

DISCUSSION PAPER

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Rural Factor Markets in China  
After the Household Responsibility System Reform

by

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## I. INTRODUCTION

This paper is a preliminary study of rural factor markets in China. Transactions in factor markets were severely constrained by government policies in the past. Recent reforms in rural areas, however, have brought exchanges in factors to life again.

Traditionally, Chinese peasants, like their contemporaries in other Asian countries, were not unfamiliar with factor markets. In fact, a whole spectrum of market exchanges in land, labor, and credit existed in complex forms in rural China before the socialist revolution.<sup>1</sup> Nevertheless, the cooperative movement, starting in the 1950s, collectivized land, labor, and other resources and made market exchanges in land and labor between households impossible. Private credit exchanges were also severely limited. Rent and interest were taken as means of capitalist exploitation and the labor force was not to be treated as a commodity that could be bought or sold; therefore, market exchanges between two collective farming units were also prohibited.

Under the collective system, a production team, usually consisting of about 30 neighboring households, was generally the basic unit of production and income distribution. The team was entitled to all factors of production. These factors were allocated under the unified management of a team leader with the exception of small private plots reserved for households' use in their spare time. Peasants, working under the supervision of a

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<sup>1</sup>See Wiens (1982) for detailed discussions.

team leader, were credited with work points for a day's work that they had done. At the end of a year, net team income was first distributed among team members according to basic needs, then the rest was distributed according to the work points that each one had accumulated during the year. This institution was found to be very inadequate in providing work incentives to peasants in a production team.<sup>2</sup>

A new policy called the production responsibility system was introduced at the end of 1978 as one element of a package of reforms aiming at improving agricultural production in rural areas.<sup>3</sup> At first, this policy was designed to improve the management and incentive problems within a team. However, it developed into a specific form now called "the household responsibility system" that dissolved the production teams and restored individual households as units of agricultural production and income distribution. The household responsibility system evolved into the main feature of the recent reforms in the Chinese rural areas. Lin (1986) finds that the shift from a production team system to the household responsibility system on the average increased the agricultural productivity 14%. This jump in productivity explained about half of the growth in

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<sup>2</sup>For a detailed discussion of the incentive problem in a production team, see Lin (1986).

<sup>3</sup>The other reforms included diversification of the rural economy, production specialization, crop selection in accordance with regional comparative advantages, expansion of local fairs, marked rises in state procurement prices, and rapid growth in the availability and better allocation of chemical fertilizer.

agricultural production between 1980 and 1983.

The improvement in incentive, nevertheless, may have simultaneously created allocative inefficiencies. When the household responsibility system was introduced, land and other resources in a team were in most cases allotted to each household in proportion to its size. Therefore, for the households in a team, their land-person ratio was equalized after the household responsibility reform. Households are at different stages in the life cycle. They thus have different endowments of family labor. In addition, households differ in abilities. An equal land-person ratio across households in a team thus does not fully equalize land-labor ratio across households. If each household faces the same production function, this egalitarian allocation of land will result in disparities in the marginal products of land and labor across households. These differences in marginal products represent an allocative inefficiency. Output can be increased if resources are reallocated.

One possible way to take advantage of these opportunities is through direct government intervention, like land-reallocation among households. Nevertheless, government intervention can be

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\* In addition to the disparity in marginal products created by the household responsibility system, the allocative inefficiency has another source in China. Like any other country, the endowment of land and other resources varies greatly from region to region. Since migration between rural areas failed to exist at any significant level in the past, the difference in land-person ratio as well as land-labor ratio has long been maintained. Therefore, marginal products in land and labor should also be different across regions. See the discussion in the next section.

ruled out as an alternative for the near future. When the household responsibility system was first introduced, the land contracts in general ranged from 1 to 3 years. When an original contract expired, land was reassigned and adjusted according to changes in household size and labor endowment. This practice was soon found to be impractical. As land might be assigned away in next contract, each household thus lacked incentives to invest in land improvement and to maintain properly the soil fertility. To overcome this disincentive in land investment and land maintenance, the Chinese government has adopted a policy of lengthening the contract of land usage to each household for up to 15 years or longer.

The other possibility for improving allocative efficiency is through market transactions. Market transactions can range from hired labor to land tenancy or may be packaged in complex contracts involving several transactions in different markets. Transactions in land and labor naturally will give rise to demand for credit. If factor transactions are costless, certain, unconstrained, and enforceable, then marginal products will be brought into equality by market transactions. However, as discussed by Binswanger and Rosenzweig (1986), factor transactions in rural areas are characterized by risk and beset with incentive problems. The existence of well developed rural factor markets cannot, therefore, be taken for granted. This paper is devoted to examining the extent and possible developments in rural factor markets in China.

