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IN RURAL CHINA: DILEMMAS ON THE ROAD
TO FURTHER REFORM**

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Shouying Liu, Michael R. Carter and
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Please address all correspondence to:

Michael Carter
Department of Agricultural Economics
Taylor Hall
University of Wisconsin
Madison, WI 53706

fax: 608/262-4376

email: carter@chezmichel.agecon.wisc.edu

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Abstract

This paper contributes to the debate over land tenure in rural China by conceptualizing and measuring multiple dimensions of property rights in a way which elucidates the competing interests which are affected by the property rights regime. Utilizing a unique village level data set on property rights, this paper argues that the regional and temporal variation in rural property rights signals a pattern in which decentralized institutional innovation occurs in response to the competing interests of the national state, of local authorities, and of present and possible future individual land users. Unlike the earlier debate concerning the household responsibility system, the current property rights dilemma is intrinsically more complex because the potential conflicts of interest between individuals, local collectives and the state are greater. Resolution of that debate will ultimately require careful exploration of the reality and substance of the tradeoffs and competing interests which make further reform of rural property rights so difficult.

Journal of Economic Literature Classification Numbers: O12, P32, Q15.

Dimensions and Diversity of Property Rights in Rural China: Dilemmas on the Road to Further Reform

The institutional innovation of the Household Responsibility System (HRS) in China around 1980 individualized residual income and some management rights to agricultural land, bringing a radical and highly visible shift in the organization of production. Inspired by the extraordinary 7.5% annual growth of China's agricultural output over the 1979-1984 period, Lin (1988), Nolan (1983) and others began to stress the economic incentive effects of property rights and the role of institutions in inducing agricultural growth.¹ However, the subsequent slowdown of agricultural growth in the mid-1980s spawned a new round of debate on the adequacy of the property rights regime defined by the HRS. Proposed solutions to the perceived inadequacies of the HRS range from calls to deepen the individualization of property rights all the way to calls to recollectivize agricultural lands. This new debate calls attention to the multiple dimensions and complexity of property rights. Indeed, while the HRS has often been seen as a unified system defined by the single dimension of individualized residual income rights (and literally treated as a dummy variable in econometric studies), there has always existed spatial variability in property rights under the HRS--variability which has grown over time as property rights regimes have undergone local evolution.

This paper attempts to clarify the contemporary debate through a broader conceptualization and measurement of property rights and the social relations and interests they create. As such, this paper builds directly on the work of James Kung (1994, 1995). In his 1995 paper, Kung analyzes peasants' preferences over alternative property rights regimes using data from several predominately agricultural counties. The analysis here extends this work by considering factors which shape the institutional preferences of both peasant households and national and local political actors. In addition, this paper relies on a unique village level data set which covers villages from predominately agricultural counties, both rich and poor, as well as from counties located close to fast-growing industrial centers. Using this data,

¹ While there is no question concerning the significance of the changes brought by the HRS, there has been debate concerning the degree to which the rapid agricultural growth of the early 1980's can be attributed to the HRS *per se*, as a number of econometric studies tend to infer (e.g., see Lin 1988, 1992; McMillan et al. 1989; Wen 1993). One view argues that the poor agricultural performance of the collective era could have been changed by improving production team management and income distribution (Kung 1994 and Putterman 1985, 1991). In contrast, other authors have argued that optimal income distribution could not be achieved because of the high monitor cost in production team organization (Lin 1988). Some authors also hypothesize that production team leaders do not have the incentive to monitor team members or adjust income distribution because they do not have control over production arrangements and resource use (Zhou 1994).

this paper will argue that the emerging regional and temporal variation in rural property rights, measured along several dimensions, varies systematically with objective economic factors which shape the direction and intensity of peasant and state interests.² In addition, this paper will argue that unlike the debate concerning the HRS, the current property rights dilemma is intrinsically more complex because the potential conflicts of interest between individuals, local collectives and the state are greater. Finally, the efforts in this paper to arrive at deeper and more multi-dimensional measurements of property rights opens the way toward further work on induced property rights change and its economic significance³

The remainder of this paper is organized as follows. After identifying the key dimensions or attributes of property rights, Section 1 lays out a framework for understanding the social relations of power, vulnerability and interest created by a particular property rights regime. Subsequent sections then utilize this framework to narrate a statistically documented history of the evolution of land tenure in contemporary China. Section 2 reviews the general features of the 1980s HRS reform, arguing that a strong coalition of individual and national interests could line up relatively easily behind the core HRS reforms given the 1980 structural position of the Chinese economy. Section 3 then shows using data collected from a sample of 80 villages that within the broad sweep of the HRS reform, variation in local factors and conditions shaped the nature of the reform along some subsidiary dimensions. Section 4 then extends the analysis of Section 3 forward in time, looking at various indicators of post-1980 local evolution of rural property rights across these same villages. Cluster analysis is used to identify those villages which have over this period deepened the privatization of tenure security, use and transfer rights. Finally, Section 5 concludes the paper with the suggestion that the emerging local variations in the property rights regime helps identify those perceived tradeoffs and competing interests which have rendered complex and contentious further decisive, national reform of rural property rights.

Section 1 Property Rights and Social Relations and Incentives for Institutional Innovation

The HRS unambiguously individualized the rights to residual income produced using agricultural land. More generally, however, the HRS created a mixed property rights system which encumbered individual rights with various

² The findings here generalize and support Kung's (1994) evidence that peasant preferences over egalitarian versus secure property rights are shaped by the nature of the objective economic environment.

³ While the econometric work on the HRS was able to rely on rough, typically binary, indicators of the property rights regime, current issues require more finely tuned measures of the different dimensions of the property rights regime. One goal of this paper is to clearly conceptualize and measure the dimensions of property rights as prelude to analysis of the economic impact of different rights regimes.

"responsibilities" to other individuals, to the local collective, and to the state. The analysis here will focus on four fundamental incidents or dimensions of property rights: Residual Income Rights; Unencumbered Use Rights; Rights to Secure Possession; and Transfer Rights.⁴ With some local variation, the HRS reforms individualized only the residual income rights, leaving national and local authorities substantial powers of management and redistribution. While the reform's transmission of rights to individual households improved individuals' economic prospects, the reforms in effect safeguarded the interests of other agents by giving them rights to intervene directly in the use and allocation of land. Under this mixed regime these other actors were not dependent on indirect mechanisms or the coordination of market signals to give voice to, or protect their key interests.

