villages (Xu and Yao, 2009; Tsai 2007). Consistent with the monitoring argument, we find that villagers' representative assembly [16] tend to play a much more important role in the decision makings of villages with large family clans than in those without. In particular as shown in Figure 5, with more households in the largest family lineage, villagers' representative assembly are more likely to be authorized to examine village financial record and also more likely to report ever changing the decisions of the party committee or the villagers committee. The more democratic feature of villages with large lineage clan can also be seen in their village elections. As shown in Figure 6, such villages tend to have more candidates and candidates are more likely to make public speech during their election campaign.

If both more rentals and better monitoring in villages with large family lineages reduce the average incidence of land reallocation in these villages, the relation of the two timings – the timing of election and the timing of land reallocation – may also show different patterns in such villages and those without large family lineages. This is what we observe in Figure 7 when we stratify the sample into two groups by whether 60% or more households are in the largest lineage clan. The homogenous villages have far less incidence of land reallocation before or during the election years. Their land reallocations

[16] Villagers' assembly by law supervise the work of villagers committee (see article 18 of the 1998 Organic Law of the Villagers Committees) and can be convened with a simple majority participation of the villagers at or above the age of 18 or with the participation of the representatives from at least two-thirds of the households in the village. As a form of direct democracy, villagers' assembly however is unyielding especially in villages with a large population. In practice, majority of villages (93% in our sample) adopt a more manageable representative system and have villagers' representative assembly instead. The real power of villagers' (representative) assembly is however questionable, given its infrequent meetings and its tendency to be controlled by the village cadres (Oi and Rozelle, 2000).

even though less frequent over all, tend to be more concentrated and are likely to be in one year or two years after an election.

Even though we have shown that both the timing of election and the composition of family lineage are be correlated with incidence of village reallocation of land, we can't rule out that they may also affect villager's migration decision. For example, there might be less out migration in the election year or the year before if villagers want to be present for election campaign and voting.[17] Family lineage may also affect migration, through social network effect for example. Accounting for these concerns, we include $G(E_{jt})$ and F_{j0} in equation (9) (as well as in the differencing specification of equation (10)).

The distinctive pattern of the timing of land reallocation in relative to the timing of election (Figure 7) alone is used for our identification purpose, which can approximately represented by the interaction component ($F_{j0} \times G(E_{jt})$) in equation (11). Given the modifications in equation (12), the instrument variables hence take the form of four interaction terms: the village initial composition of patrilineal clan interacted with the four variables denoting election timing in equation (12). We expect that around election time, villages with less family lineage groups are less likely to have significant land reallocation than those with more. This approach essentially exploits the institutional complementarity between election and lineage composition in the timing of land reallocation and it assumes that their joint effect is independent of $\Delta\varepsilon_{ijt}$ in equation (10). We will test this assumption by checking the robustness of the estimations to the inclusion of various sets of variables.

4.0 Results

4.1 Land Reallocation and Migration Decisions: OLS and First-Differenced Results

- OLS and F-D Models suggest a negative relationship between village-wide land reallocation and migration.

[17] If absent at the time of voting, a villager can entrust a family member or others to cast the ballot.

- Direct correlation between election timing and migration decision

4.2 Size of Village Patrilineal Clan Interacted with Election Timing: The First Stage

- Figure 8 suggests that election timing has a more significant effect on land reallocation when a smaller share of households in the village are members of the largest patrilineal clan.
- Table 6: Interaction of share of households in largest patrilineal clan and years before or two years after a regularly scheduled election has a negative association with change in incidence of a village-wide land reallocation.
- Discussion of logic of one before/two years after interaction.

4.3 Land Reallocation and Migration: Instrumental Variable Estimates

- A village-wide land reallocation is associated with a 2.1 to 2.5 percent reduction in probability of migrating
- This is economically significant as the unconditional migration probability was 20 percent and 10 percent for 25 year old men and women, respectively, in 1998; and 40 percent and 30 percent, respectively in 2002.

4.4 Robustness Checks

- Include household level measures of land reallocation.
- Zero effect of household level land reallocation on migration, but this is expected as households jointly determine both migration and exposure
- Larger magnitude of negative effect of village level reallocation risk on migration decision once controlling for effect of household level reallocation.

4.5 Heterogeneities in Impacts of Land Tenure Insecurity on Migration

- Increasing probability of village-wide land reallocation has a stronger negative effect on migration of
    - men,
    - the young (aged 16 to 30), and
    - individuals with eight or more years of schooling

5 Conclusions

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Table 1. Frequencies of significant land reallocations and share of households affected (1995-2003)

	All	1995	1996	1997	1998	1999	2000	2001	2002	2003
Panel A: Frequencies of significant village land reallocations										
All	0.188	0.273	0.109	0.073	0.327	0.200	0.200	0.182	0.164	0.164
Anhui	0.167	0.556	0.222	0.000	0.056	0.167	0.222	0.111	0.056	0.111
Henan	0.181	0.188	0.000	0.063	0.438	0.188	0.250	0.250	0.125	0.125
Jiangsu	0.343	0.182	0.182	0.273	0.818	0.273	0.182	0.364	0.545	0.273
Shanxi	0.067	0.000	0.000	0.000	0.100	0.200	0.000	0.000	0.000	0.200
Number of villages	55	55	55	55	55	55	55	55	55	55
Panel B: Share of households affected in significant village land reallocations										
All	0.321	0.557	0.313	0.187	0.654	0.271	0.127	0.231	0.233	0.219
Anhui	0.319	0.648	0.472	0.000	0.676	0.348	0.110	0.121	0.276	0.180
Henan	0.282	0.596	0.000	0.478	0.798	0.282	0.101	0.293	0.224	0.125
Jiangsu	0.358	0.010	0.070	0.092	0.522	0.037	0.336	0.219	0.232	0.245
Shanxi	0.349	0.000	0.000	0.000	0.808	0.474	0.000	0.000	0.000	0.279
Number of households	1858	799	291	273	947	722	796	536	520	581