Before going into any detailed discussions, three specific features that characterize China's rural factor markets need to be mentioned:

a) The rural reform in China has gone through a first stage, which featured the individual household responsibility system. By the end of 1983, 94.5% of rural households in China had adopted this new system (Editorial Board of China Agriculture Yearbook 1984, pp. 66-67). The Chinese government launched a second-stage reform in 1984. The main theme of the second-stage reform is to transform a self-subsistence economy into a commodity production and exchange economy by way of readjusting the production structure in rural areas through market mechanisms. When the household responsibility system was first introduced, hiring labor, subleasing land, and lending money at high interest rates were all explicitly prohibited.<sup>3</sup> Since then there have been substantial changes. The first change came to the credit market. Private credit with a high interest rate is no longer categorically classified as usury in the 79th document issued by the State Council in 1981. Leasing out land to other farmers and hiring workers within a limited number (less than eight) were also formally sanctioned in Document No. 1, issued by the Central Committee of the Communist Party of China in 1984. Transactions in factor markets have been legalized. However, socialist sentiment is still deeply rooted in China. It appears unlikely,

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<sup>3</sup>See "Several Issues Concerning the Further Strengthening and Perfecting of the Agriculture Production Responsibility System," in China Agriculture Yearbook, 1981 pp. 409-411.

for example, that the government will force a person to be evicted from his house if he uses it as collateral and fails to repay his loan. It is also unimaginable that public opinion will sympathize with the lender in the case of a default.

b) The cultivated land per capita in 1949 was 2.7 mu and now it has shrunk to about 1.6 mu. However, the percentage of labor force which remains in rural areas has been about the same during this period. Under the current price system and the average operational landholding, the value of marginal product of labor in agriculture, especially in cropping, is much lower than that in non-agricultural sectors; therefore, there is a general tendency for the rural labor force to engage in nonfarm activities. A study shows that the average net income per worker in the suburbs of Shanghai in 1981 was Y 441 for agriculture, Y 1,003 for sideline production, and Y 1,625 for industry (Shi 1981). The differences in incomes across sectors should also be similar in other regions. This income differential will thus induce a tendency for the labor force to move out of the agricultural sector.

c) There is no landless class in China's rural areas today. The original production teams are still entitled to the ownership of land after implementing the household responsibility system. Each household is assigned the use right of a piece of land for a period of 15 years or more. This practice provides each household with a safe shelter. Unless a household is assured a nonfarm or noncrop job that produces an expected income that is greater than

working on its farm, a household will not leave its land. This practice also has impacts on the labor market. Farm households will only supply labor to other farms when the opportunity cost of not working on their own farms is low, i.e., the labor market will be constrained from the supply side, especially during peak periods.

This paper is organized as follows: land markets, labor markets, and credit markets will be discussed in turn in the following sections. At the end of each section, some stylized facts of the concerned markets will be summarized and their related hypotheses will be presented as well. The main hypothesis of this paper is presented at the last section.

## II. LAND ALLOCATION AND LAND MARKET

Marginal Products of Land. The differences in the marginal products of land and labor in China have two major sources. One is the differences in land endowment across regions. The other one is the egalitarian distribution of land after the household responsibility reform.

Table 1A shows that the eight provinces that have the lowest land-labor ratio possessed 39.6% of the total labor force in China in 1983; however, they only had 21.4% of the total cultivated land. On the contrary, the 9 land-rich provinces possessed only 10.5% of the total labor force but were endowed 34.1% of the total cultivated land. The peasants in land-rich Heilongjiang Province on the average had about 17 times as much

TABLE 1A  
LAND ENDOWMENT IN EACH PROVINCE

Province	(1) Labor	(2) Cult. Land	(3) Land- Labor Ratio	(4) % of Area Irrigated	(5) Multiple Cropping Index	(6) Effective Land-Labor Ratio
Guizhou	10,087	28,480	2.8	24	153	3.8
Sichuan	38,712	98,109	2.5	47	181	3.9
Zhejiang	14,030	27,249	1.9	84	252	4.0
Yunnan	12,808	42,488	3.3	34	140	4.3
Guangdong	19,061	47,130	2.5	65	200	4.4
Guangxi	13,963	39,301	2.8	54	177	4.4
Fujian	7,083	19,240	2.7	64	189	4.5
Tibet	825	3,437	4.2	53	93	4.6
Hunan	20,239	50,998	2.5	82	218	4.8
Henan	25,370	106,508	4.2	45	160	4.9
Shanghai	2,071	5,249	2.5	98	218	4.9
Anhui	17,478	66,518	3.8	50	177	5.9
Jiangsu	20,068	69,451	3.5	75	184	5.9
Shandong	24,988	107,728	4.3	63	146	6.1
Hubei	14,572	55,481	3.8	63	200	6.6
Tianjing	1,391	6,879	4.9	67	133	6.7
Beijing	1,372	6,343	4.6	81	151	6.9
Hebei	17,481	98,551	5.6	54	131	7.3
Jiangxi	9,305	35,753	3.8	74	229	7.4
Shaanxi	9,124	56,377	6.2	33	127	7.6
Qinai	1,104	8,640	7.8	27	87	7.7
Liaoning	6,408	54,814	8.4	19	102	8.9
Gansu	5,841	53,425	9.1	24	98	9.5
Shanxi	6,647	58,076	8.7	28	107	9.6
Ningxia	1,061	12,605	11.9	28	101	12.8
I. Mongolia	4,657	75,974	16.3	20	91	16.3
Jilin	3,845	60,895	15.6	18	100	16.3
Xingjiang	2,570	47,422	18.5	83	92	21.4
Heilongjiang	4,110	131,273	31.9	7	98	32.1

