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Common Property Rights and Land Reallocations in Rural China: Evidence from a Village Survey

JAMES KAI-SING KUNG*
Hong Kong University of Science and Technology, Kowloon, Hong Kong

Summary. — Despite the individualization of use rights in farming, land in rural China remains collectively owned. As villagers are entitled to an equal share of this common property resource, the latter is allegedly subject to frequent and village-wide reallocations in response to population growth—a practice that harms farmers' tenure security. The results of a village survey, however, fail to substantiate these claims. First, reallocations are on the whole infrequent and confined mainly to a partial nature, the latter of which is found to enhance farmers' perceived likelihood of farming the same plots in the future. Second, certain village characteristics, most notably land endowment and off-farm income opportunity have the favorable effect of minimizing the transaction costs of land reallocation. © 2000 Elsevier Science Ltd. All rights reserved.

Key words — Asia, China, common property, land reallocations, tenure security

1. INTRODUCTION

The demise of collective farms in China in the early 1980s has restored certain crucial elements of private farming and has resulted in impressive farm income and output growth (see, e.g., McMillan, Whalley & Zhu, 1989; Nolan, 1988; Lin, 1992). In an apparent transformation of China's farming sector peasants are no longer required to farm in teams but instead, on individually delineated plots. Their effort and material rewards have thus become much more closely linked. Despite this radical change in the organization of farm production, land ownership has not been privatized. Under what is commonly known as the Household Responsibility System (HRS), farmers are essentially assigned the *use* rights and the right to a residual *income* subject to certain tax and sales obligations. Under no circumstances can farmers alienate the land they have contracted from the village authorities, although some can farm it out on a short-term basis and appropriate a rental income in return.

Moreover, not only is land ownership separate from its use and control, the rights to use the contracted land on a continuing basis are fundamentally *attenuated* by the specific institutional arrangements determined by collective ownership.[1] In rural China, collective land ownership allows villagers the right to an equal share of arable land (dubbed the equal entitlement rights). As new members are entitled to partake in this equal sharing of land when they become part of the community (whose membership is acquired either by birth or through marriage), land reallocations are inevitable; the existing pattern is undone, followed by another round of assignment. This inherent need periodically to reassign land in response to population growth is allegedly a costly institutional arrangement both in terms of administering it and for its negative impact on farm investment.

First of all, administering land reallocations is *inherently* a costly process as it necessitates countless discussions and negotiations among village cadres and the involved households pertaining to the new land assignment exercise.[2] In particular, where village cadres and

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farm workers are already substantially involved in off-farm economic activities, the opportunity costs resulting from undertaking just such an exercise could be high.[3]

It is however the long-term, dynamic implications arising from land reallocations that worry observers the most. According to this view, the prospect of farmers losing the land they presently cultivate in the next round of land reallocation inevitably gives rise to tenure insecurity. As a corollary, there will be suboptimal land investments, the latter being an important source of long-term productivity growth.[4] Indeed, a number of analysts have attributed the slowdown in crop output growth since around the mid-1980s to this particular aspect of China's land tenure system and, accordingly, pointed to privatization as a panacea.[5]

Implicit in these views are several assumptions concerning the nature and patterns of land reallocations, although many are logical possibilities rather than substantiated empirical regularities. For example, while the majority of villages may indeed have reallocated land since adopting the HRS,[6] whether they do so in a basically mechanical fashion, such as "customarily readjusting land in a thoroughgoing manner once every five years" is far from clear.[7] Second, it is also widely held that most of the reallocations have occurred on a village-wide basis involving most, if not all, the farm families. Third, as a corollary, these readjustments will inevitably have a negative impact upon farm investments because of tenure insecurity.

Drawing upon a unique survey of 80 villages characterized by markedly different resource endowments,[8] off-farm income and other opportunities as well as constraints, this paper attempts to provide a descriptive analysis of the institutional practice of land reallocations as they were carried out in these surveyed villages.[9] By examining the actual manner in which villages of differing structural characteristics adjusted their population-to-land ratios, we hope to contribute to the (scant) literature on the nature of property rights underpinning China's land tenure system in the reform period.

Consistent with what Liu, Carter and Yao (1998) have found with respect to land allocation upon de-collectivization and the subsequent formation of property rights in these same villages, our study of land reallocation similarly reveals considerable *heterogeneity* among them. Contrary to what has been implied in the literature, however, some villages, indeed not a trifling number of them, had *never* reallocated land at the time of the survey. In addition, the majority of villages have neither frequently reallocated their land nor have the reallocations inevitably assumed a magnitude that covered the entire village. To the contrary, most of the observed reallocations are *partial* in nature, involving only households that have experienced a change in membership. Villages well endowed with land resources or with abundant off-farm income opportunities have tended to reallocate land less frequently, and involved fewer households and less land. Those villages lacking such conditions are similarly found to be adjusting land largely on a partial basis. A lower tolerance threshold may be an important reason why villagers under such seemingly unfavorable conditions are able to minimize the scale of their reallocations. Lacking either the abundant land resources or an alternative off-farm income, farmers in these villages could hardly afford to postpone adjusting land until the mismatch between land and labor becomes so acute that it has to be dealt with on a village-wide basis.

Between the two main dimensions of land reallocations, namely, frequency and magnitude, the latter is found to have a *benign* effect on future tenure security. That is to say, that farmers tend to assign a lower probability to the likelihood of losing their presently contracted plots provided that the previous reassignments which they have experienced were partial in nature. More generally, should farmers actually accept the practice of land reallocations as a means to guarantee their rights of access to land, then any uncertainty inherently involved in the process of land adjustments may arguably be *anticipated* (Kung, 1995; Kung & Liu, 1997; Liu, Carter & Yao, 1998).

The remaining paper is organized as follows. Section 2 provides a brief account of the evolution of family farming in rural China from a property rights perspective. It seeks to explain in some detail the bundle(s) of rights farmers have under the national guidelines in the post-collective period, and any observed deviations. Prior to examining the survey results of land reallocations, we briefly outline the major structural characteristics of our sample villages and set out the hypotheses to be tested in Section 3. In Section 4, the various dimensions of land reallocations, namely, the frequency,

the magnitude, and the reasons cited by the village cadres are analyzed. The observed heterogeneous outcomes with respect to the reallocation parameters are explained in terms of the differences in the surveyed villages' resource endowment, nonagricultural income opportunity and other major systemic differences. The effect of these structural characteristics on tenure security is analyzed in Section 5. Section 6 concludes the paper.

2. THE DEVOLUTION OF PROPERTY RIGHTS IN RURAL CHINA

Farmers in China have been working on an individual basis for almost two decades. Before that, however, they had to work in a team context, ever since the Chinese government commenced a process of collectivizing agricultural organization in the mid-1950s. Within the context of collectivized agriculture, the Chinese farmers were subject to cropping and marketing decisions dictated to them and also matters pertaining to the organization and management of agricultural production in general and to income distribution in particular. As collective income was shared among the farm households on largely an egalitarian basis, individual work incentives—especially of those families with an adequate supply of farm labor force—were severely constrained, leading to a lackluster agricultural performance overall (Kung, 1994).[10] From a property rights perspective, Chinese farmers on the collective farms were thus deprived of the bundle of rights; namely, control, income, and the rights to alienate the former rights that collectively make up *private* property rights.