While the rapid growth of China's agricultural economy through the mid-1980's seemed to confirm the wisdom of the HRS's mixed property rights regime, the slowdown of agricultural growth which began in 1985, reopened the land tenure debate. Believing itself caught between a dynamic macro economy demanding rapid agrarian growth and structural transformation, and the distributional rigidities and insecurities of the HRS (which kept farm sizes small and long term individual investment incentives weak), the central government moved in 1993 to extend the length and security of individual land contracts to thirty years. However, while this move was intended to protect the individual land user from land loss and insecurity created by land redistributions, Kung (1995) notes that it was not really a credible change given that the local cadre had regularly violated the earlier fifteen year contracts, redistributing land when deemed necessary because of local demographic changes. Hence, despite some government experimentation with alternative property rules⁵, there has been no decisive resolution of the currently perceived problems with the tenure akin

⁴ Note that even this decomposition of property rights into four core dimensions is highly simplified. As we will see later, there are multiple dimensions to each of these core rights (e.g., possession can be only partially secure as there are causes for which individual can and cannot be dispossessed of land rights). Later sections of this paper will more carefully disaggregate these rights and look at their distribution across contemporary China.

⁵ Beginning in 1987, several schemes have been tested to resolve the perceived problem of egalitarianism in land allocation and the so-called scale diseconomies. Different schemes were purposefully selected and directed by rural reformers from the central government in each of the five regions characterized by different factor endowments and degrees of economic development. In order to push rural reform, in 1987 the former Research Center for Rural Development, the main unit of rural policy-making in China, set up several different rural reform programs in different zones which attempted to cover the major issues in rural reform: rural organization, marketing, land tenure structure, financing, enterprise institutions, etc. Land tenure was one of the most important issues. The counties selected by the central government were: Meitan county in Guizhou Province; Pindu county in Shandong Province; Wuxi, Changsu, and Suzhou counties in Jiangsu Province; Nanhai county in Guangdong Province; and Shunyi county in Beijing. The program in the first two counties aimed at resolving the issue of equal land allocation and adjustment; in the other five counties, the program focused on the issue of small farm size.

to the HRS' resolution of incentive problems which plagued pre-1980 Chinese agriculture. If anything, there has been a notable reluctance on the part of the central government to bring about the full individualization of property rights which would put reallocation and use decisions completely in the hands of individual owners as coordinated only by markets.

In order to better understand this reluctance, and to more generally aid understanding of the incentives and interests for institutional change in contemporary rural China, Figure 1 puts forward a version of the framework provided by John R. Commons (1968 [1924], p. 97) to draw out the social relations of power and vulnerability implicit in a property rights regime. Assignment of a property right to the individual owner implies a correlative duty on the part of others (including the state, the local collective authority and other individuals) to respect that right. Such duties expose the right holders to the consequences of the actions which the owner is at liberty to take. Correspondingly, limits to the individual's property rights (that is incidents over which the individual has no right) imply that other agents have the power to take or modify the individual's property (e.g., redistribute) and that the owner is liable to the consequences of their actions.

Key actors in rural China are the individual property owners⁶, who are presumed here to be interested in a property rights structure which best secures their livelihood from the land; other individuals with membership rights in the local community--including perhaps those not currently working in agriculture, but who might at some time desire recourse to land; and, the national state which is, among other things, presumed interested in the rate of growth, and in the stability and price of the domestic food supply.⁷ Note that intensity of an actor's interest, and the importance of their vulnerabilities and exposures, will vary over time and space as structural conditions change.

Given these different stake holders and their interests in the rural property system, the issue in rural China is where to draw the dashed line in Figure 1--that is, how many rights (beyond residual income rights) should be assigned to the individual property owners. While the assignment of residual income rights and resolution of the internal organization of rural production organization ultimately proved non-contentious, the legal correlatives which would be

⁶ Note that the term "individual owner" is used here to simply denote the agent who holds the largest legally recognized bundle of rights to the land. Its use does not imply that this agent holds a the complete bundle of unencumbered property rights which Honoré (1961) calls full or liberal ownership rights.

⁷ Local cadres could also be thought of as an additional party interested in the definition and disposition of property rights. However, cadres are perhaps best thought of as agents of the state and of the interest of the local community without independent interest in property rights. Instead, they face incentives to assure that state interests, and to lesser extent those of the local community, are fulfilled.

implied by a further deepening of individual rights make clear the sometimes dissonant interests of individuals, the state and the collective. In particular, deepening the individual owner's right to use (or not use) land without restriction would make the state's interest in the amount and stability of the food supply vulnerable to the decentralized decisions of individual property owners. In the language of Commons, the state would be exposed or vulnerable to the outcome of a multiplicity of small decisions. Similarly, assignment to individuals of the right to secure possession would restrict the ability of local collectives to incorporate new or returning members into the agrarian economy, exposing these members to potential insecurity. Finally, extending full bequeathal and alienation rights to the individual could threaten deeply held ideological principles of the state and perhaps lead to an undesired inter-generational perpetuation of inequality.

The perceived severity of these vulnerabilities and exposures depends on two factors, objective and subjective. Objective factors determine the intensity of the interests which are at stake (e.g., in an area of low agricultural productivity, the state has little to lose if resources are allocated and used indifferently); and, how likely individuals are to make personal resource allocation choices which run counter to the state's interests (e.g., if the local economy presents few opportunities beyond farming, then individuals are less likely to abandon land in pursuit of non-agricultural activity). In addition, subjective factors, or what might be better termed the actor's economic model, shape the confidence the actor has in decentralized market coordination to act as guardian of interests not directly endowed with rights under the operative institutional regime. For example, when markets are full and complete, the vulnerabilities of the propertyless individual to the resource allocation decisions of the owners of means or production are assuaged by a market which assures the individual access to employment and livelihood. Nor, under these circumstances, does the social exposure to asset underutilization matter.⁸

Unlike the shift to the HRS where apparently strong incentive effects on output were sufficient to create a strong coincidence between individuals' and state institutional preferences, a further deepening of individual rights would result in the elimination of the various encumbrances and responsibilities which directly seem to safeguard collective and state interests. To the extent that the state, right or wrongly, perceives that the decentralized coordination provided by privatized property rights and markets is an inadequate guardian of its interests, then a possible tradeoff is

⁸ This emphasis on subjective and objective factors, and the precise interests and understandings of interested actors, suggests a somewhat different approach to the problem of induced institutional innovation, as Carter *et al.* (1995) develop in greater detail.

created in the choice between deeper privatization (which provides strong use and investment incentives) and state interests in food security.⁹ The ultimate direction of property rights evolution and the individualization rights will thus ultimately depend on the interacting interests and ideologies of the different interested parties. The remaining sections of this paper use this framework of social relations and interest to structure a descriptive statistical narrative of the contemporary evolution of property rights in rural China.

Section 2 Individual Work Incentives with Limited State Exposure: The Political-Economic Logic of the Household Responsibility System

After coming to power in 1949, the Chinese communist party endeavored to accelerate the country's economic development. According to the party, Chinese poverty could be historically traced to the exploitative nature of private ownership and to the dominance of traditional agriculture in national economy. As a consequence, the basic logic of its development strategy was to first replace what was perceived as a feudalistic system of private land ownership; and, second to implement state-owned industrialization strategy (Mao 1949; Bo 1992). To achieve the first goal, a land reform program initially replaced the inherited structure of private ownership with the ownership of a self-cultivating peasantry. However, after only three years private property redistributed through and accumulated after the land reform program was collectivized. To achieve the second goal of accelerated structural change, all productive resources were monopolized by the state to be used to implement heavy-oriented industrialization. Rural policies were designed to assist in this task by extracting and allocating the agricultural surplus to the industrial accumulation .