Table 2. Land reallocation and other land rights

	No Significant Village Land Reallocation during 1995-2003			Had Significant Village Land Reallocation during 1995-2003		
	1993	1998	2003	1993	1998	2003
A household can transfer land to other relatives.	1	1	1	0.860	0.932	0.953
If you transfer land to other relatives, you are more likely to lose land in the reallocation.	0	0	0	0.054	0.050	0.050
A household can transfer land to unrelated parties.	0.889	0.889	0.900	0.829	0.886	0.907
If you transfer land to unrelated parties, you are more likely to lose land in the reallocation.	0	0	0	0.054	0.050	0.050
Number of villages		11			44	

Table 3. Share of Villages with a Regularly Scheduled Election

	All	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**
All	0.154	0.145	0.145	0.182	0.182	0.182	0.091	0.182	0.182
Anhui	0.123	0.111	0.111	0.222	0.056	0.278	0.056	0.167	0.111
Henan	0.139	0.125	0.125	0.125	0.125	0.25	0.063	0.125	0.25
Jiangsu	0.222	0.273	0.182	0.091	0.455	0.091	0.182	0.364	0.182
Shanxi	0.156	0.1	0.2	0.3	0.2	0	0.1	0.1	0.2
Number of villages	55	55	55	55	55	55	55	55	55

Figure 1. Migration rate by age and gender (1995-2003)

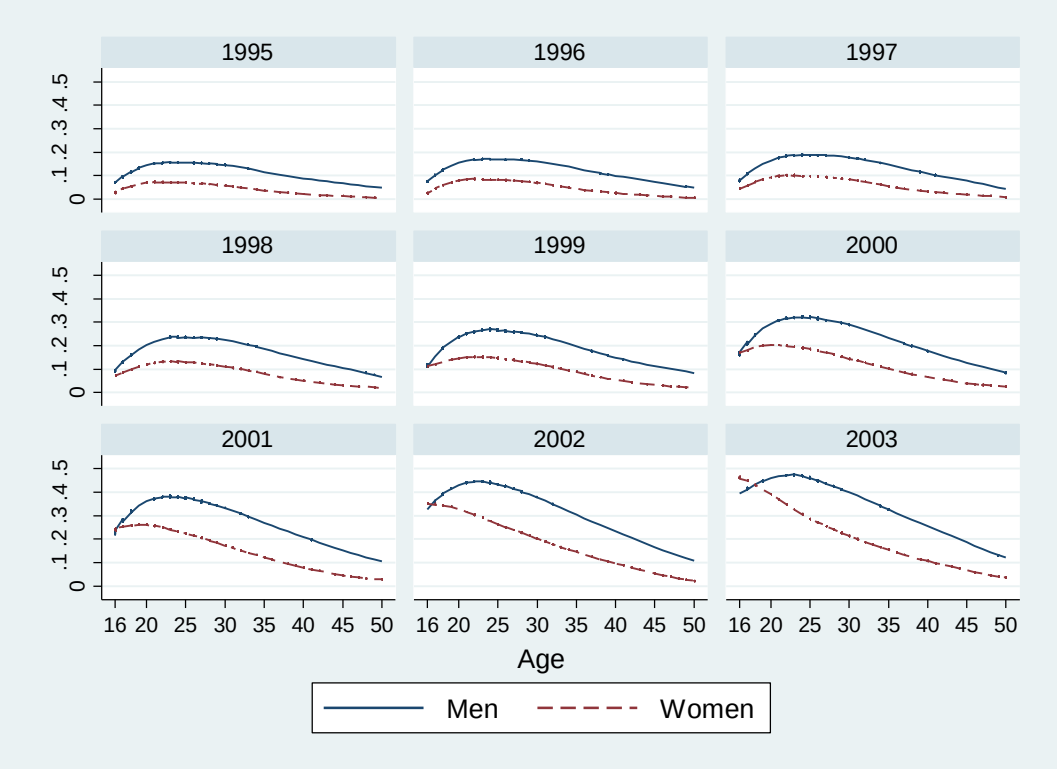

Figure 2. Timing of election and timing of significant land reallocation in the total sample

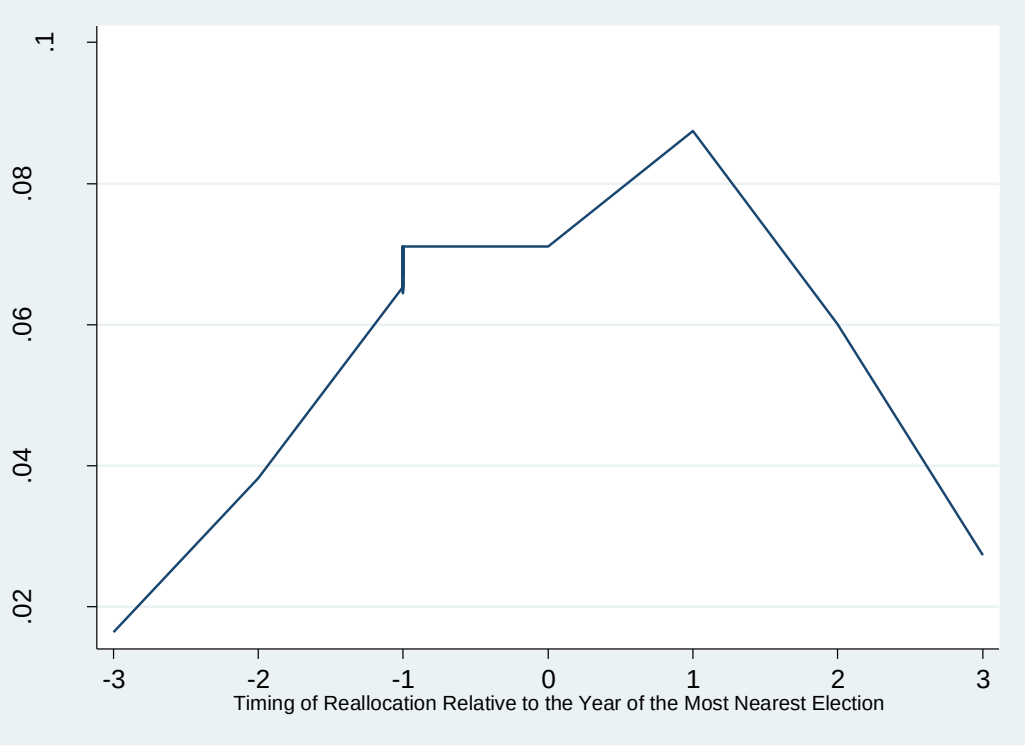

Figure 3. Composition of Family Lineages (1995) and Probablity of Significant Land Reallcoation in the Village (1995-2003)