Coinciding with the demise of Mao, the two decades of near stagnant farm output and income growth helped dismantled China's collectivized agriculture. Under what is commonly known as the Household Responsibility System, the former collective landholdings of the production team were sliced up and divided more or less equally among the member households (Kung, 1994; Liu, Carter & Yao, 1998). As soon as households began to farm on an individualized basis, the material rewards that they obtained from the well-delineated plots became intimately tied to their *separate* effort. An unambiguous result of this radical change in work organization was that work incentives were greatly enhanced, and so were farm output and income, as was demonstrably the case during the initial period of the rural reforms, circa 1979–84.[11]

Despite the individualization of property rights, land ownership remains firmly in the hands of the seemingly defunct "collectives," or the authorities that continue to manage village social and economic affairs excluding household-based production.[12] Farmers are apparently aware of such a difference (of whether the land they farm is privately owned). According to a study conducted by China's State Council, less than 3% of the 800 households being surveyed think of themselves as the *de jure* landowner; the majority see themselves as merely having use rights that have been contracted to them (Kung & Liu, 1997, p. 38). Indeed, under the HRS farmers promise to deliver a stipulated amount of grain or other crop output in the form of procurement quotas and agricultural tax in exchange for what are essentially use rights over the collectively owned land and, contingent upon this use, the right to a residual income.[13]

Even such use rights are somewhat attenuated, however, given the nature of land ownership under the HRS. As land is owned collectively, members of the village community are entitled to an equal share of this important communal resource (Kung, 1995).[14] In a subsistence-oriented village economy, land serves more than just the function of an important factor of production that generates a return to its use. Where rural markets remain to be developed, having access to land provides also a source of food security and insurance for the household in the event where it fails to obtain income from other sources. The result of this implicit, commonly shared community value among the farmers implies that new members of the village community, which can be acquired either by birth or through marriage, are naturally entitled to an equal share of this valuable resource. Thus, unless the population ceases to grow, land is basically subject to periodic reallocations, leading arguably to tenure insecurity on the part of the farm households, who fear that some, if not all, of their presently contracted plots might be redistributed away from them in the next adjustment.

To be sure, the state was acutely aware of the potential pitfall associated with the current land tenure system. To mitigate this possible insecurity, a policy was in fact implemented in 1984 stating clearly that the length of tenure on farmers' contracted plots was good for 15 years. This official provision aside, a number of

government-sponsored surveys found that the majority of villages, up to 90%, had adjusted land since the HRS was adopted, reflecting the strengths of egalitarian spirit that underpins China's otherwise highly individualized farming system (Kung, 1995; Ministry of Agriculture, 1997, 1998).[15] Such widespread and systematic "deviations" away from a national policy that advocates a *longer* tenure must therefore be appreciated within an institutional context that stresses an equal entitlement spirit for *all* in a village. Also worthy of emphasis are the tensions and tradeoffs that inherently exist between a more secure, presumably longer tenure on the one hand, and a broader insurance accruing to an equal entitlement rule on the other.[16] Despite this attenuating feature, farm families in post-reform rural China by and large enjoy land use rights, which include the rights to decide on crop selections and marketing subject to the constraints of crop quotas and other collective obligations.[17]

With regard to transfer rights, while farmers are legally not allowed to sell the land which they have contracted from the village authorities to other private parties under the regime of collective land ownership, they can temporarily relinquish the use rights for rents. Many have, in fact, to *subcontract* their use rights in order to take advantage of the opportunities presented by off-farm employment on the one hand, while obtaining land rents on the other (Liu, Carter & Yao, 1998). Only where local officials perceive a high probability that a village may be unable to meet its grain quota deliveries would they consider imposing restrictions upon renting out land to the nonvillagers, for example (Kung & Liu, 1997). At any rate, preliminary evidence suggests that the overall incidence of land rental transactions is low (Kung, 1995). Moreover, in the majority of instances the rental period is short, lasting typically for only one year, with the contractual agreement occurring primarily between relatives, neighbors and friends in order to avoid the potentially high transaction costs in the event of disputes.

3. VILLAGE CHARACTERISTICS AND THEIR EFFECTS ON LAND REALLOCATIONS: SOME WORKING HYPOTHESES

Before we set out to analyze in detail the determinants of both the frequency and magnitude of land reallocations, we first provide a brief introduction of the structural characteristics of the surveyed villages, whose variations, we believe, have a bearing upon the observed heterogeneity in the institutional outcomes. To account for the relationships between these structural conditions and the dimensions of land reallocations, a set of hypotheses regarding land reallocations will be spelled out in a more explicit manner.

Liu, Carter and Yao (1998) have used the same village data set to analyze a number of dimensions pertaining to allocation rules employed by villages in the process of de-collectivization and the subsequent formation of property rights in land. Their main finding is that there is enormous diversity among the surveyed villages with respect to both the processes in question, depending upon such factors as resource or land endowments, the availability of off-farm employment and therefore income opportunities, and, not the least, the burden of grain quota deliveries. For example, they found that either abundant land resources or the availability of off-farm income strongly predisposes villages to allocate land to the farm households in a less egalitarian manner, thereby allowing them to maximize grain output.[18] Paradoxically, large grain quotas have the similarly positive effect of motivating well-endowed villages to choose a less egalitarian land assignment rule, owing to their higher overall quotas. Conversely, it is in villages with either minimal grain quotas or low off-farm income opportunities that land was assigned on a completely egalitarian basis, as the opportunity costs (in terms of output foregone) of an egalitarian land assignment rule are minimal under these circumstances.

Following Liu, Carter and Yao (1998), the 80 villages contained in this data set are divided into four categories based on such criteria as land endowment (being rich or poor), off-farm opportunity (being abundant or scarce), and grain productivity-cum-quotas (whether having a large grain surplus and correspondingly large quota). The 30 villages that make up the sample in Zhejiang Province may be regarded as belonging to the land-scarce/off-farm income opportunities abundant category, owing to the small farm sizes in these villages on the one hand, but abundant off-farm income opportunities on the other hand. As can be seen in Table 1, the average arable land per capita (pc_arld) in these villages ranges from less than

Table 1. *Socioeconomic characteristics of eight sample Chinese counties, 1994*[a]

Province	Country	Per capita arable land (in *mu*)	Household size	Grain yields (in kg/*mu*)	Purchasing quota (in kg/*mu*)	Quota-to-yield ratio (%)	Per capita net income (in *yuan*)	Share of income from non-farm sources (%)
Zhejiang	Ning	0.89	2.65	733.15	18.39	2.5	1686.83	59
	Leqing	0.44	3.82	682.79	165.54	24.2	1184.03	64
	Shaoxing	0.66	3.45	897.66	116.66	13.0	2339.87	78
Henan	Weihui	1.56	4.14	575.74	81.84	14.2	958.99	22
Jilin	Dehui	4.47	4.53	373.06	142.71	38.3	759.43	11
	Gongzhuling	3.81	4.06	544.58	185.66	34.1	926.01	16
Jiangxi	Anfu	2.25	4.66	458.53	126.00	27.5	865.59	17
	Nancheng	1.66	4.92	557.53	211.99	38.0	973.15	9
	Average	2.66	3.91	464.92	146.22	31.5	1120.80	34.5

[a] *Source*: Survey of 80 Villages, Development Research Center, The State Council, People's Republic of China (1994).