The forgoing development strategy brought two serious consequences. The first was a serious dampening of individual incentives. In the collective agrarian economy, land use, production, crop planted, and quantity sold were all regulated by the central government. Production team leaders functioned as agents of the central government. They did not have any power nor the incentives to care for the collective agricultural production. Within the collective production teams, income was allocated to team members on the basis of need, creating a very tenuous link between effort provision and income, resulting in weak work incentives for team members (see Putterman 1993). Not surprisingly, the economic

⁹ The potential severity of those tradeoffs is the topic of related work, Yao and Carter (1996).

performance of the collective agrarian economy was mediocre.¹⁰

The second consequence of the development strategy was the emergence of an urban-biased policy environment. As their contribution to the industrialization strategy, Chinese peasants were charged with the guaranteed provision of food-stuffs for the citizens according to government-set volumes and prices (Gao 1990). Non-agricultural activities in rural areas were prohibited in order to protect the monopoly position of the state in the industrial sector. Pervasive poverty areas and restricted development came to typify rural areas over this period.

The late 1970's brought Mao's death and the modification of China's rural policies. The central government raised the purchasing prices of major agricultural products, and decreased the volume of mandatory, low price quota deliveries. The party began to stress the importance of improving material incentives. Responding to these changes in the policy environment, various forms of more decentralized production organization were adopted by Chinese peasants. What ultimately became known as the household responsibility system was the most common of these innovations. Under this system, households received land contracts and residual income rights in return for becoming responsible for production on that land, including delivery of mandatory quotas. By tightening the link between labor effort and income (at low monitoring cost since it works as a piece rate system), the HRS resolved at least the short run incentive problems of the collective system.

While perhaps explaining its popularity and rapid adoption in rural areas where the payment rules and incentive problems of the collective system were perceived to have constrained household incomes, the incentive effects of the HRS were insufficient to politically safeguard and legitimate the system. In fact, at least four earlier attempts to adopt similar institutional innovations had been rebutted by the central government (see Du 1985). The change of socialist ideology was undoubtedly contributed to the ultimate success of HRS in 1980's. But in addition, the political success of the HRS can be attributed to the relative ease with which it could be portrayed as an innovation beneficial to both farmers and to the state and other interested parties. Two major sets of encumbrances directly safeguarded the interests of these other parties under the HRS, even as it was initially developed and applied extra-legally in some of

¹⁰ While there is little debate that agricultural sector performance was lackluster, there is substantial disagreement about the degree to which that performance reflected intrinsic problems of collective production, or whether it reflected the peculiarities of the anti-incentivist payment rules utilized within the collective. Louis Putterman (1985, 1991) and James Kung (1994) have most forcefully argued for the latter interpretation, while McMillian *et al.* (1989) and Lin (1992) propose the first interpretation.

China's poorest regions. First, in exchange for the residual income rights, contracting farmers had to fulfill the state's grain quotas and contribute to the local collective's accumulation and administrative funds. Second, the local collective retained control over the allocation of land, because it had the power to assure that the equal land entitlements of every collective member collective member were respected. At the level of subjective belief or economic model, the HRS required belief only in effectiveness of decentralized incentives to elicit greater work effort and productivity. It did not require belief in the ability of markets to coordinate multiple individual choices into something like a socially optimal equilibrium. Thus, the partitioning of property rights between multiple parties which defined the HRS improved the production incentive of contracting farmers without exposing the interests of the state and collective authority's to decisions beyond their direct coordination and control.

The minimal belief in the power of decentralization required to subjectively render the HRS as a mutually beneficial innovation was in fact quickly ratified by initial experience with the innovation. Improving production incentive brought about sudden increase of grain outputs and households income, and the fulfillment of state's quotas. The good performance in these poorest regions provided a powerful evidence for the potential supporters of HRS to push its legitimize. The contractual arrangement of HRS was at first permitted in the poor regions in 1980, firmly recognized by the central government in 1982. Thereafter, the HRS spread rapidly across the entire country.

In summary, the 1980's agrarian reform restructured the property rights and interest relations by organizational change and land redistribution. Perhaps the key to the acceptability of the HRS was that it made modest use of decentralized incentives to achieve a mutually beneficial increase in output. Because it was initially put forward at a time and in regions where it could be presumed that most individuals faced few competing economic opportunities which could distract them from agricultural work, the HRS made minimal demands on the efficacy of decentralized coordination mechanisms to assure that individuals allocated their time between competing uses in ways consistent with the desires of the state and local authorities.

Section 3 Structural Conditions and Local Variation in the HRS Reform

Section 2 has described the key features of HRS understood as a single national system of reform which adjusted rights, duties, liberties and exposures of the relevant parties. But, the HRS is both more complex and variegated than a single country-wide description admits. The goal of this section is to explore the local variation in the

initial HRS reform. In addition, by exploring the degree to which local variation in the HRS reform can be explained by structural factors which shape the intensity of competing local interests in a property rights regime, this section sheds light on the processes of institutional innovation which continue to shape the evolution of rural property rights.

In order to explore local variation in property rights, an 80-village level survey was undertaken in eight counties of four provinces in China during March, 1994. Comprising the sample were 30 villages located in Ning, Shaoxing and Leqing counties of Zhejiang Province; 10 villages from Weihui county in Henan Province; 26 villages from Dehui and Gongzuling counties in Jilin Province; and 12 villages from Anfu and Nancheng counties in Jiangxi Province. These provinces and counties were selected for the study because between them they exhibit significant variation in structural conditions which would be expected to influence the working of the property rights system. Three villages with incomplete data were dropped, leaving seventy seven villages for the study here. As the statistics in Table 1 show, these villages exhibit large climatic and economic variation. The villages of Zhejiang Province are located on the eastern coast of China and have a climate suitable for annual double cropping of rice. They are characterized by the greatest land scarcity (with only between 0.5 and 0.9 arable mu per-capita¹¹) and have the most developed non-agricultural sectors. Non-farm income accounts for some 60 to 75 percent of household income in these villages. The villages of Jilin Province in northeastern China are characterized by relatively abundant land (4.3 mu per-capita) and an almost complete dependence of households on agriculture income. Agroclimatic conditions permit three crops every two years, with corn being the major crop. With its relatively abundant land, Jilin has become one of the few provinces that manage to have grain surplus in recent years. The conditions of the villages in Jiangxi and Henan Provinces match those of the villages surveyed by Kung (1995) in that they are characterized by both relative land scarcity and weak off-farm income earning opportunities. Jiangxi, located in southern China, grows two season rice and is pivotal in shaping China's rice market, while Henan grows wheat and its output barely meets the consumption needs of its population of nearly 100 million. Table 1 also shows information on agricultural productivity and soil quality (as indicated by physical rice yields) as well as the magnitude of the state grain quota in the different villages. This latter measure stands as an indicator of the region's importance to national grain supplies. As can be seen, the villages in the two grain exporting provinces, Jilin and Jiangxi, have much higher quotas than those in the other provinces.