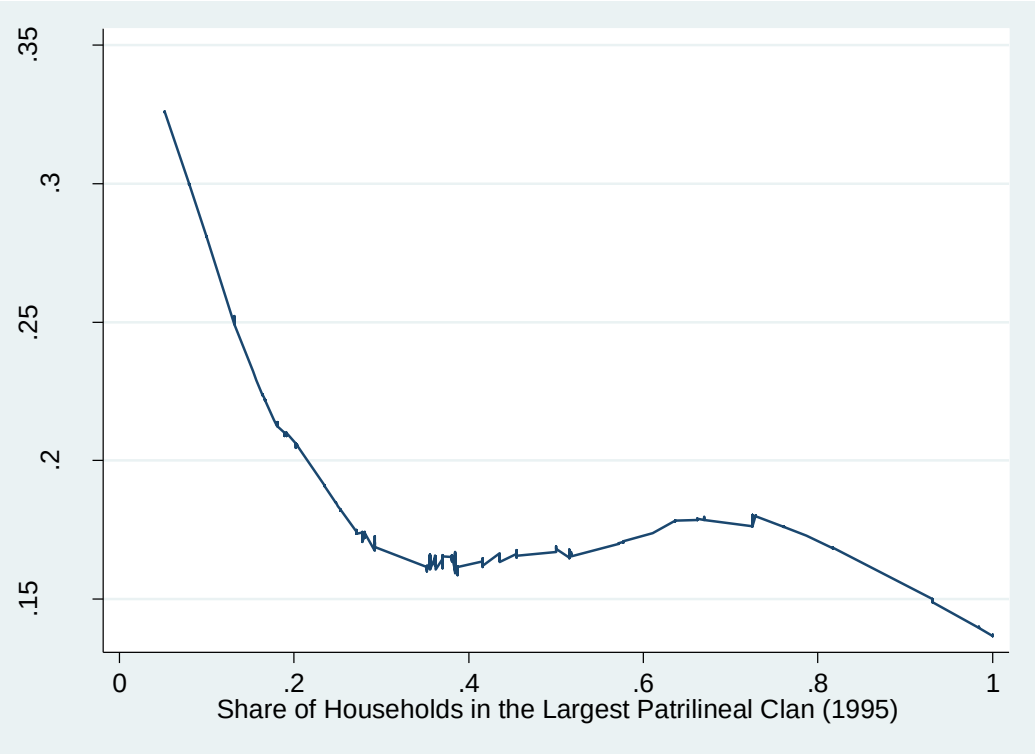

Figure 4. Composition of Family Lineages (1995) and the Number of Disputes (2003)

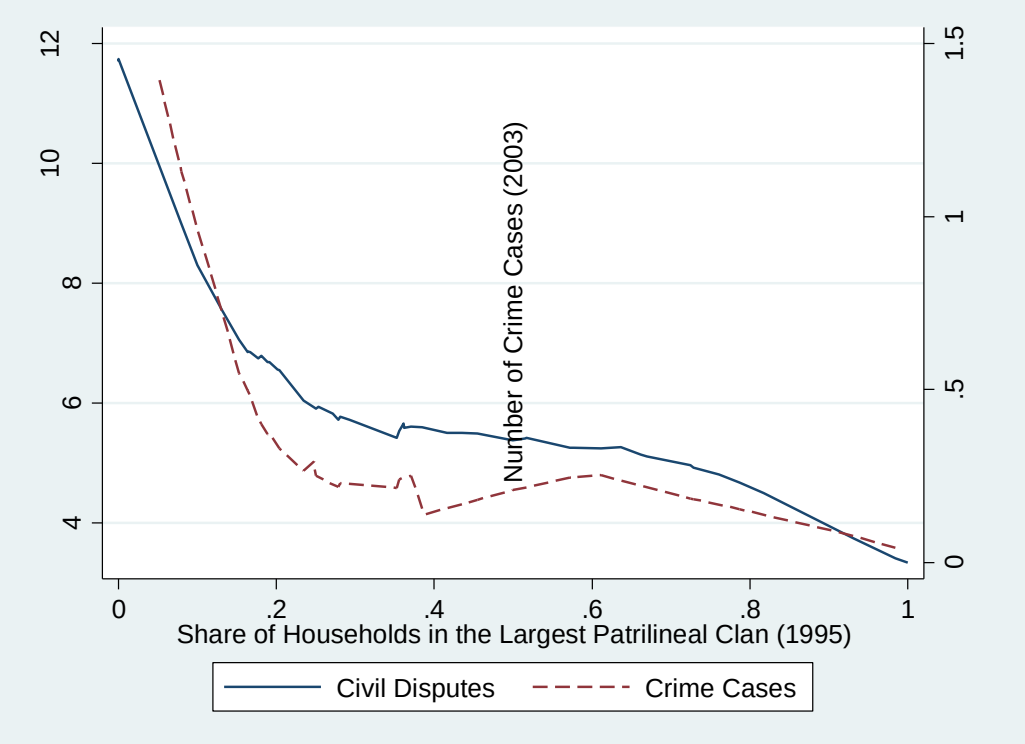
12
10
8
6
4
1.5
1
.5
0
Number of Crime Cases (2003)
0
.2
.4
.6
.8
1
Share of Households in the Largest Patrilineal Clan (1995)
Civil Disputes
Crime Cases