SOURCE: China Agriculture Yearbook 1984.

NOTE: (1) Agricultural labor force excluding workers in village-run industry, unit = 1,000 workers; (2) cultivated land unit = 1,000 mu; (3) col.2/col.1; (4) % of cultivated land irrigated; (5) unit = %; (6) effective land-labor ratio is the land-labor ratio adjusted for irrigation and multiple cropping; its formula is: effective land-labor ratio = Land-labor ratio x (1 + % of area irrigated/4) x (1 + (Multiple cropping index - 100)/2). See A. M. Tang, An Analytical and Empirical Investigation of Agriculture in Mainland China 1952-1980 (Seattle: University of Washington Press, 1984) for the rationale of for these adjustments.

TABLE 1B

## LAND ENDOWMENT IN EACH PREFECTURE, ANHUI PROVINCE

Prefecture	(1) Labor	(2) Cult. Land	(3) Land- Labor Ratio	(4) % of Area Irrigated	(5) Multiple Cropping Index	(6) Effective Land-Labor Ratio
Anqing	85	126	1.5	88	215	2.9
Huizho	705	1,192	1.7	76	248	3.5
Anqing	2,094	4,859	2.3	66	211	4.2
Tongling	124	297	2.4	95	200	4.5
Wuhu	697	1,736	2.5	77	224	4.7
Maanshan	297	756	2.5	93	225	5.0
Chaohu	1,527	4,355	2.9	80	199	5.2
Liuan	2,004	6,706	3.3	68	171	5.2
Fuyang	4,363	16,915	3.9	24	166	5.5
Xuancheng	764	2,246	2.9	65	222	5.6
Hefei	1,172	4,183	3.6	72	172	5.7
Huainan	390	1,522	3.9	57	174	6.1
Suxian	1,669	7,913	4.7	29	158	6.5
Huaipei	416	2,208	5.3	11	160	7.1
Chuxian	1,297	6,250	4.8	68	165	7.4
Bangbu	844	4,542	5.4	47	162	7.9

SOURCE: Statistical Bureau, Anhui Province.

NOTE: Definitions and units are the same as in Table 1A, except labor force here includes workers in village-run industry. Data are for 1983.

land as the peasants in land-poor Zhejiang Province. Not only is the distribution of cultivated land unequal among provinces, but it is also unequal within a province. Table 1B shows that, in Anhui Province in 1983, 31.8% of cultivated land located in nine prefectures that had 22.9% of labor force. In contrast, the six prefectures that had the lowest land-labor ratio had 21.7% of the labor force but only 13.6% of the cultivated land. Although the differences within Anhui Province are not as large as the differences among provinces, the disparities are still quite substantial. The peasants in Huaibeishi have 3.6 time as much land as the peasants in Anqingshi. The differences in land-labor ratio reduce after adjusting for irrigation (proxy for land quality) and multiple cropping (proxy for climate and temperature). However, the differences are still very substantial as the last columns of tables 1A and 1B suggest. Although, without empirical studies, it is difficult to say to what degree land endowments differ across neighboring production teams, the difference itself can be taken as a fact. The distribution of inherited intelligence of a large population approaches normal in any large sample. There is no a priori reason to believe that the average quality of the labor forces in two neighboring teams, which both have about 100 workers, would be significantly different.<sup>6</sup> It thus should not be too unrealistic to assume that

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<sup>6</sup>Acquired ability through education will be different depending on the availability and quality of education. In this respect, the labor force in urban areas will have a higher quality than in rural areas because, in general, the education in urban areas is better and more accessible. However, within a

the quality of labor forces across teams and regions is the same. Consequently, much of the differences in the land-labor ratio represent an allocative inefficiency.