0.5–0.9 *mu*,[19] the lowest of all the surveyed villages. Yet, compared with other sample villages, which derive a mere 14% on average and no more than 22% at the most in one instance, the extent to which off-farm income (shy_nfs) is accounted for by villagers in Zhejiang—some 60 to 75%—is remarkable. In marked contrast to Zhejiang, the 26 villages in Jilin Province differ in two fundamental respects. With respect to resource endowment, the abundant land resources with which this northeastern Chinese province is endowed easily place it at the opposite extreme of Zhejiang. Due perhaps to this abundant land endowment, however, villagers in the two surveyed counties in Jilin are almost completely dependent upon agriculture for household income. As this province is among the few that have managed to produce a grain surplus in recent years, state grain purchasing quotas (qu_tyr) are relatively high, as a result.[20] We may thus classify villages in Jilin as belonging to the land abundant/grain surplus-heavy quota category, as Liu, Carter and Yao (1998, p. 1792) have done.

The 12 villages of Jiangxi Province covered in this survey lie somewhere between the two extreme types represented by villages in Zhejiang on the one hand, and those in Jilin on the other. Compared with Zhejiang the surveyed villages in Jiangxi are somewhat better endowed in land resources but not to the same extent as their Jilin counterparts. Yet farmers in these villages are similarly dependent upon agriculture for a livelihood as the Jilin villagers do. In these respects they may be considered worse off compared with the farmers in Zhejiang and Jilin. In addition, Jiangxi is a major rice producer in the central southern region of China and therefore, villages there, particularly the ones in Nancheng County—have relatively high grain quotas (amounting to 38% of grain output, Table 1). As such these villages fall under the category of land scarce/grain surplus-*cum*-heavy quota according to the analytical schema referred to earlier.

In Henan Province, the 10 villages have about the same amount of land as their counterparts in Nancheng County (Jiangxi) but have a much lower grain quota. In addition, off-farm income opportunities are clearly more abundant in Henan. In fact, it is the only county where villagers obtain the highest proportion of income from off-farm opportunities after Zhejiang. On the basis of the same set of criteria employed in classifying villages, Henan belongs to the land-scarce/grain scarce-light quota category.

To the extent that land reallocations are influenced by population growth, it would be interesting to ascertain how differences in village population growth rates have in fact affected the two important dimensions of land adjustments. Unfortunately, such data are lacking, and we can only use household size (hu_size), not the most appropriate variable, to serve as a proxy.

To simplify our hypothesized reasoning on how these four factors will likely affect land reallocations, each variable will be conceptualized as possessing either a "moderating" or "exacerbating" effect on the frequency and magnitude of land reallocations. Our central premise (or null hypothesis) is that village-wide land reallocation can be an extremely costly process both in terms of administering it and of its potentially adverse effect on tenure insecurity and farm investments. In view of these costs, villages can potentially realize certain positive benefits provided they are able to contain both the frequency and size of land reallocations. We thus assume, not unreasonably, that villages do have the incentives to minimize the transaction costs pertaining to land reallocations. The crux is, the extent to which villages are able to do so depends crucially on a number of factors such as their resource endowment, alternative income opportunities, quota constraints and so forth. The following outlines the hypothesized relationships between several major village characteristics on the one hand, and land reallocation outcomes on the other.

Hypothesis 1: Villages with abundant land resources are better able to deal with population growth and other village-wide changes that would inherently predispose them to reallocate land. Favorable land endowment, in other words, is thus expected to produce a moderating effect on both the aforementioned dimensions of land reallocations. That is, $f_{\text{pc\_arld}} > 0$.

Hypothesis 2: The same reasoning applies to off-farm income opportunities, whose property may be regarded as having the virtuous effect of alleviating the pressure posed by population growth on land reallocations. Hence, $f_{\text{shy\_nfs}} > 0$.

Hypothesis 3: On the other hand, quotas are expected to have an adverse effect on land reallocations. That is because, a relatively

Table 2. *Village characteristics and their expected effects on land reallocations*

Village characteristics	Per capita arable land	Share of income from off-farm source	Quota-to-yield ratio	Household size
Frequency of land reallocation				
High	Henan	–	Jiangxi Jilin	Jiangxi
Low	Jilin	Zhejiang	–	–
Magnitude of land reallocation				
Large (village-wide)	Henan	–	Jilin Jiangxi (expecially Nancheng)	Jiangxi
Small (partial)	Jilin	Zhejiang	–	–

larger grain quota (and output) requires a more efficient match between land and labor, an objective which in turn requires reallocations that are both more frequent and sizeable. That is, $f_{\text{quota}} < 0$.

Hypothesis 4: Similar to the effect of quotas, a higher population growth rate is expected to invoke a higher frequency and a larger magnitude of land reallocation, other factors held constant. We therefore have: $f_{\text{hu\_size}} < 0$.

Based on these set of hypotheses and the stylized descriptions of the four provinces covered in the survey, we can now assign these provinces to the categories in which land reallocations are expected to occur more or less frequently (HIGH versus LOW), and their magnitude (FULL-SCALE versus PARTIAL). With abundant off-farm income opportunities and relatively light quotas, we expect villages in Zhejiang to reallocate land less frequently and on a partial basis, for example. Contrarily, lacking the extent of income opportunities as their counterparts in Zhejiang enjoy, the modest land resources in Henan tend to place it in the category of frequent-*cum*-large land reallocations. By the same token, with only modest land resources but relatively large grain quotas, Jiangxi may be placed under the same category as Henan. Finally, while the abundant land resources that farmers in Jilin enjoy easily place them in the low-frequency/partial adjustment category, their relatively large quotas render their position in this simple analytical schema *indeterminate*; much depends on the relative strengths of these two fundamentally opposing effects (Table 2). Now we turn to the survey findings on land reallocations.

4. LAND REALLOCATIONS IN RURAL CHINA: EXPLORING THEIR DIMENSIONS AND HETEROGENEITY

Our first major finding is this: contrary to the expectations that most Chinese villages have adjusted land since the adoption of the HRS, 30% of our surveyed villages have instead been able to maintain their initial allocations between de-collectivization and 1993—the time when this survey was conducted (Table 3). As hypothesized, the overrepresentation of Henan and Jiangxi in the group having readjusted land lends support to the intuition that the pressure to re-adjust land is greater among villages lacking either abundant land resources or off-farm income opportunities. Conversely, close to half of the 30 sample villages in Zhejiang have been able to avoid the costly process of land adjustments, thanks to the abundant off-farm income opportunity that villagers in this prosperous province enjoy. Compared with off-farm income opportunity the effect of land surplus on whether a village has undergone

Table 3. *Whether land has been reallocated in sample villages since adopting HRS (% villages)*[a]

Province	Land reallocation		$n = 77$
	Yes	No	
Zhejiang	53.3	46.6	100
Henan	100	–	100
Jilin	69.2	30.8[b]	100
Jiangxi	81.8	18.2	100
Average	68.8	31.2	100

[a] *Source*: Same as Table 1.