¹¹ One hectare equals fifteen mu.

Implementation of the HRS at the time of the reform required a number of decisions at the local level concerning the allocation of rights and duties across community households, including:

- (1) The principle by which land would be allocated among community members;
- (2) Stipulations for future land redistributions based on populations changes;
- (3) Whether and how to adjust land allocations for land quality differences; and,
- (4) How to allocate encumbrances and duties (grain quotas and taxes) among community members.

Table 1 lists the various rules used to allocate rights and duties within the surveyed villages. Within each category, the rules have been roughly ordered according to the degree to which they are likely to generate and sustain an egalitarian distribution of land, with the first listed rule being the procedure most likely to generate an egalitarian outcome across the households within a community. Note however that the more egalitarian rules are likely to be costly in several ways. First, the more egalitarian rules are in most cases more costly to administer. In addition to this transactions cost differential, the more egalitarian rules are potentially costly because they may dampen agricultural productivity, either by reducing long term security and fixed investment, or by allocating land to households who are less able to mobilize resources to effectively cultivate it.

The potential costliness of egalitarian land distribution implies a tradeoff between aggregated agricultural production and egalitarianism. Gaynor and Putterman (1993) explore that tradeoff, using a social welfare function which values both goals. However, the severity of that tradeoff is likely to be less stark than their model presumes, at least in lower income areas where off-farm labor market opportunities are weak. To see this, consider the standard Chayanovian model of labor allocation in the peasant household (Chayanov 1924). When there is no off-farm labor market (or, more realistically, when access to it is quantity rationed), households will apply labor until the “marginal drudgery” of the work (in Chayanov’s language) just offsets the marginal utility value of the additional consumable commodities produced. In more contemporary language, the marginal value product of labor is set equal to a shadow wage defined as the marginal rate of substitution between leisure and consumption goods. More formally, if we follow Sen (1966) and assume for simplicity that peasant household resource allocation is guided by a unified egalitarian welfare function, Chayanov’s first order condition can be written as follows:

$$p \partial q / \partial L_r = (\partial W / \partial \ell) / (\partial W / \partial c) \equiv z(T, \alpha, \beta),$$

where q is on-farm output which is assumed to be a constant returns to scale function of land and labor; p is the output

price; L_f is total on farm labor; W is a family welfare function defined over per-consumer commodity consumption, c , and per-worker leisure, ℓ ; and, T is the household's land allocation, α its number of working members, and β its number of consumers.¹² Under this Chayanovian model, if land were distributed completely according to household labor supply (so that T/α was equated across households), then the shadow wage would be strictly decreasing, and output per-hectare strictly increasing in β , the number of consumers.¹³ Aggregate output would actually be increased if land were then transferred in egalitarian fashion from households with relatively few consumers to those with many. An output maximizing land distribution would thus be one which allocated some land according to labor force and some according to the erstwhile egalitarian principle of distribution according to number of consumers. Or, put differently, because of what Chayanov called the "self-exploitation" of demographically disadvantaged households, the output costs of an egalitarian land distribution will be lower in areas with weak or rationed access to off-farm labor markets.¹⁴

Unlike Gaynor and Putterman who presume that property rights and distribution rules are determined by the operation of a unified social or government welfare function, the perspective here is that these rights and rules were determined by the interplay of individual and collective interests (with the latter represented by local political authorities). This section explores the hypothesis, also articulated by Kung (1994, 1995), that more egalitarian rules were likely to be chosen in those villages and regions where the household's dependence on farm income is greatest. In

¹² Sen (1966) imposes an additive separability between consumption and leisure and writes the household's utility objective as:

$$W = \beta U(c) - \alpha V(L_f/\alpha),$$

where $U(\cdot)$ is a standard concave utility function defined over per-capita consumption, and $V(\cdot)$ is disutility or drudgery function which is increasing and convex in the average of labor supplied by each of the α working members of the household.

¹³ The reason of course is that households with relatively large numbers of consumers would face lower total consumption (and higher marginal utility of consumption) if they utilized the same amount of labor per-mu as households with lower consumer worker ratios. Such households would be willing to work more in order to increase their level of consumption and rebalance the marginal product of labor with the marginal rate of substitution between leisure and consumption.

¹⁴ The analysis here also suggests that the observed level of income inequality generated by an inegalitarian land distribution are likely to be at least partially mitigated by endogenous labor supply responses. In this sense, it would be interesting to decompose the levels of post-HRS inequality measured by Hsiung and Putterman (1989) and see the extent to which the labor supply phenomenon described offsets the income inequality which would have resulted without this effect. It is important to note in this context that income inequality would understate inequality in household welfare, since households with high consumer:worker ratios are boosting their income by "self-exploiting" themselves and sacrificing leisure, and other non-farm time uses.

contrast, in areas with higher amounts of non-agricultural income, the relative economic importance of land and community membership rights should be less, and therefore individuals should be less willing to pay the costs associated with the more egalitarian rules. Moreover, individuals in regions linked to a booming non-agricultural economy would be expected to assign a lesser option value to socially guaranteed land access, and hence be less willing to establish rules which guarantee such access at the cost of reduced long term security of those actually cultivating the land. Note also that the local authorities would, other things equal, seem less likely to tolerate potential efficiency losses from egalitarian rules in those areas where collective duties (grain quotas) are highest. Finally, as just argued in the preceding paragraph, the actual output loss attributable to a more egalitarian distribution is likely to be less (or even nil) in areas with low non-agricultural income and weak off-farm labor markets. However, in areas with either abundant land (such as Jilin province) or strong off-farm labor markets (such as Zhejiang province), the state would have little opportunity to use egalitarian distribution rules as a way to boost output through a Chayanovian "self-exploitation" effect.

Table 1 shows that in the regions with higher net income (Zhejiang province) or higher land endowment (Jilin province), relatively inegalitarian methods of distributing land rights across households were utilized as at least some land was distributed according to household work capacity instead of according to its consumer need. This inegalitarian tendency is even stronger in land abundant Jilin province where 92% of the villages distributed land only according to labor force. By contrast, in Henan and Jiangxi provinces, with their low arable land per-capita and income levels, more villages (in Henan, all ten villages) distributed their land on an egalitarian basis when the HRS was established. The high incidence of egalitarian distribution in Henan may be partly explained by noting that the grain quotas in Henan are the lowest of all the provinces surveyed (83 kilograms/mu versus 98 to 167 kilograms/mu in the other areas), and that non-agricultural income is minimal (2.3% of total), suggesting that local leaders would perceive the amount and costs of foregone output resulting from egalitarianism to be minimal.