Figure 5. Composition of Family Lineages (1995), Dispute over Land as the Most Important Source of Conflict (2003) , and Land Rental (2003)

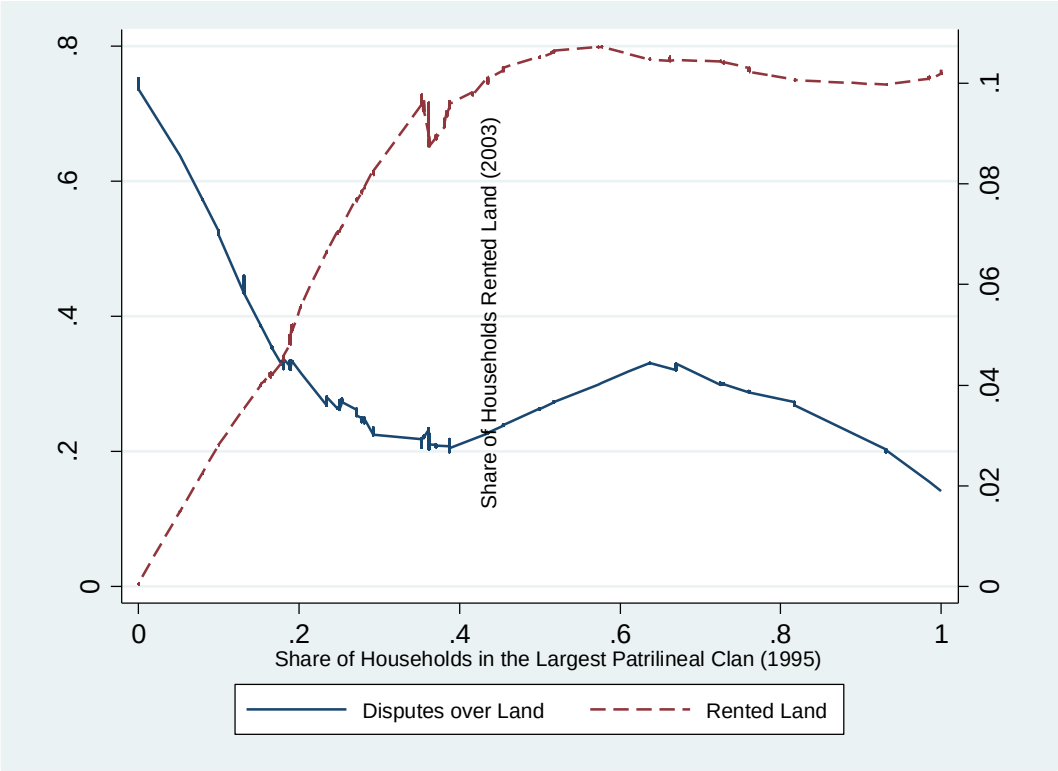

Figure 6. Composition of Family Lineages (1995) and the Role of Villagers' Representative Assembly

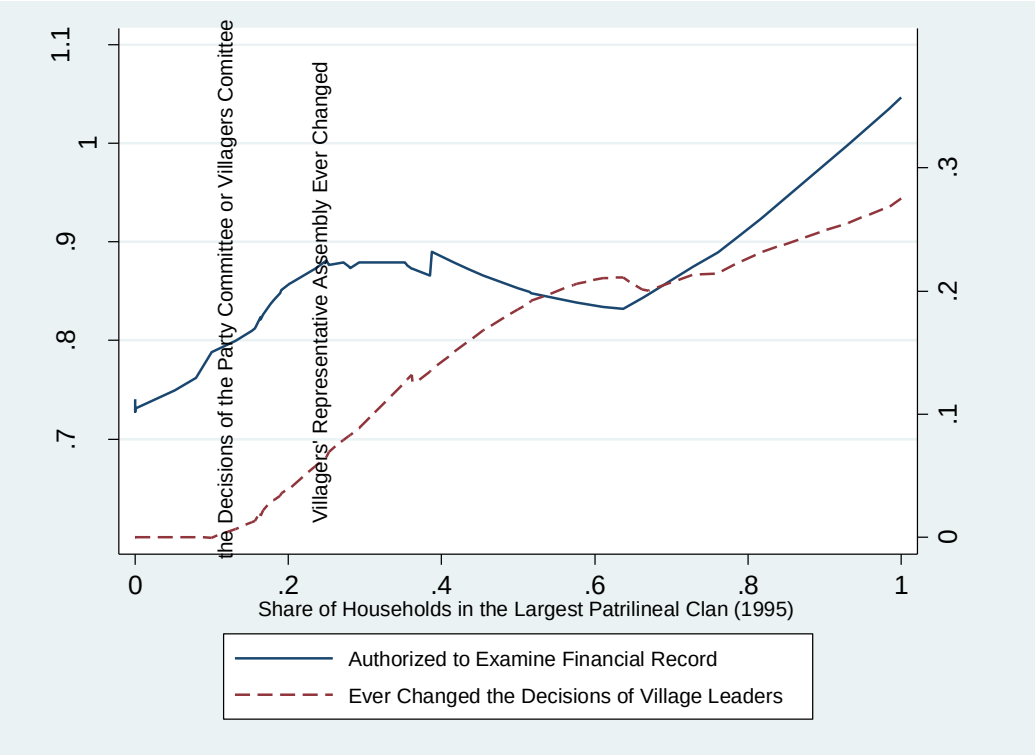

Figure 7. Composition of Family Lineages (1995) and Characteristics of the Most Recent Election