[b] This figure represents 80% ($n = 10$) of the sample villages in Gongzhuling.

land reallocations is somewhat *mixed*, as can be witnessed from the case of Jilin. Whereas 80% of the villages in one county, Gongzhuling, have managed to avoid adjusting land altogether, all the 16 villages in the other county, Dehui, have readjusted land, albeit only once and on a partial basis.

The indeterminate effect of resource endowment on whether a village has readjusted land is to some extent borne out by regression analysis, which shows that the share of income from nonfarm source (shy_nfs) is the only significant variable at the 10% level (Equation 1, Table 4). This analytical result supports the intuitive reasoning that off-farm income opportunities alleviate if not entirely eliminate the need for villagers to readjust land in response to population growth. It also corroborates the findings that nonagricultural development has the beneficial effect of reducing the egalitarian tendencies in a property rights regime that predisposes villagers to reassign land in proportion to changing family membership (see Kung, 1995; Kung & Liu, 1997; Liu, Carter & Yao, 1998). Such a moderating effect is important when seen against the high administrative costs typically associated with land readjustments.

(a) *Frequency of land reallocations*

How do the same variables affect the frequency with which our surveyed villages have adjusted land? A widely held belief concerning land reallocation practices in China is that they occur rather frequently. According to the results of a nationwide survey, 95% of the villages have adjusted land since the adoption of HRS, amounting to an average of 3.1 times. The general impression is that a "representative" village typically readjusts land on a partial basis once every three years, whereas a full-scale adjustment would take place about once every five years (*san nian yi xiao tiao*, *wu nian yi da tiao*).[21]

Not only have some villages managed to avoid reallocating land altogether. Of those that were unable to do so, land adjustments occurred rather *infrequently*: adjustments for the 80 surveyed villages totaled only 82 times between the point of de-collectivization and the end of 1993, averaging a mere 1.5 times over a 10-year or longer period for *each* village (Table 5). Moreover, up to 65% of all the recorded adjustments were occurring for the *first* time. Of these adjustments, over half of them (58.5%) took place after 1989. Since de-collectivization

Table 4. *Summary of regression results*[a]

	Equation 1[b]	Equation 2[c]	Equation 3[d]
	Has land been reallocated?	Frequency of land reallocations	Magnitude of land reallocations
	Coefficient (Chi^2-statistics)	Coefficient (Chi^2-statistics)	Coefficient (Chi^2-statistics)
qu_tyr	0.08	−0.13	−0.00
	(0.17)	(−0.52)	(−0.71)
pc_arld	−0.05	−0.19*	−1.62*
	(−0.23)	(−1.90)	(−1.84)
hu_size	−0.00	0.09	1.80*
	(−0.00)	(0.47)	(2.03)
shy_nfs	−1.99*	−1.23*	−0.44
	(−2.17)	(−1.77)	(−0.18)
Constant	1.72	0.55	−4.28
	(0.77)	(0.54)	(−1.21)
No. of observations	77	77	48
Model Chi^2-statistics	4.94	6.926	21.83
Level of significance	0.2938	0.1399	0.0002
R^2/Psuedo R^2	0.052	0.034	0.357

[a] qu_tyr = quota-to-yield ratio; pc_arld = per capita arable land; hu_size = household size; shy_nfs = share of income from non-farm sources.

[b] Has land been reallocated? (yes = 1, no = 0).

[c] Frequency of land reallocations.

[d] Magnitude of land reallocations (village-wide = 1, partial = 0).

* Significant at 10% level.

Table 5. *Frequency and temporal distribution of land reallocations (% villages)*[a]

Round of adjustment	Time periods			Total
	(1) Before 1984	(2) 1985–88	(3) 1989–1993	
One	13.2	28.3	58.5[b]	65
Two	–	36.8[c]	63.2[d]	23
Three	–	–	100[e]	7.3
Four	–	–	100[f]	3.7
Five	–	–	100[f]	1.2
Average	13.2	26.8	64.6	100

[a] *Source*: Same as Table 1.

[b] Land was adjusted for the first time in virtually all 16 villages in Dehui County (Jilin) and in one-half of those villages having adjusted land in Zhejiang during this period.

[c] 42.9% of these adjustments were accounted for by villages in Anfu County (Jiangxi) alone.

[d] Henan alone accounted for 58.3% of these reallocations.

[e] Anfu County (Jiangxi) alone accounted for 66.7% of these adjustments.

[f] Only villages in Anfu County (Jiangxi) reallocated land for the fourth and the fifth time.

did not occur in the majority of our sample villages until 1982, a few even as late as 1983, more than half of them were thus able to maintain their initial land allocations for as long as seven years.

Nor was land being frequently readjusted prior to the policy (in effect from 1984) that sanctioned farm households to keep their assigned plots for 15 years. Of the 82 adjustments recorded, only a minority of them (13%) took place before 1984. Moreover, not a single village in this instance adjusted land more than once during the interim period between decollectivization and 1984, and few undertook a thorough unscrambling of the existing allocation.[22]

To be sure, our argument above suggests that the pressure to reallocate land is unlikely to be uniform among the villages. The land-surplus and abundant off-farm income villages (respectively Jilin and Zhejiang) are, if our conjecture is correct, subject to less pressure to frequently reallocate land. The majority of villages in these two provinces are, in fact, overrepresented in the group that has adjusted land just *once* (the two altogether accounted for 77% of all villages in the initial adjustment group). Conversely, being moderately endowed in land *and* simultaneously lacking the alternative off-farm income opportunities, Henan and Jiangxi are overrepresented in the group of villages having adjusted land *twice*.[23] Regression results confirm this intuitive reasoning (Equation 2, Table 4). But regardless of just how frequently villages readjusted their land, it is most fascinating to find, as we shall show below, that the majority of reallocations assumed the nature of reassigning land between only those households having experienced changes in family membership (see below).[24] How are we to account for this unexpected outcome?

(b) *Magnitude of land reallocations*

Indeed, our most unexpected finding is that, in sharp contrast to the popular belief that land would typically be readjusted on a full-scale basis, most of the reported reallocations—almost 70%—involve only households whose membership has changed (Table 6). There are two plausible and possibly consistent explanations to account for this observation.

First, to the extent that egalitarian tendencies are stronger in villages lacking either abundant land resources or off-farm income to moderate the negative effect of population growth, the "tolerance threshold" of households with membership changes with respect to adjusting land is likely lower. Under such circumstances, the odds are thus greater that villages would incrementally adjust land in response to population growth than to deal with a major "disequilibrium" between population and land in one comprehensive adjustment. Should that be the case, then the upholding of a strong egalitarian principle of equal land entitlement need not always invoke the high administrative costs associated with village-wide land reallocations.