Matching this egalitarian impulse in the initial distribution of land in mainly agricultural and land scarce areas, 50% of the villages in Henan and 64% of those in Jiangxi made explicit provision to readjust land holdings in response to future shifts in household demographic structure.¹⁵ In contrast, only a tiny minority of the villages in Zhejiang and

¹⁵ The economic and demographic conditions of the villages in these two provinces are close to those in Huanan and Sichuan surveyed by Kung (1995). Interestingly, the provisions made by these villages concerning land redistribution are also comparable to the findings found reported by Kung for his study area.

Jilin provinces made explicit stipulations to adjust land rights in response to changes in household size.

Because agricultural land can be quite heterogeneous even within a small geographic region, villages implementing the HRS had to decide how to allocate land of distinct qualities. The survey identified four basic methods used to allocate land of different qualities. Table 1 attaches labels to the different methods which are more completely described as follows:

- (a.) *Equal Distribution of Different Land Quality Types*
Under this arrangement, there was an equal distribution of all types of land. The most common method for achieving this egalitarian distribution was to first divide the collective land stock up according to its soil quality (good, middle, and poor) and distance from the village. Every household was then allocated an equal share of each land type (based on either their household size or labor force, as discussed above).
- (b.) *Lottery Distribution of Equivalent, Quality-Adjusted Bundles*
All land was converted into standardized, quality-adjusted land units. For example, 1 unit of high quality land might be the equivalent of two units of low quality land. Quality equivalent parcels were then assembled and distributed by lottery to households.
- (c.) *Equal Distribution of Mid-Quality Land with Lottery Distribution of Poor and High Quality Lands*
Under this system, only the average quality land was divided equally among households. Good and poor quality land were divided by drawing lots among households.
- (d.) *Unequal Distribution of Quality Land with Monetary Compensation Paid by Recipients of Higher Quality Land*
Under this arrangement, all land parcels were assigned a value according to their quality. Parcels were then randomly divided among households. Those households receiving poorer quality land bundles received monetary compensation from those households which received the higher quality bundles.

The first two methods (a. and b.) as those most likely to generate an egalitarian distribution of land in quality adjusted terms. Table 1 shows that 90% or more of the villages in Jiangxi, Henan and Jilin provinces utilized these egalitarian methods. By contrast, just under two thirds of the villages in Zhejiang province utilized these more egalitarian methods, with the other third of villages choosing methods which likely to generate unequal distribution of land wealth. This contrast between Zhejiang and the other provinces is consistent with the notion that villages in the former province did not find it worthwhile to pay the additional costs associated with securing more egalitarian distributions given the relative unimportance of agricultural income in those villages.

In addition to parceling out productive resources, villages also had to divide up and assign the production quotas and other duties for which the collective had been responsible when land was commonly held and operated. The quota operates in part as a tax since quota output receives a lower price. As can be seen in Table 1, the main difference was between those villages which assigned quotas based in proportion to total land holdings and those which assigned

them based only on a household's holding of responsibility land. The distinction between the two methods is meaningful only in those villages which allocated some land (food or grain land) according to household consumption needs, and some land (responsibility land) on a less egalitarian production capability basis. Note that from the perspective of income distribution, the division of the village's grain quota based on responsibility land only would tend to at least partially offset inequality (on a per-capita basis) generated by the less egalitarian methods of land distributions. As can be seen in Table 1, the villages in Zhejiang and Jilin provinces were the most likely to assign quotas based on responsibility land only since it was those villages which tended to a less egalitarian distribution of land as nearly 90% of villages in both provinces divided land up at least in part based on family labor force as opposed to family consumption needs. One possible interpretation here is that differential quota allocations were used to equalize agricultural income distribution in those areas where there was an unwillingness to pay the transactions and output costs associated with egalitarian land distribution.

Finally, Table 1 presents information on the methods used to assign households responsibility for funding local government functions, the costs of which had been directly borne by the local collective prior to adoption of the HRS. These functions, and the funds collected and earmarked for them, are of three types: Funds for community infrastructure construction and investment (e.g., irrigation works); Funds for social welfare programs; and, Funds for covering the expense of local political administration (e.g., the salaries of local political authorities). For the most part, these tax-like obligations were allocated on the basis of a household's total land allocation, suggesting a mildly progressive taxation of agricultural income in those regions where land was distributed on an inegalitarian basis. The exception to this pattern is Zhejiang province where the large non-agricultural economy made it possible to fund these expenditures by taxing the local township and village enterprises.

In summary, at the time at which the HRS was adopted, the surveyed villages gave differential importance to rules guaranteed to establish and maintain an egalitarian distribution of land. Less egalitarian methods appeared to be adopted in those regions where either land abundance or a buoyant off-farm economy made the relative value of land lower, or where high grain quotas might have made the local authorities less willing to countenance efficiency losses associated with more egalitarian land distribution and redistribution rules. Interestingly, however, in those areas where the HRS rules permitted less egalitarian distributions, tax and quotas were applied in a modestly progressive fashion, suggesting that the post-tax agricultural income distribution would be more egalitarian than the land distribution. These

findings of persistent attention to egalitarian values ratifies the arguments of Kung (1994) and Gaynor and Putterman (1993).

Section 4 Decentralized Institutional Innovation and The Post-1980 Evolution of Rural Property Rights

Since the 1980's HRS reform, rural property rights have continued to evolve under a process of local or decentralized institutional innovation. This section uses data from the 80 village survey to measure and explore the evolution of property rights along the three of the key dimensions highlighted earlier: Encumbrance of Use Rights; Tenure Security; and, Transfer Rights. Interesting in its own right, this section's conceptualization and measurement of the various dimensions of rural property rights also sets the stage for further analysis of the productivity impacts of alternative institutional regimes.

Conventional induced institutional innovation analysis (e.g., Douglas North 1990, Gershon Feder and David Feeney 1991, and Ruttan and Hayami 1984) emphasizes the impact of increasing land scarcity on increasing the net benefits to a full privatization of rights to agricultural land. The situation in contemporary China is, however, more complex. As discussed in the prior section, the rules establishing the HRS can be seen as a compromise between the interests of current land users, local authorities, and future land claimants. Since the inception of the HRS, there have been two sources of change which have impinged on these interests. The first is simply increasing land scarcity in the aggregate factor proportions sense. The second is the rapidly growing non-agricultural economy which has pulled more and more labor from the farming sector. This second change in particular exposes the interests of local authorities in fulfilling grain quotas and other production targets to a multitude of decentralized labor supply and land use decisions. In addition, depending on the perceived security of off-farm employment opportunities, individuals considering non-farm employment may themselves change the importance they attach to social or other mechanisms which guarantee their right to regain access to land in the future.