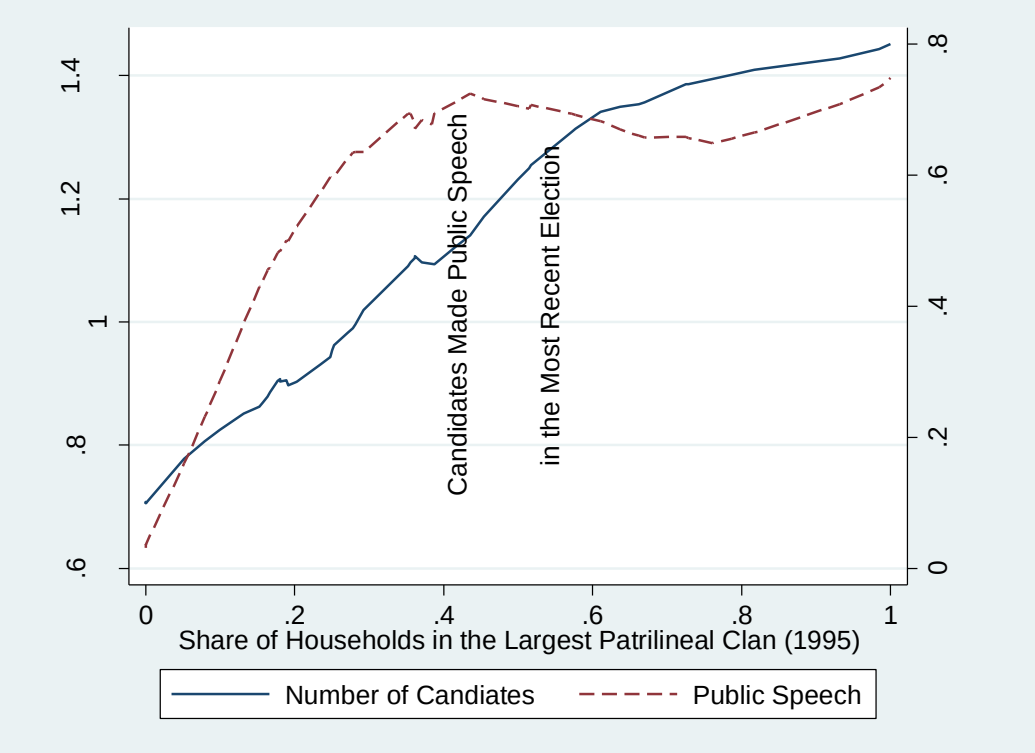
.6
.8
1
1.2
1.4
0
.2
.4
.6
.8
0
.2
.4
.6
.8
1
Share of Households in the Largest Patrilineal Clan (1995)
Candidates Made Public Speech
in the Most Recent Election
Number of Candiates
Public Speech

Figure 8. Timing of election and timing of significant land reallocation by family lineage composition

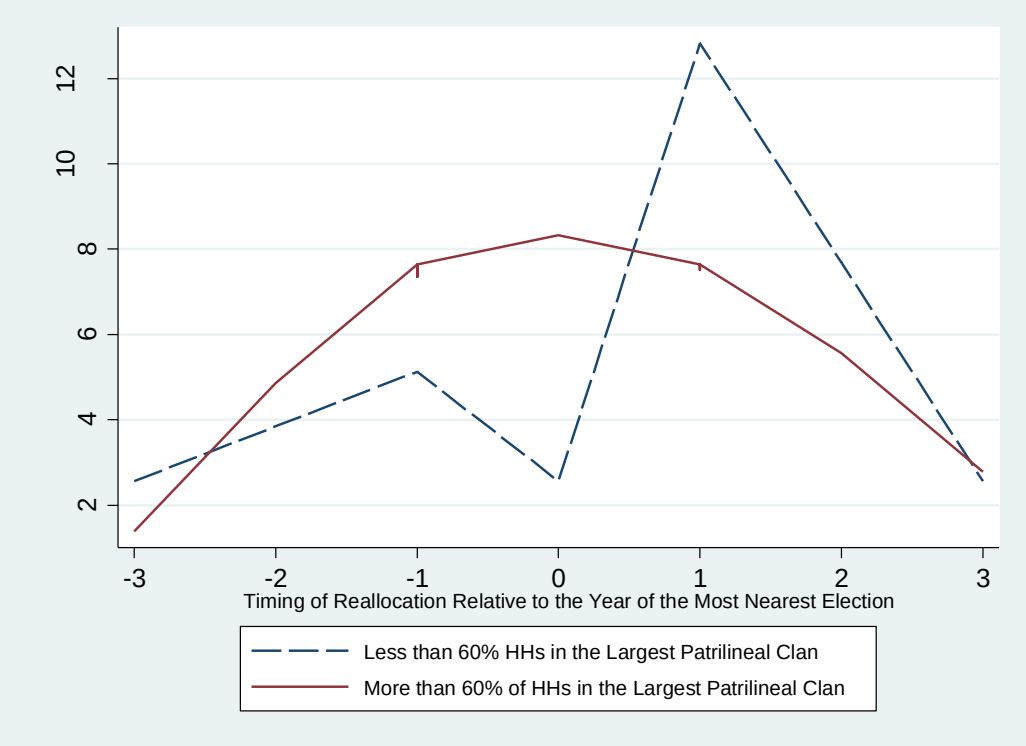

Table 4. Share of labor (age 16-50) who migrated for work outside the home county (1995-2002)