Alternatively, we can explain such a preference as a consequence of the villagers and local cadres' awareness of the high transaction costs associated with village-wide land adjustments and, therefore, of their endeavors to minimize them. How do we prove this? There are two pieces of cogent evidence to support this

Table 6. *Magnitude of land reallocations by county (% villages)*[a]

Province	County	Scale	
		Full	Partial
Zhejiang	Leqing	42.9	57.1
	Ning	–	100
	Shaoxing	50	50
Henan	Weihui	82.3	17.7
Jilin	Dehui	–	100
	Gongzhuling	–	100
Jiangxi	Anfu	–	100
	Nancheng	66.7	33.3
Total		30.5	69.5

[a] *Source*: Same as Table 1.

conjecture. First, village cadres were asked in the survey if they had made it clear to the villagers at the time of de-collectivization that land was subject to reallocation in the future. The majority, slightly over 40%, said they had made no such provisions, whereas about one-third of them had explicitly stipulated that land would not be adjusted in the future despite population growth and other larger structural changes.[25] What is pertinent to our analysis is that this commitment on the part of the village cadres to maintaining land assignment in the future has turned out to be not very credible, as 65% of them eventually broke their promise.[26] While these village cadres were unable to honor their commitments, a greater proportion of them were, however, able to *control* the magnitude of subsequent land reallocations. This compares favorably with those village cadres who had either made no explicit provision regarding future land reallocations or said that they would definitely readjust land in response to demographic change. This correlation between prior attempts to contain land reallocations on the one hand, and the ability to confine land reallocations to only those having been affected by population growth *is* evidence of the village authorities' endeavor to minimize the transaction costs associated with village-wide land reallocations.

Are villagers themselves concerned with reducing the costs of land adjustments? We think so, provided the benefits of so doing outweigh its costs. Take Anfu County of Jiangxi Province, for example. Given the lack of both land resources and off-farm income opportunities in this county's villages, our hypothesis predicts that villagers there adjust land allocation both more frequently and thoroughly. Nonetheless, Anfu villagers must be so aware of the exceptionally high costs associated with reallocating the small and fragmented landholdings on their typically hilly terrain that, despite the high frequency of land readjustments there, they were only partial reallocations. Resource endowment must have played an important role in shaping farmers' attitude toward land reallocation practices in this county. While the average farm household in the survey has only 3.5 plots of land assigned to them, those in Anfu have more than 20, owing largely to the lack of flat, consolidated land there (Kung & Liu, 1997, p. 37). Being assigned an unusually large number of plots to farm, it is not surprising to find that proportionately more villagers in this county approved of the (hypothetical) situation of not further adjusting land in spite of future population growth (Kung & Liu, 1997, p. 42). This reflects just how conscious villagers are of the costs of village-wide land adjustments—particularly in a context of severe scattering, and that they prefer to economize on these costs.

Regardless of the underlying motivations behind villages' decision to only partially reallocate land, the outcome is that close to 70% of the surveyed villages have chosen to do so: the relevant question is what *enables* them. As we can see from Table 6, village-wide land adjustments are completely absent in land-rich Jilin and rare in Zhejiang, supporting our argument that the benign effect conferred by either a rich land endowment or an abundant off-farm income opportunity on land reallocation practices. As virtually all villages in land-rich Jilin have adjusted land only partially, it follows that land endowment is the only significant variable in the regression analysis (Equation 3, Table 4). This finding may be taken to imply that, while off-farm income opportunities allow villages to reallocate land less frequently if not completely skipping the

exercise, they do not confer the same beneficial effect on the *size* of reallocation, at least not to the same extent as resource endowment does. Therefore, villages lacking both off-farm income opportunities but especially land endowment are more likely to reallocate a good proportion of their land. That is precisely what happened in the villages of Henan and Jiangxi (especially Nancheng), despite the low overall incidence of the surveyed villages doing so.

Reflecting the possible effect of a faster rate of population growth and therefore egalitarian constraint on land adjustments, villages with larger household sizes (hu_size) are found to be more likely to reallocate land on a full-scale basis, as hypothesized. The only factor that we have hypothesized as having a negative effect on land reallocations but is not significant throughout the analysis is grain quota, or the quota-to-yield ratio (qu_tyr), more specifically. We now turn to examine the third dimension of land reallocations, namely, the rationale behind such an institutional arrangement.

(c) *Reasons behind land reallocations and their scale implications*

There are two related objectives in examining the stated reason behind land reallocations. First, we would like to further ascertain the relative importance of the equal entitlement constraint *versus* efficiency considerations in the process of land adjustments in our surveyed villages. Second, we are also interested in knowing if differences in the reason for reallocating land may have different implications for the magnitude or size of the reallocations. In the village survey, the cadre respondent was asked to indicate the underlying reason, from which there were six to choose, behind land reallocations in his village (cf. Table 7). The answer "population change" (option [a]), for instance, succinctly captures the constraint under which village cadres are subject in making their allocation decisions. In contrast, if land reallocations were predicated upon the considerations that a substantial proportion of the village's labor force has left agriculture, then land reallocations motivated under such circumstances may be considered to occur on efficiency grounds, as such an exercise more optimally matches the land-labor ratios (option [b]). The same analytical reasoning applies to the considerations respectively of farms being too small and scattered and of fostering large farms (options [d] and [e]). Finally, and interestingly, we have come across perhaps the rare instance whereby village cadres had delayed reallocating land to the effect that they were finally decreed by the higher administration (such as the county government) to carrying out just such an exercise (option [f]). The distribution of cadres' answers to this question and their respective implications for the magnitude of land reallocations are summarized in Table 7.

In view of the strong presence of the equal entitlement spirit in the Chinese villages, it is perhaps not surprising to find that the majority (some 43%) had chosen demographic change (*renkou biandong*) as the *predominant* reason for adjusting land. Equally unsurprising is the second popular answer, namely, that land adjustments were made in response to "the villagers' request," as a result of cadres' predilections to delay if not altogether avoid adjusting land on a full-scale basis. While such an answer may similarly be considered as evidence supporting the egalitarian thesis, the realignment of the village's land-to-labor ratios resulting from land reassignment serves also the purpose of improving static allocative efficiency. Third, the tendency for local officials to delay reallocating land may sometimes result in

Table 7. *Reasons for land reallocations and their scale implications (% villages)*[a]

Reasons	%	Scale	
		Full	Partial
(a) population change	42.7	28.6	71.4
(b) request by villagers	24.4	65	35
(c) labor force moved out of agriculture	4.9	0	100
(d) farm plots too scattered	1.2	0	100
(e) to foster large farms	2.4	0	100
(f) instructed by higher administration	24.4	10	90
Total	100	30.5	69.5

[a] *Source*: Same as Table 1.

higher administrative authorities decreeing them to carrying out the requested reallocations—which usually occur after villagers have voiced their complaints to higher levels of government (24.4%). Villages in Dehui County, for example, were instructed by the county government to undertake land adjustment during the early 1990s, albeit only on a partial basis.