Several directions of institutional innovation can be imagined under the pressure of these new circumstances and interests. On the one hand, one could imagine a deepening of privatization, especially by individualizing transfer rights as a way to insure that those who do not wish to cultivate their land can easily shift it to others who wish to. On the other hand, one could imagine a reassertion of collective control in the form of increased encumbrances on use rights ("use it or lose it") as well as reduction in individual tenure security brought about by an assertion of collective rights to

reallocate land for social and economic reasons. In fact, both tendencies are visible in contemporary China, as this section now explores.

4.1 *Contemporary Property Rights Regimes*

In an effort to gauge the current property rights regime, the village survey queried local leaders about tenure security and individuals' rights to use and transfer land under a variety of specific circumstances. Table 2 displays ten key indicator variables from the survey which have been grouped together into variables which describe Use Rights; variables which describe Tenure Security; and, variables which measure Transfer Rights. All the rights variables are scaled so that higher values represent a more privatized, or socially less encumbered property right.

Table 2's figures on the overall sample provide a mixed picture of the degree to which property rights in the sample villages had become individualized by the time of the survey in 1994. In terms of encumbrances on individuals' right to use (or not use) a piece of land, 37% of all surveyed villages report that no sanctions or other actions are taken if a household leaves its land uncultivated--the other 63% either force the individual to cultivate the land or simply repossess the land allocation. In terms of tenure security, the seventy seven villages had on average administratively adjusted land allocations across households just over one time in the decade or between the local adoption of the HRS and the 1994 survey. In terms of transfer rights, nearly 75% of the villages permit individuals to rent out land for compensation, although about a third of those villages require administrative approval of the rental. Sale of use rights is permitted by about 50% of the villages, though again a large percentage of villages permitting sale of use rights require administrative approval.

These multiple indicator variables are rather themselves both unwieldy and individually are imperfect indicators of the underlying property rights regime in each village. Simple examination of their average values also tends to hide the degree to which multiple property rights regimes are emerging, as might be expected given the distinct local interests and exposures which might drive decentralized processes of institutional innovation. For analytical purposes, it would be ideal to derive a single dimension indicator of the property rights regime. Analysis of the distribution of this variable would then permit inference about the different emergent property rights regimes. In an effort to arrive at a similarly compact measure of the property rights regime, other studies have chosen to focus on a single "dominant right" as representative of the overall regime. For example, Place and Hazell (1993) found that the right to freely sell land was

a dominant right in their study of land tenure regimes in several African countries--i.e., when a household possessed that particular transfer right, it also tended to possess a complete suite of privatized use and security rights.

Such a dominant right approach would unfortunately be inadequate in the present study for several reasons. First, unencumbered alienation rights are rare in contemporary rural China, nor is there any other right which logically suggests itself as one whose value would be likely to predict the configuration of other rights. Second, and more importantly, property rights are undergoing a process of decentralized institutional evolution, making it less likely that any single right would adequately characterize property rights across heterogeneous locales. As an alternative approach, this paper utilizes cluster analysis to empirically identify emerging property rights regimes across the surveyed villages. For each of the three rights groups displayed in Table 2, a cluster analysis was performed to group together those villages which share similar rights regimes. The two right hand columns in Table 2 display the mean values of the different property rights indicator variables when the cluster analysis was restricted to divide the sample villages into only two groups.¹⁶

As can be seen in Table 2, approximately three fourths of the sample villages were grouped together into a cluster characterized by more highly individualized property rights. For all ten indicator variables, the differences between the groups is quite strong, and with one exception, statistically significant. Note that the cluster of less privatized villages impose more centralized readjustments and also tend to prohibit decentralized transactions. The more privatized cluster of villages has much higher degrees of individual tenure security which is matched by a much greater tolerance of individual land transactions. It appears that emerging from the HRS are at least two distinctive regimes. The remaining portions of this section now examine the degree to which to which cross-regional variation in these regimes is consistent with the interests and influences discussed earlier.

¹⁶ Without *a priori* knowledge of the number of groups present in a population, cluster analysis usually begins by treating each observation as a group or cluster. The number of clusters is then sequentially reduced, combining observations and clusters which are most alike in terms of a distance criteria. Standard criteria exist for identifying the point at which cluster aggregation should stop because the aggregation has begun to force highly distinctive observations into a single cluster. Unfortunately, in this data set, there was no easily identifiable optimum number of clusters. To keep the analysis as straightforward as possible, Table 2 then presents only the results when the cluster analysis was restricted to two clusters, effectively identifying the polar groups of highly privatized rights and highly encumbered rights.

4.2 *Encumbered Use Rights*

As discussed earlier, the responsibility of local political authorities to assure that grain production quotas and targets are met exposes authorities to individual decisions about whether and how to utilize agricultural resources. That exposure would appear to be most severe in areas where off-farm opportunities are ample and grain quotas are high. Using those criteria, exposure should be lowest in Henan province where quotas are low (especially as a percentage of average yields) and off-farm income opportunities appear to be minimal. The other provinces present a mixed picture. Grain quotas are low quotas and off-farm income opportunities are large in Zhejiang province, while grain quotas are high but off-farm opportunities are more limited in Jilin and Jiangxi provinces.

Encumbrance of individuals' right to use land is one possible response to this exposure of local authorities. As can be seen in the first column of numbers in Table 2, 37% of villages reported that they imposed neither restrictions nor sanctions on households if they leave land uncultivated, while the complementary 63% encumber individuals right to use (or not use) with some form of penalty. The cluster analysis shows that among the 19 villages which fall in the less privatized rights groups, all but 16% impose sanctions under this circumstance. For example, when an individual engages in off-farm work and leaves land poorly cultivated, most these villages either repossess the individual's land or force the transfer of land to another household. By contrast, in the more privatized group, the average score of 4.7 of what is done if land is left underutilized indicates that most of the villages take no action.

Table 3 explores the regional variation in the pattern of use rights. In Henan province, where state exposure would appear to be limited, use rights are not encumbered as fully 100% of the villages fall into the more privatized cluster. None of the surveyed Henan villages impose restrictions or sanctions when land is poorly cultivated and the household engages in off-farm work, and 90% of the Henan villages impose no sanctions when land is left completely uncultivated.

By contrast, in Zhejiang province where the off-farm economy lends weight to the state's exposure to unencumbered use rights, over 90% of villages impose sanctions when land is left uncultivated; and, only 30% of villages take no action when land is poorly cultivated when a family engages in off-farm labor. In Jilin and Jiangxi provinces the percentage of villages falling in the more privatized use rights cluster is similar to that in Zhejiang, though only about 40% to 50% of all villages in these provinces impose sanctions of any sort when land is left uncultivated, and a higher percentage (60%) take no actions when land is poorly cultivated and the family engages in off-farm labor.