	All	1995	1996	1997	1998	1999	2000	2001	2002
All	0.158	0.088	0.098	0.110	0.144	0.155	0.182	0.219	0.265
Men	0.204	0.121	0.134	0.146	0.188	0.202	0.232	0.28	0.332
Women	0.110	0.052	0.06	0.072	0.097	0.106	0.132	0.159	0.197
Age 16-29	0.203	0.114	0.126	0.142	0.179	0.200	0.237	0.292	0.353
Age 30-50	0.107	0.058	0.065	0.070	0.100	0.103	0.121	0.146	0.180
Less than 8 years of schooling	0.100	0.054	0.06	0.068	0.094	0.100	0.116	0.144	0.180
Eight or more years of schooling	0.200	0.118	0.129	0.142	0.181	0.193	0.229	0.268	0.319
A member of the largest patrilineal clan in village	0.159	0.085	0.105	0.116	0.140	0.173	0.172	0.208	0.263
Not a member of the largest patrilineal clan in village	0.157	0.089	0.096	0.108	0.145	0.148	0.186	0.223	0.266
With young women (age 19-24) or men (age 21-26) in household	0.163	0.105	0.108	0.115	0.155	0.16	0.184	0.214	0.261
Without young women or men in household	0.153	0.075	0.091	0.105	0.134	0.15	0.181	0.223	0.268
Obs.	56342	6705	7138	7395	6650	7444	7072	6843	7095

Table 5. Village Land Reallocation and Migration: Results from Ordinary Least Square and First Differencing Estimations

	OLS	FD
Land Reallocation in the Village	-0.015***	-0.004*
	(0.006)	(0.002)
Male	0.088***	0.013***
	(0.013)	(0.002)
Age	0.018***	-0.009***
	(0.004)	(0.001)
Age-sq	-0.000***	0.000***
	(0.000)	(0.000)
Years of schooling	0.013***	
	(0.003)	
Father being alive	0.027***	0.001
	(0.010)	(0.006)
Mother being alive	-0.004	-0.001
	(0.010)	(0.007)
Number of siblings	-0.009***	-0.002
	(0.002)	(0.004)
Land per capita (log)	0.003	0.001
	(0.008)	(0.003)
Consumption per capita (log)	-0.002	0.002
	(0.008)	(0.003)
Working age female (age 16-60) as share of household size	0.059***	-0.016*
	(0.014)	(0.008)
Working age male (age 16-60) as share of household size	0.049***	-0.022***
	(0.015)	(0.007)
Number of young women (19-24)	0.006	0.001
	(0.005)	(0.002)
Number of young men (21-26)	0.001	0.001
	(0.006)	(0.002)
Village population size (log)	-0.057	0.049***
	(0.049)	(0.018)
Village income per capita (log)	-0.001	-0.004
	(0.010)	(0.006)
Village land per capita (log)	0.059**	-0.001
	(0.028)	(0.008)
Number of village cadres	0.001	0.001*
	(0.002)	(0.001)
Share of village cadres with high school education or above	0.026	0.015
	(0.027)	(0.015)

Village land Gini Index	0.144**	0.017
	(0.071)	(0.031)
One year before regularly scheduled election	-0.003	0.001
	(0.006)	(0.002)
		0.003
Two years before regularly scheduled election	-0.001	(0.002)
	(0.007)	0.001
One year after regularly scheduled election	0.018***	(0.002)
	(0.006)	0.004*
Two years after regularly scheduled election	0.020***	(0.002)
	(0.005)	0.001
_cons	0.043	0.182***
	(0.366)	(0.019)
Number of observations	56,342	44,576
Adjusted R2	0.087	0.011

Note: Village clustered robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Village fixed effects, interactions of province and year effects are included but not reported.

Table 6. Village Land Reallocation and Migration: Results from Instrument Variables Estimation

	IV1		IV2	
	First Stage	Second Stage	First Stage	Second Stage
ΔVillage wide land reallocation (t+1)		-0.021**		-0.024**
		(0.009)		(0.010)
Male	-0.001	0.013***	-0.001	0.013***
	(0.001)	(0.002)	(0.001)	(0.002)
Age	0.001	-0.009***	0.003	-0.009***
	(0.002)	(0.001)	(0.002)	(0.001)
Age-sq	-0.000	0.000***	-0.000	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
ΔFather being alive	0.014	0.001	0.014	0.001
	(0.016)	(0.005)	(0.016)	(0.005)
ΔMother being alive	0.025	-0.001	0.026	-0.001
	(0.023)	(0.007)	(0.026)	(0.007)
ΔNumber of siblings	0.003	-0.003	0.004	-0.003
	(0.016)	(0.004)	(0.016)	(0.004)
ΔLand per capita (log)	-0.012	0.001	-0.013	0.001
	(0.023)	(0.003)	(0.023)	(0.003)
ΔConsumption per capita (log)	0.012	0.003	0.012	0.003
	(0.022)	(0.003)	(0.022)	(0.003)
ΔWorking age female (age 16-60) as share of household size	-0.027	-0.017**	-0.031	-0.017**
	(0.033)	(0.008)	(0.032)	(0.008)
ΔWorking age male (age 16-60) as share of household size	-0.001	-0.021***	0.002	-0.021***
	(0.027)	(0.007)	(0.028)	(0.007)
ΔNumber of young women (19-24)	0.004	0.001	0.003	0.001
	(0.009)	(0.002)	(0.010)	(0.002)
ΔNumber of young men (21-26)	-0.005	0.001	-0.004	0.001
	(0.012)	(0.002)	(0.013)	(0.002)
ΔVillage population size (log)	0.029	0.043***	0.036	0.043***
	(0.206)	(0.016)	(0.208)	(0.017)
ΔVillage income per capita (log)	-0.253**	-0.006	-0.264**	-0.007
	(0.104)	(0.006)	(0.105)	(0.006)
ΔVillage land per capita (log)	0.617***	0.010	0.605***	0.011
	(0.216)	(0.008)	(0.207)	(0.008)
ΔNumber of village cadres	-0.028	0.001	-0.030	0.001
	(0.021)	(0.001)	(0.021)	(0.001)
ΔShare of village cadres with high school education or above	-0.020	0.017	-0.008	0.017
	(0.345)	(0.014)	(0.333)	(0.014)