By contrast, the case for purely efficiency-motivated considerations in reallocating land is *weak* when evaluated in terms of the choice of answers given by the respondents. For instance, while the movement of farm workers out of agriculture has also reportedly provided incentives for land to be reallocated (implying there may be land consumption), it occurs in only a handful of cases (less than 5%). To the extent that land continues to provide the only social welfare to China's rural dwellers, having access to off-farm income opportunities by no means constitutes a *sufficient* condition for these privileged villagers to give up their entitled rights. This is at least how most farmers see it.[27] This would be especially the case where the per capita farm size is either small or where a wide array of "socialized" farming services are provided by the village authorities, if not both.[28] Still less significant are the reasons given respectively in the name of fostering the establishment of large farms (2.4%)—whose static efficiency remains asserted rather than well documented, or of consolidating the fragmented plots (1.2%)—whose inefficiency has been alleged but unproven.

Turning to examining the implications of the various reasons behind land reallocations on the scale of adjustments, we simply correlate the two variables in question with the following results (Table 7). Where demographic change is cited as the primary cause for land adjustments, the latter was carried out mostly on a partial basis (71.4%). To the contrary, where land adjustments have been long overdue and the mismatch between land and labor across farm households is acute, thereby resulting in some villagers' request to reallocate land, it is more likely for land to be adjusted on a village-wide basis (65%). Indeed, since the number of people who are temporarily denied their entitled share of land is likely to *increase* with the passage of time, the collective pressure for land reallocations will only increase over time, other factors held equal. Were that to occur, the resulting reallocation is likely to invoke a more rather than less thorough shuffling of the existing allocation, given the larger mismatch between population and land. On the whole, regardless of the stated reason behind land reallocations, the majority of these exercises were carried out on a partial basis, suggesting that village-wide reallocations of land are really more of an *exception* rather than a general rule.[29]

5. FARMERS' PERCEPTION OF TENURE SECURITY

Tenure security refers to the degree of certainty which farmers attach to the economic returns resulting from their long-term use of, and investments in, the plots they currently cultivate. It is therefore typically associated with a bundle of rights that define the conditions of use and the entitlements to both residual income. Economic theory suggests that these rights are most complete, with the corollary that tenure is therefore most secure, under private ownership, as farmers are best protected from any possible arbitrary loss of these rights without adequate compensation when rights are clearly delineated and disputes, if any, effectively adjudicated. By this criteria tenure is relatively less secure under the regime of common property rights, and more specifically as a result of land reallocation—as in the case of rural China.

Tenure security is arguably important for sustaining long-term agricultural productivity and output growth because only when farmers find it secure to appropriate the fruits of their investment would they invest for the long-term, most notably through an intensive use of organic fertilizers and undertaking a range of land-augmenting activities. In the absence of a stable set of long-term use and other rights and therefore tenure security, farmers will arguably reduce their investment in land as they assign a small probability to being able to farm continually their currently assigned plots, thereby adversely affecting agricultural output growth. In this penultimate section, we explore the respective effects of farmers' *prior* reallocation experience (or the absence of it) as well as the frequency and magnitude of land reallocations on their perceptions of tenure security. It is however not our intention to examine the effect of land reallocations on actual farm investments—a different topic. Following the implications deduced from the literature, we expect both the frequency and magnitude of land reallocations to have an adverse impact

upon tenure security; that is, the more frequently land is reallocated and the more thorough such reallocations are, the greater tenure insecurity is.

Just as it is conceptually useful to decompose the costs of land reallocations into two dimensions, it is also helpful to divide tenure security into two conceptually distinct dimensions—present and future, as Kung and Liu (1997) have done. By present security we are referring to the notion of whether farmers find the plots with which they have presently contracted to be secure enough that they will not be prematurely taken back by the village authorities before the current lease expires. Feeling secure about their present tenure, however, is not a sufficient condition for guaranteeing that they will continue to undertake land-augmenting investments, should they perceive a low probability of being able to continue farming their presently contracted plots in the future. The survey thus also asked farmers about their perceptions of such a possibility occurring.

We begin our analysis by gauging the effect (or the lack of it) of farmers' prior experience of land reallocations on tenure security, and the distribution of answers in terms of both present and future security between the two groups of farmers is summarized in Table 8. Remarkably, there is little systematic difference between the two groups with respect to their perceptions of either present or future tenure security. How are we to account for this lack of variation? Our conjecture is that, even though some villagers have thus far not experienced any land readjustment, they may nonetheless subscribe to the belief that land will *eventually* be reallocated at some future point in time; the only questions are how soon and how large the scale of reallocations.[30]

While one cannot explain with precision why farmers are inclined to think that way, we attribute their attitude to the deeply rooted belief that land is commonly owned and they have equal entitlements. In other words, insofar as villagers in China are of the view that land is not privately owned and is thus subject to reallocations, at least in principle, their perceptions regarding tenure security are influenced by their *beliefs* rather than by the actual occurrence of events. Indeed, such reasoning helps explain the other paradoxical finding, namely, that so many households expressed insecurity over their tenure conditions—some 40% in the case of present tenure security, for example, despite the remarkably low incidence of village-wide land reallocations in our surveyed villages. To the extent that farmers accept the institution of land reallocations as a condition for retaining the benefits of having an equal access to a communal resource, much of the noted uncertainty may be *internalized* and is arguably *predictable*. Should that be the case, then the degree of observed uncertainty as manifested in Table 8 may be regarded as overstated.[31] Such a psychology in turn explains why a good majority of the 800 surveyed farm households prefer the institutional arrangement of periodically reassigning land among themselves to the proposed alternative of freezing such land reallocations altogether (Kung & Liu, 1997, p. 34).

Concerning the effect of the frequency of land reallocations on tenure security, there is a decisive difference between those who have adjusted land just once versus those who have done so twice; this lends support to the hypothesis that tenure insecurity is heightened with frequent reallocations (Table 9). The same cannot be said to apply to future tenure security, however, which paradoxically rises with the frequency of reallocations, a finding clearly at odds with the widely held idea that frequent adjustments are bad for tenure security. But we can easily explain this "perverse" relationship once we take into account the effect of the magnitude of reallocations on tenure security. As Table 10 clearly shows, the difference in future tenure security is a decisive one between those who

Table 8. *Land reallocations and farmers' perception of tenure security (% villages)*

Has land been reallocated?	Present tenure[a]		Future tenure[b]	
	Secure	Insecure	Secure	Insecure
Yes	62	38	49	51
No	57.3	42.7	43.4	56.6

[a] This is based on the question "will your contracted plots be taken away before the existing lease expires?"
[b] This is based on the question "will you be able to farm the same plots in the next contract?"

Table 9. *Frequency of land reallocations and farmers' perception of tenure security (% villages)*[a]

Frequency	Present tenure		Future tenure	
	Secure	Insecure	Secure	Insecure
0	57.3	42.7	43.4	56.6
1	71.6	28.4	36.0	64.0
2	36.9	63.1	54.6	45.4
3	90.9	9.1	76.9	23.1
4	0.0	100.0	100.0	0.0
5	0.0	0.0	100.0	0.0

[a] *Source*: Same as Table 1.