In summary, there appear to be two rather distinctive regimes of use rights, one in what individuals' rights are highly encumbered, and another in which few sanctions are imposed on households which underutilize their holdings. Regionally, the pattern of rights corresponds to what would be expected from a decentralized institutional innovation perspective as rights are more heavily encumbered in those areas in where household responsibility for grain quotas is likely to be a binding constraint.

4.3 *Security of Tenure*

In the literature on land tenure security (for example see Bruce and Migot-Adholla 1994), tenure insecurity refers to the possibility that a household wrongfully or randomly loses possession of its agricultural land. In the context of the HRS, individual tenure insecurity refers to the prospect that a household must relinquish land as part of an administrative reallocation of land across households. The interests of households in more secure rights are complex, especially given constraints imposed on the marketability of land rights. At one level, individuals would of course prefer to face no insecurity, nor deal with the income losses potentially generated by the muted investment incentives such insecurity can generate.¹⁷ At the same time, some tenure insecurity means that the same household can potentially increase their land holdings at the expense of others in the event of demographic shifts. One's own tenure insecurity, and the potential income losses it might entail, can be conceptualized as the price paid for the option to secure an increased land base in the event of future need, as Kung (1995) also suggests.

The value of such an option might be expected to be highest in regions where land is both scarce and the primary source of household income. Of the areas surveyed, Henan and Jiangxi are those which most closely match these criteria: Arable land is only 1.5 mu per-capita in Henan and 2.0 mu per-capita in Jiangxi, and non-farm income averages only 2.4% and 13.2% of household income in the two provinces, respectively. As Table 3 shows, only 50% of the Henan villages fall into the more privatized security rights cluster; and, on average, Henan villages have undertaken administrative land reallocations just over twice since the inception of the HRS. The situation in Jiangxi is even worse as only 38% of the surveyed villages fall into the more privatized cluster. Although the villages in this province have

¹⁷ See Feder et al. (1988) and Carter and Olinto (1996) for formal models of the impact of tenure insecurity on farm investment, productivity and income. Yao and Carter. (1996) empirically probe the impact of this form of tenure insecurity on farm investment and income in rural China.

undertaken less administrative land reallocations (1.5 times on average) than those in Henan, they have more restrictive stipulations regarding land reallocations in case of demographic changes (therefore, their lower frequency of land reallocations is the result of a slower demographic change).

By contrast, individual rights are much more secure in Zhejiang and Jilin provinces where nearly 90% of the villages fall into the privatized cluster and villages have averaged less than one land readjustment during the time of the HRS. The relatively high degree of individual tenure security in these areas matches what would be hypothesized as a low willingness to pay for the option of a favorable reallocation as land is of more modest economic importance to households in Zhejiang province and is relatively abundant in Jilin province.

4.4 *Transfer Rights*

Tables 2 and 3 present information on transfer rights, including the individual's right to lease out, give out (free of charge) and sell off his or her rights to HRS land. As noted above, a well functioning land transfer system could potentially stand as guardian of the local political interest in assuring that land is well utilized so that production targets and quotas are met, as well as a mechanism through which households could expand their resource base in case of new needs. How well land markets work (both rentals and sales) is the object of a voluminous economic literatures.¹⁸

Setting aside the theoretical and empirical debates over land markets, it can be seen that despite the popular view that land transfers have been infrequent in the post-HRS reform period because of limited transfer rights, the majority of the villages permitted farmers to lease or give out land freely. Indeed, 64 of the 77 villages surveyed fall into the relatively privatized cluster in which such actions are permitted with minimal regulation. The remaining 13 villages, however, continue to forbid or sharply limit land use rentals and gifts; and, nearly all the villages regulate the sale of use rights.

Examination of the cross-regional variation in Table 3 shows that it is the villages in Henan and Jiangxi provinces which most tightly restrict transfer rights. As discussed above, it was villages in these two provinces which

¹⁸ The classic efficiency debates over sharecropping speak directly to the efficiency with which land rentals move resources from land abundant to land scarce households (see, for example, the review essays of Singh 1989 and Otsuka and Hayami 1992). The efficacy of the land sales market is even more complex as various studies have raised question about the thinness of that market (Basu 1986) and the degree to which its operation is skewed by capital constraints (Zimmerman and Carter 1996 and Carter and Olinto 1996).

also exercised the most administrative control over land reallocations. Apparently there is little confidence in these regions households can effectively utilize the market to gain access to land resources should future circumstances dictate it. Interestingly, in Zhejiang province, where use rights were most heavily encumbered, transfer rights appear relatively free, suggesting that decentralized market devices as well as administrative mechanisms are being utilized to reduce state exposure to the risk that land will be poorly cultivated. Based on the evidence of these differential patterns of institutional innovation, there would thus seem to be an asymmetric confidence in the ability of land markets to function as guardian of different social interests.

Section 5 Conclusion

Widely credited with breaking the “iron rice” bowl and powering a takeoff in agricultural growth, the Household Responsibility System reforms of *circa* 1980 assigned residual income rights to individual households, while leaving a variety of other use and land reallocation rights vested in the state and local collective authorities. With the further growth and structural transformation of the Chinese economy over the 1980s, new challenges of land reallocation and technological change confront the productivity of the agricultural sector; giving rise to questions about the adequacy of the mixed property rights regime inherited from the HRS reforms. As discussed in Section 1, a deepening of privatization would require the state and local authorities to relinquish their powers and rights to directly protect their interest by influencing the use and management of land. In the language of the classic institutional economics of John R. Commons, such a change would increase the exposure and vulnerability of the state. The significance of that exposure ultimately depends on the quality of decentralized decision making as coordinated by markets.

The lack of a coherent national post-reform policy is at least *prima facie* evidence of concern, or at least uncertainty, over the significance of that vulnerability, suggesting that policy makers perceive a real tradeoff between privatization and their interests in an adequate and stable national food supply.¹⁹ After defining and measuring other

¹⁹ For example, the abolition of state grain purchasing quotas in 1994 was quickly abolished as urban food prices skyrocketed, signaling an apparent failure of market coordination to protect the state’s interest in urban food supply and price stability. While economists and academically minded individuals can debate the exact interpretation of those food price movements can be debated, the political interpretation, blaming abolition of the quotas, has proven to be the decisive one. The analogy here to the so-called “scissors crisis” in the Soviet Union in 1924 is instructive in this regard. While later analysis suggested that there had been no production drop off, Soviet agricultural policy was irrevocably influenced by the contrary interpretation.

dimensions of the contemporary rural property rights systems, the analysis here of the decentralized patterns of institutional innovation provides additional evidence of the reality, or at least the perceived reality, of a tradeoff between further privatization and state interests. For the pattern of local institutional change appears to be one in which privatization has extended furthest in those areas where the state has least to lose, or the least to fear from decentralized decisionmaking gone astray. In addition, in those areas where one might hypothesize that the individual option value of future land access is highest, land rights have been least privatized and decentralized market mechanism least relied upon.