ΔVillage land Gini Index	0.172	0.026	0.173	0.027
	(0.718)	(0.030)	(0.729)	(0.030)
ΔOne year before regularly scheduled election	-0.147**	-0.004	-0.134**	-0.004
	(0.063)	(0.003)	(0.063)	(0.003)
ΔTwo years before regularly scheduled election	-0.157	0.001	-0.110	0.000
	(0.108)	(0.003)	(0.075)	(0.003)
ΔOne year after regularly scheduled election	-0.124	0.003	-0.049	0.003
	(0.119)	(0.003)	(0.071)	(0.003)
ΔTwo years after regularly scheduled election	0.003	0.003	0.043	0.003
	(0.078)	(0.003)	(0.079)	(0.003)
Share of households in the largest patrilineal clan × two years before regularly scheduled election	-0.341		-0.303*	
	(0.216)		(0.183)	
Share of households in the largest patrilineal clan × one year before regularly scheduled election	-0.768***		-0.754***	
	(0.277)		(0.264)	
Share of households in the largest patrilineal clan × one year after regularly scheduled election	0.190			
	(0.217)			
Share of households in the largest patrilineal clan × two years after regularly scheduled election	0.267		-0.769***	
	(0.255)		(0.254)	
Observations	44576		44576	
F test on excluded instruments	2.726		4.763	
Prob > F	0.0386		0.0124	
Angrist-Pischke multivariate F test	2.726		4.763	
Prob > F	0.0386		0.0124	
Under identification: Kleibergen-Paap rk LM statistic	6.688		6.494	
Chi-sq(2) P-val	0.153		0.0389	
Over identification: Hansen J statistic	0.991		0.116	
Chi-sq(1) P-val	0.803		0.734	
Weak identification: Cragg-Donald Wald F statistic	463.7		803.3	

Note: Village clustered robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Village fixed effects, interactions of province and year effects are included but not reported.

Table 7. Robustness Checks with Different Specifications on the Household Demographic Variables

	(1)	(2)
Δ Land Reallocation in the Village (t+1)	-0.024**	-0.022***
	(0.010)	(0.008)
Male	0.013***	0.017***
	(0.002)	(0.003)
Age	-0.009***	-0.010***
	(0.001)	(0.001)
Age-sq	0.000***	0.000***
	(0.000)	(0.000)
Δ Father being alive		0.061
		(0.071)
Δ Mother being alive		0.049
		(0.085)
Δ Number of siblings		0.131
		(0.103)
Δ Land per capita (log)		-0.043
		(0.029)
Δ Consumption per capita (log)		0.024
		(0.025)
Δ Working age female (age 16-60) as share of household size		0.267***
		(0.072)
Δ Working age male (age 16-60) as share of household size		0.133**
		(0.056)
Δ Number of young women (19-24)		0.004
		(0.008)
Δ Number of young men (21-26)		0.011
		(0.014)
Δ Village population size (log)	0.043**	0.038*
	(0.017)	(0.020)
Δ Village income per capita (log)	-0.007	-0.007
	(0.006)	(0.007)
Δ Village land per capita (log)	0.011	0.004
	(0.008)	(0.009)
Δ Number of village cadres	0.001	0.001
	(0.001)	(0.001)
Δ Share of village cadres with high school education or above	0.016	0.033*
	(0.014)	(0.019)
Δ Village land Gini Index	0.028	0.057
	(0.031)	(0.040)

Δ One year before regularly scheduled election	-0.004	-0.008*
	(0.003)	(0.004)
Δ Two years before regularly scheduled election	0.000	-0.004
	(0.003)	(0.004)
Δ One year after regularly scheduled election	0.003	-0.001
	(0.003)	(0.004)
Δ Two years after regularly scheduled election	0.003	0.002
	(0.003)	(0.003)
Observations	44576	35284
F test on excluded instruments	4.748	1.955
Prob > F	0.0126	0.0520
Angrist-Pischke multivariate F test	4.748	5.846
Prob > F	0.0126	0.00503
Under identification: Kleibergen-Paap rk LM statistic	6.488	24.35
Chi-sq(2) P-val	0.0390	5.15e-06
Over identification: Hansen J statistic	0.0883	0.734
Chi-sq(1) P-val	0.766	0.392
Weak identification: Cragg-Donald Wald F statistic	804.6	10.94

Note: Village clustered robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Village fixed effects, interactions of province and year effects are included but not reported. Instrument variables for land reallocation in the village are share of households in the largest patrilineal clan in the village in 1995 interacted with one year before regularly scheduled village election; and share of households in the largest patrilineal clan interacted with two years after regularly scheduled village election. The household demographic variables valued at t-2 are used as instrument variables for the changes in the corresponding variables in column (2).

Table 8. Robustness Checks with Inclusions of Household Land Reallocation

	(1)	(2)	(3)
Δ Land reallocation in the village (t+1)	-0.022***		-0.030**
	(0.008)		(0.012)
Δ Household land reallocated (t+1)		0.005	0.022
		(0.021)	(0.036)
Observations	35284	35284	35284
F test on excluded instruments for village land reallocation	1.955		5.36
Prob > F	0.0520		0.000
Angrist-Pischke multivariate F test for village land reallocation	5.846		2.16
Prob > F	0.00503		0.010
F test on excluded instruments for household land reallocation		3.52	3.46
Prob > F		0.001	0.0006
Angrist-Pischke multivariate F test for household land reallocation		12.02	2.76
Prob > F		0.000	0.0511
Under identification: Kleibergen-Paap rk LM statistic	24.35	24.48	5.673
Chi-sq(2) P-val	5.15e-06	4.83e-06	0.129
Over identification: Hansen J statistic	0.734	0.0720	1.471
Chi-sq(1) P-val	0.392	0.789	0.479
Weak identification: Cragg-Donald Wald F statistic	10.94	10.45	8.654

Note: Village clustered robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Village fixed effects, interactions of province and year effects, household demographic variables and village characteristics are included but not reported. Instrument variables for land reallocation in the village are share of households in the largest patrilineal clan in the village in 1995 interacted with one year before regularly scheduled village election; and the share of households in the largest patrilineal clan interacted with two years after regularly scheduled village election. Instrument variables for household land reallocation are whether the household belongs to the largest patrlineal clan interacted with the two instrument variables for village land reallocation. The household demographic variables valued at t-2 are used as instrument variables for the changes in the corresponding variables.