Table 10. *Magnitude of land reallocations and farmers' perception of tenure security (% villages)*[a]

	Present tenure		Future tenure	
	Secure	Insecure	Secure	Insecure
Full	59.1	40.9	23.0	77.00
Partial	64.7	35.3	68.8	31.2

[a] *Source*: Same as Table 1.

have experienced reallocations on a village-wide basis (23%) and those who have not (69%).

To better gauge the effects of both the frequency and magnitude of land reallocations on tenure security, a regression exercise was performed (Table 11). In the case of present tenure security, the size of land reallocation has no significant statistical effect on farmers' perception that they are likely to lose their contracted plots during the tenure period, but *frequency* does. One interpretation is the following: even though partial reallocations do not ordinarily affect households that have not experienced membership change, when they occur too frequently, they may nonetheless foster an impression that sooner or later the village will run out of land from the existing pool for redistribution. Were that to occur, a more thoroughgoing readjustment of land would inevitably be called for. The situation is, however, different with respect to farmers' expectation of whether they would be able to farm the same contracted plots in the future. While the frequency of land reallocations has the similarly significant effect of undermining future security, the partial reallocations of land have the benign effect of alleviating such a negative perception. On the basis of such an analytical result, it may be argued that farmers may not necessarily shy away from investing in

Table 11. *The effect of frequency and magnitude of land reallocations on perceived tenure security: regression results*

	Present tenure security[a]	Future tenure security[b]
	Coefficient (Chi^2-statistics)	Coefficient (Chi^2-statistics)
Frequency	0.73**	0.89**
	(4.70)	(6.05)
Scale	0.40	−1.69***
	(2.04)	(−8.17)
Constant	−1.74**	−0.73**
	(−6.21)	(−2.86)
No. of observations	471	531
Model Chi^2-statistics	25.01	164.68
Level of significance	0.00	0.00
R^2/Pseudo R^2	0.04	0.22

[a] Based on the question "will your contracted plots be taken away before the existing lease expires?" (Yes = 1, No = 0).

[b] Based on the question "will you be able to farm the same plots in the next contract?" (Yes = 1, No = 0).

** Significant at 5% level.

*** Significant at 1% level.

their contracted plots if they were relatively confident of keeping them in the future.

6. CONCLUSIONS

The effect of property rights and land tenure on economic development has long been an important issue for those concerned with the relationship between institutions and economic development in large agrarian economies. The common property status of China's arable land has allegedly held back agricultural progress since the mid-1980s, despite the powerful incentives brought about by the earlier agricultural de-collectivization. Common property rights, which in the specific context of rural China assume the periodic reallocations of land within the farming community, are assumed to occur both frequently and on a village-wide basis. Most detrimental of all, they are seen to have a negative impact upon tenure security and, as a corollary, farm investments and agricultural productivity.

Drawing upon a unique village survey that covers a rather diverse (though by no means exhaustive) territory in rural China, this paper shows, first that, land reallocations occurred rather infrequently during the period covered by the survey. Second, and more important, the majority of such reallocations actually occurred on a partial basis. Indeed, it is due precisely to the inherently high costs of village-wide land reallocations, we maintain, that villages strive to contain them by undertaking mostly partial reallocations. While perhaps all villages strive to economize on the costs of land reallocations, it is inevitable that some are better placed than the others to minimize these institutional costs: The relevant question is why? Our findings suggest, consistent with our hypothesized reasoning, that abundant resource or land endowment and off-farm income opportunities are the keys.

More generally, there is an important policy implication arising from the observation that villages characterized by different structural conditions exhibit an enormous heterogeneity among them with respect to both the frequency and size of land reallocations. Instead of responding to the institution of adjusting land to a changing population in a mechanistic fashion, such as once every five years, the observed "behavioral" properties of the sample villages may be regarded as patterned upon differences in their endowments, opportunities, and constraints. Should this closely approximate the reality, any policy attempt to advocate a uniform system of land tenure in rural China is unlikely to be successful given its immense diversity.

Finally, we note that the allegedly negative effect of a regime of common property rights on tenure security is perhaps not as straightforward as theory has heretofore postulated. True, a sufficiently large proportion of the farm respondents do perceive a likelihood that their presently contracted plots will be taken away by the village authorities before their lease expires. On the other hand, such a possibility is negated by the fact that village-wide reallocations occur so rarely. What appears more likely is the possibility that Chinese farmers by and large accept the customary practice of making marginal changes to the land–labor ratios in response to changing family demographics, in which case the alleged insecurity that they face may be more apparent than real. This is borne out very clearly in the case of future security, as the absence of village-wide reallocation experience conveys a sense of confidence to the surveyed farmers with respect to their ability to farm the same contracted plots in the future. This should not negatively affect farm investments, logically speaking.

It is important to stress in closing that it is not our intent to argue in favor of the *status quo* of China's land tenure system. Our purpose is merely to show (with the availability of some empirical evidence) the actual institutional outcomes as they have occurred under a regime of common property rights. This would give us a better idea of just how large the costs of land reallocations *are*—not what they should be.

NOTES

1. The institutional costs of common property rights have been well articulated in the economic literature (see, e.g., Demsetz, 1967; Hardin, 1968, among others). According to this view, a scarce resource owned communally will be worked to depletion in due course, should actors behave in a fully rational manner. Where

land constitutes the scarcest of all the factors of production, for example, wealth maximization requires land rights to be clearly specified and enforced, lest cultivators shy away from investing in it for fear that they might not be able to recoup their investments in the future (Johnson, 1972).

2. First, the existing allocation will have to be thoroughly unscrambled in the event of a village-wide reallocation and the precise number of villagers eligible for reallocation enumerated, followed by discussions on the rules of land division. As households differ inherently in their endowments—both capital and labor—it may not always be possible to arrive at a consensus regarding the criteria for dividing up land of different qualities. It has been noted that much persuasion is often required and, even so, disputes—especially involving households having their plots adjacent to one another—remain inevitable (Zhou and Liu, 1994). An official survey has indeed found that conflicts arising from boundaries delineation accounted for up to 35.2% of all the conflicts recorded in 1988—the second largest category (State Council, 1992, p. 33).

3. This explains why villages with many off-farm work opportunities do not frequently reallocate their land.

4. Farmers are allegedly most unwilling to fertilize their plots with organic matter despite its properties for preserving long-term soil fertility (Prosterman, Li & Hanstaad, 1996; Wen, 1995). Village cadres could, however, pre-announce the forthcoming reallocation after farmers have committed their current inputs during the present crop cycle if they do intend to minimize the potentially negative effects, especially of abrupt land reallocations on farm investment. Such sensible behavior is practiced by cadres in some villages in northern Jiangsu Province (Kung & Cai, 1999).

5. See the voluminous literature cited in Kung and Liu (1997).

6. A recent nationwide village survey found that over 90% of the sample villages have indeed done so (Ministry of Agriculture, 1997, 1998). Since this survey was conducted during the mid-to-late 1990s, we would expect most villages to have reallocated their land *at least* once. Such a result is thus not surprising.