This paper's exploration of the dimensions and diversity of property rights provides a starting point for two additional pieces of analysis which might further explore the reality and substance of the tradeoffs confronting any further reform of rural property rights. First, while the descriptive statistical analysis of the decentralized evolution of rural property rights has been suggestive, a deeper and more thorough econometric analysis is called for in order to understand the constraints and perceptions which are shaping institutional innovation. Second, using this paper's definition and measurement of the multiple dimensions of property rights, it should be possible to explore the productivity implications of alternative regimes. Such information would make possible a more informed understanding of the tradeoffs, and their costliness, which confront current property rights reform.

Figure 1
Social Relations of Property Rights

		Legal Correlatives	
		Property Owner	State, Collective and Other Individuals
L i m i t s	Rights and Liberties	=====>	Duties and Exposures
	No Right and Liabilities	<====	No Duty and Power

Table 1
Structural Characteristics of Sample Villages and
Local Variation in the HRS at the Time of the Reform

	Zhejiang	Henan	Jilin	Jiangxi
<i>Structural Characteristics, 1993</i>				
Number of Villages in Sample	30	10	25	12
Arable Land (mu per-capita)	0.7	1.5	4.3	2.0
Arable Land (mu per-household)	2.2	6.3	17	9.6
Grain Yields (kg/mu)	748	573	455	475
Grain Quota (kg/mu)	98	83	164	167
Per-Capita Income (yuan)	1711	945	861	901
% Non-Farm Income	67.0	2.4	13.3	13.2
<i>Principle of Land Distribution (% Villages)</i>				
By Household Population	16.7	100	3.8	36
By Household Population and Labor Force	53.3	0	92	64
By Household Labor Force	26.7	0	0	0
Other	3.3	0	4.2	0
<i>Stipulations for Future Redistribution with Population Change (% Villages)</i>				
Stipulations to Change	10	50	8	64
Stipulations Not to Change	40	0	44	18
No Stipulations Made	50	50	48	18
<i>Method used to Adjust Land Allocation for Land Quality Differences (% Villages)</i>				
Equal Distribution of Different Land Quality Types	60	70	92	91
Even Distribution by Lottery of Quality Equivalent Land Bundles	3	20	0	0
Even vision of Mid-quality Land with Lottery Division of Poor and High Quality Land	20	0	0	9
Land Was Priced by Quality, and Those Taking Good Land Paid Monetary Compensation to Other Households	7	10	4	0
Other	10	0	4	0
<i>Division of State Grain Quota (% Villages)</i>				
By Population	3	20	0	9
By Total Land	40	60	8	91
By "Responsibility Land"	57	20	92	0
<i>Tax Basis used to Collect Collective Funds (% Villages)</i>				
By Household Population	0	20	4	0
By Household Land	37	80	36	91
Township and Village Enterprises	37	0	0	0
Other Basis	27	0	60	9
<i>Number of Villages Surveyed</i>				
	30	10	26	12

a. Figures are in 1993 yuan. The official exchange rate in 1993 was 6.50 yuan = 1 dollar.

b. Figures come from the adjacent household survey.

Table 2
Cluster Analysis of Contemporary Property Rights Regime

	<i>Total Sample</i>	<i>Privatized Cluster</i>	<i>Less Privatized Cluster</i>
<i>USE RIGHTS</i>		(58 villages)	(19 villages)
Restrictions or Sanctions if Land Left Uncultivated (no=1; yes=0)	0.37	0.43*	0.16*
Restrictions or Sanctions if Engage in Non-Farm Work and Land Not Well Cultivated (1=take back all land; 2=force transfer of land to another; 3=take back responsibility land only; 4=force individual to work land in peak season; 5=no restrictions)	4.0	4.7*	1.8*
Restrictions or Sanctions if Informally Migrate and Land Not Well Cultivated (1=take back all land; 2=take back responsibility land only; 3=keep land as long as work it; 4=no restrictions)	3.1	3.1	2.8
<i>SECURITY OF RIGHTS</i>		(55 villages)	(22 villages)
Number of Adjustments of Land Holding since Introduction of HRS	1.1	0.84*	1.7*
Land Adjustment if Household Size Decreases Because of Death, Marriage, etc (1=all person's land must be returned; 2=person's responsibility land only must be returned; 3=no restrictions)	2.3	2.7*	1.3*
Land Adjustment If Household Size Increases Due to Births, Marriage, or Return Migration (1=all land holdings increased; 2=only increase food land; 3=no increase is made; 4=no stipulation)	2.4	2.9*	1.05*
Land Adjustment Following Formal Outmigration (1=take back all land; 2=take back responsibility land only; 3=keep land as long as work it; 4=no restrictions)	2.8	3.4*	1.4*
<i>TRANSFER RIGHTS</i>		(64 villages)	(13 villages)
Restrictions on Renting-Out (1=not permitted; 2=permitted on food land only, not responsibility land; 3=permitted with Village Council authorization; 4=no stipulations)	3.3	3.5*	2.2*
Restrictions on Land Sales (1=not permitted; 2=permitted on food land only, not responsibility land; 3=permitted with Village Council authorization; 4=no stipulations)	2.2	2.4*	1.1*
Restrictions on Letting Land Out Free of Charge (1= not permitted; 2=permitted on food land only, not responsibility land; 3=permitted with Village Council authorization; 4=no stipulations)	3.5	3.7*	2.5*

*The difference between the means of the two rights groups is significantly different from zero at the 5% level using a two-tailed t-test.

Table 3
Regional Disaggregation of Property Rights Regime

	<i>Zhejiang</i>	<i>Henan</i>	<i>Jilin</i>	<i>Jiangxi</i>
<i>USE RIGHTS (Villages in Privatized Cluster)</i>	77%	100%	70%	69%
Restrictions or Sanctions if Land Left Uncultivated	0.1	0.9	0.5	0.38
Restrictions or Sanctions if Engage in Non- Farm Work	3.8	5.0	4.05	3.8
Restrictions or Sanctions if Informally Migrate	3.07	3.3	3.0	3.13
<i>SECURITY OF RIGHTS (Villages in Privatized Cluster)</i>	87%	50%	90%	38%
Number of Adjustments	0.8	2.1	0.8	1.5
Land Adjustment if Household Size Decreases	2.6	2.1	2.45	1.6
Land Adjustment if Household Size Increases	2.7	1.9	2.7	1.8
Land Adjustment Following Formal Outmigration	3.1	2.4	3.3	2.2
<i>TRANSFER RIGHTS (Villages in Privatized Cluster)</i>	87%	70%	90%	75%
Rental Restrictions	3.5	2.8	3.3	3.2
Sales Restrictions	2.7	2.4	2.2	2.1
Giving Out Restrictions	3.4	3.6	3.6	3.5

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