Table 9. Heterogeneities in the Impacts of Land Tenure on Migration (1)

	Gender		Age Group		Education	
	Men	Women	Age 16-30	Age 30 and older	Years of schooling: < 8	Years of schooling: 8 or more
ΔLand reallocation in the village (t+1)	-0.027*	-0.015	-0.032**	-0.014	0.004	-0.036***
	(0.015)	(0.010)	(0.015)	(0.010)	(0.013)	(0.010)
Observations	17884	17400	17607	17677	15155	20129
F test on excluded instruments	2.295	1.710	2.170	1.307	1.192	1.775
Prob > F	0.0218	0.0958	0.00412	0.0078	0.319	0.00411
Angrist-Pischke multivariate F test	6.136	5.520	6.090	5.311	4.117	6.093
Prob > F	0.0040	0.00659	0.0387	0.255	0.0217	0.0818
Under identification: Kleibergen-Paap rk LM statistic	7.788	29.63	14.91	11.86	20.01	20.64
Chi-sq(2) P-val	0.0204	0.000	0.001	0.0026	4.51e-05	3.30e-05
Over identification: Hansen J statistic	1.110	0.179	0.650	1.217	1.379	0.0747
Chi-sq(1) P-val	0.292	0.673	0.420	0.270	0.240	0.785
Weak identification: Cragg-Donald Wald F statistic	1.848	8.881	7.113	5.163	9.305	2.785

Note: Village clustered robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Village fixed effects, interactions of province and year effects, household demographic variables and village characteristics are included but not reported. Instrument variables for land reallocation in the village are share of households in the largest patrilineal clan in the village in 1995 interacted with one year before regularly scheduled village election; and the share of households in the largest patrilineal clan interacted with two years after regularly scheduled village election. The household demographic variables valued at t-2 are used as instrument variables for the changes in the corresponding variables.

Table 10. Heterogeneities in the Impacts of Land Tenure on Migration (2)

	Risk of Land Reallocation 1		Risk of Land Reallocation 2	
	Household with young men (age 21-26) or women (age 19-24)	Household without young men (age 21-26) and women (age 19-24)	Member of the largest patrilineal clan	Not a member of the largest patrilineal clan
ΔLand reallocation in the village (t+1)	-0.021	-0.024**	-0.054	-0.026*
	(0.018)	(0.010)	(0.045)	(0.014)
Observations	16211	19073	9565	25719
F test on excluded instruments	2.851	2.033	1.169	1.222
Prob > F	0.0127	0.0428	0.335	0.00764
Angrist-Pischke multivariate F test	4.739	6.497	0.994	5.342
Prob > F	0.00515	0.00296	0.378	0.296
Under identification: Kleibergen-Paap rk LM statistic	18.14	13.20	17.36	21.86
Chi-sq(2) P-val	0.000115	0.00136	0.000170	1.79e-05
Over identification: Hansen J statistic	0.555	0.415	0.827	0.218
Chi-sq(1) P-val	0.456	0.519	0.363	0.641
Weak identification: Cragg-Donald Wald F statistic	5.515	3.505	3.567	7.236

Appendix: Regulations Related to the Organizational Structure and the Timing of Village Election: Anhui, Henan, Jiangsu, and Shanxi

Province	Document Name	The Organization Structure of Village Election	
		Leading Group for Village Elections	Villagers' Election Committee
Anhui	"Procedures of Anhui Province on the Elections of Villagers' Committee" (January 27, 1999) (This document replaces the 1992 "Regulations of Anhui Province on the Implementation of the (Temporary) Organic Law of Villagers' Committee of People's Republic of China")	Article 7. Counties, townships, ethnic minority townships should establish a leading group to supervise elections in their administrative district……. Leading groups are charged with the task of planning village elections. They are also responsible for implementing the working plan and organizing elections.	Article 8. Each village shall establish a villagers' election committee. Article 9.2 Villagers' election committee shall determine and announce the exact time, date and place of the election.
Henan	"Temporary Procedures of Henan Province on the Elections of Villagers' Committee" (March 22, 1998) (This document replaces the 1992 "Regulations of Henan Province on the Implementation of the (Temporary) Organic Law of Villagers' Committee of People's Republic of China")	Article 5. County and township governments are responsible for organizing village elections. The leading groups (of village elections) in various governments shall be hosted in the bureau of civil affairs. The bureau of civil affairs is responsible for the overall work of village elections.	Article 6. Each village shall establish a villagers' election committee…….Villagers' election committee is in charge of voter registration, checking voter eligibility, announcing names of voters, organizing the recommendation of candidates, deciding and announcing the exact date of voting, organization of vote, and announcing the voting result.
Jiangsu	"Procedures of Jiangsu Province on the Elections of Villagers' Committee" (August 26, 2000) (This document replaces the 1992 "Some Regulations on the Elections of Villagers' Committee")	Article 6. During the time of villagers' committee election, the government of city, county and township shall establish a leading group …….The leading group shall plan, organize and guide the elections of villagers' committees…….The leading group at the county level or above shall have a branch in the bureau of civil affairs at the township level.	Article 9. Villagers' election committee (in each village) shall…announce the exact date, place and method of election.
Shanxi	Procedures of Shanxi Province in the Implementation of Organic Law of Villagers' Committee of the People's Republic of China (September 26, 1999) (This document replaces the 1991 "Procedures of Shanxi Province on Organization of Villagers' Committee".)	Article 5. The offices of civil affairs in the county or above-county governments are in charge of implementing the Organic Law of Villagers' Committee and this regulatory document. Article 14. Under the leadership of the provincial government, at the time of the election of villagers' committee, county and township shall establish leading groups, organizing and supervising elections in their administrative district.	Article 16. The main responsibilities of village election committee include: …….determining and announcing the exact time and date of election…….