7. It is widely held that villages customarily adjust land every three years in a partial manner among those families whose membership has changed, and thoroughly reallocate land once every five years (see, e.g., Yang, 1995, p. 48).

8. Owing to data incompleteness, three sample villages had to be dropped. The effective sample is therefore only 77.

9. Although these villages are by no means representative, they do cut across a broad swath of communities characterized by diverse socioeconomic conditions (see Section 3 and Table 1, respectively). As such they allow us to gauge variations in institutional arrangements among villages.

10. Income sharing is a common feature of the cooperatives (Putterman, 1989). In pre-reform rural China, although collective income was supposed to be distributed according to one's work contributions to the team output, the subsistence nature of China's village economy had, however, obligated many production teams to distribute a large proportion of their income "according to needs," based upon household size. This *de facto* egalitarian practice of income distribution allegedly dampened the work incentives of those who had contributed proportionately more to the collective output (see Kung, 1994).

11. The gross value of agricultural output increased in real terms at an annual rate of 7.6% during this period, whereas that of grain production rose by 4.9% annually (State Statistical Bureau, 1989).

12. This is unambiguously stated in Article No. 8 of China's Land Management Law (*Zhonghua Renmin Gongheguo Tudi Guanlifa*). According to Article No. 9, in addition, the collectively-owned land could be, and is ordinarily contracted out for use and management by the individuals, who have the obligation to deploy rationally and carefully manage and protect this collective resource (State Council, 1998). Obviously, it is the village authorities—a level that corresponds to either the former production team or the larger production brigade—who bear the ultimate responsibility of overseeing that these explicitly stated goals are efficaciously met.

13. It is only after farm households have fulfilled their mandatory quota responsibilities were they allowed to sell any surplus they may have in the free market. This institutional arrangement survives to this day despite the fact that China's procurement policy has undergone a number of qualitatively important changes since 1979. The most radical change perhaps was the abolition of grain vouchers in the urban areas in 1993 as a measure to reduce drastically the state's subsidies to urban grain consumption arising from the higher farmgate prices paid to farmers for purchasing their grain. Such a measure was short lived, however, as

market prices of grain soared dramatically and vouchers and other measures of subsidies had to be brought back in to prevent any potential social unrest from occurring. The government's original plan of allowing the procurement price (but not the procured quantity) to be determined by forces of demand and supply in 1994 had thus to be shelved, for fear that urban grain supply could not be guaranteed in the absence of state control (Ke, 1999. pp. 251–255). Administered controls over grain purchases were therefore reinstated and observers have noted that private grain traders were allowed to enter the villages to do business only after the state grain bureau had completed its purchase (Kung & Liu, 1997).

14. As one observer points out, such an institution is a legacy of the collective era whereby a villager was entitled to an equal share of the team's grain output the amount of which was considered minimal for maintaining subsistence (Kung, 1994).

15. Egalitarian tendencies were already evident upon China's adoption of the HRS. A nationwide survey of 300 villages conducted by China's State Council in 1988 found that close to 70% of the former production teams had simply assigned land to the farm households based upon their family size (State Council, 1992, cited in Kung, 1994). Another survey, conducted also by China's State Council, found that egalitarian tendencies were stronger in villages poorly endowed with land and lacking off-farm employment opportunities (Liu, Carter & Yao, 1998).

16. It would be erroneous to presume that farmers invariably want longer tenure. To the extent that quota obligations are associated with land contracts, farmers able to enjoy the much higher economic returns of off-farm employment might want to divert their labor toward such income opportunities, and do not want to be bound by the contractual obligations of farming. Survey support this argument (Kung & Liu, 1997; Liu, Carter & Yao, 1998).

17. The degree to which Chinese farmers are able to enjoy use rights is nonetheless not uniform. Use rights are found to be highly restrictive, for example, in villages where farmers have ample off-farm income opportunities (Liu, Carter & Yao, 1998). Fearing farmers in these areas may underutilize their contracted land in the face of attractive income alternatives, local cadres interrupted villagers' pursuit of their off-farm activities until they harvested their crops (Kung & Cai, 1999).

18. Assuming villages either assigned their land on a strictly egalitarian manner based upon household size or moderated it by assigning some weight to the laboring capacity of a household. The latter would arguably enable a village to produce a larger amount of grain output, given the more optimal match between land and labor (see e.g., Putterman, 1993). The question is therefore what enables villages to choose this more efficient or less egalitarian land assignment rule.

19. One hectare equals 15 *mu*.

20. Based upon the physical productivity of land, quotas were originally assessed in the 1950s after China collectivized her agriculture and established a compulsory grain procurement system. But as villages have since improved the soil fertility of their land at varying rates without the government reassessing the quotas, variations in the ratios of these (historical) quotas to (present) crop yields between villages have thus become widened over time.

21. Yang (1995, p. 48). Similarly but to a lesser extent, the results of a survey of 56 villages distributed among six provinces found that up to 78.5% have on average readjusted land once every four years (Jiang & Chen, 1997, pp. 32 and 34).

22. The evidence here is therefore consistent with the findings of China's State Council's 300-village survey, according to which the majority of adjustments either occurred in or after 1984; less than 10% took place in 1982 and 1983 (1992, p. 21).

23. Among these (round two) adjustments, only a few villages belong to Zhejiang Province and none whatsoever to Jilin Province. See explanatory notes in Table 5 for details.

24. While it is intuitive to think that partial land adjustment is viable only where the demand for land equals or less than its supply, field experiences from Shandong Province reveal just how village cadres can manipulate land reallocation practices. In one village, for example, households with new daughters-in-law do not readily obtain their coveted share of the land, but have to wait instead for an indefinite period of time until surplus land becomes available for reassignment (Judd, 1996, p. 34).

25. There are two possible reasons as to why these village officials had not made such a provision. Some may simply be too preoccupied with how to divide up the former collective landholdings and other assets. Others may be operating under the assumption that the practice of land reallocations was widely understood by the villagers and therefore it was unnecessary for them to make any explicit provisions.

26. This is another piece of evidence reflecting the underlying tensions inherent in a regime of collective land ownership.

27. According to a farm survey of 800 households in the same counties covered in this village survey, over half indicated that they do not accept the practice of taking land away from households who have members engaged in off-farm work (Kung & Liu, 1997, p. 48).

28. Indeed, the greater the technical and material support farmers receive from the local authorities, the lower their opportunity costs in keeping the land would be.

29. Virtually no villages reportedly choosing the less popular reasons underlying land reallocations have adjusted land on a village-wide basis.

30. Indeed, it has been found that purposive delays on the part of village cadres to reallocate land may turn out to have heightened tenure insecurity rather than allay it, as farmers under such circumstances would expect land reallocation to occur sooner rather than later, involving more land and households rather than fewer of them. See Kung's (1995) study of land reallocations in Hunan Province for details.

31. I am grateful to an anonymous referee for pointing out to me this important observation.

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