Allocative inefficiency within a team, however, would arise from an opposite reason. Under the production team system, the team-owned land was divided into collectively farmed plots and private plots. Private plots were allotted to each household according to its size. The land that could be allotted for private plots varied from time to time. The average amount of land in private plots nationally was 5.7% in 1978. It rose to 7.1% in 1980 (Perkins and Yusuf 1984). After the introduction of the household responsibility system, the collectively farmed land was contracted to individual households in two different categories. One was the "food ration plot." The other one was the "responsibility plot." The difference between these two kinds of plots was that a household had to pay only state tax on the food ration plot, but it also had to pay the public accumulation fund, public welfare fund, and other duties to its team on the responsibility plots. As for the private plot, the state tax was also waived. Two different practices were used to contract the collectively owned land. The first practice contracted the land strictly in proportion to the size of each household. The second one took into account both the size and the labor force of each household. However, the results of these two practices may not be

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rural area, the quality and availability of education faced by each team can be assumed to be roughly identical.

very different. A survey of a production team in Guangxi Province found that the household with the largest labor force only had 0.16 mu per capita more than the average of the team, and the household with the smallest labor force had only 0.078 mu per capita less than the average of the team, even though 70% of weight was given to the labor force in the contracts (Hu et al. 1984). Therefore, it can be assumed that the land-person ratio across households in a team is roughly equal no matter what practice has actually been adopted. Not only is the quantity of land per capita equal across households, but the quality of land owned by each person in a team is also the same. This is because land was first graded according to its quality, then each person received a piece of land from each grade. Therefore, each household in China after the individual household reform often owns more than 10 strips of land.<sup>7</sup> Households in a team are at different stages of their life cycles and thus have different labor endowments. They also have different level of education, experience, and other abilities. As a consequence, the equal land-person ratio across households in a team generates a potential allocative inefficiency. A survey of 235 households in a village in Sichuan Province found that 25% of households with a rich labor endowment did not have enough land to farm; 6% of households did not have enough labor to work on their land; and

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<sup>7</sup>The government has encouraged households in a team to exchange their land in order to reduce the fragmentation of land holding. However, a household still owns more than five pieces of land, in general (Editorial Board of China Agriculture Yearbook 1985, p.285).

4.7% of households were good at other trades, so they did not want to work on their land (Research Unit of Nan Chong Prefectural Government, Sichuan Province, 1985).

Land Transactions. Land transactions in China's rural areas after the household responsibility reform are restricted in their form of lease. The government has encouraged the households specialized in farming to consolidate their landholding.\* Table 2 summarizes several studies concerning the extent of land transactions in certain regions in China. Rows 1-3 are based on the surveys done at the end of 1983 and rows 4-5 are based on the data collected at the end of 1984. Column 2 is the percentage of households in an area that either leased out their land to other households or returned their land to their production teams. The land returned to a production team may be recontracted to other households. Column 3 shows the percentage of land in an area that was involved in land transactions. The percentage of land involved is less than the percentage of households involved. This is due to the fact that most households only leased out or returned their responsibility plots and kept their food ration plots and private plots.

All these studies found that land transactions were more active in areas closer to cities. Tianjin is the third largest city in China. But even by the end of 1984, only 8.3% of land

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\*Selling or leasing of farm land to industries has been found to be very profitable in the suburbs of big cities (Shi 1981), although they are repeatedly prohibited by the government. These transactions are out of the scope of this study. This paper only looks at land transactions within agricultural sectors.

Table 2  
SCOPE OF LAND TRANSACTIONS IN SOME AREAS

	Household involved (%)	Land involved (%)
Xiapu County Fujiang Province <sup>a</sup>	4	2.6
Ezhoushi Hubei Province <sup>b</sup>	5	3
Huangni Township Chuzhou, Anhui Province <sup>c</sup>	12.2	3.3
Zhongwei County Ningxia Province <sup>d</sup>	0.058	0.025
Tianjin <sup>e</sup>	. . . .	8.3

SOURCE: a: Fan, Genxing. "A Survey of the Approaches Used in Recontracting Land," Fujiang luntan, 7 (1984): 45-46.

b: Wang, Xinglong. "On Current Stage of Land Recontracting in Rural Areas," Hongqi, 8 (1984): 24-28.

c: Hou, Changmin and Dou, Tanghou. "Permitting Land Transfers Is Necessary for the Development of Productivity in Rural Areas," Jianghuai luntan, 4 (1984): 5-10.

d: Wei, Nong. "A Survey of the Concentration of Land to the Farming Expert in Zhongwei County," Ningxia shehuikexue, 1 (1985): 84-86.

e: Agricultural Department, Communist Party of China, Tianjin. "A Survey of the Situation in the Concentration of Land," China Agriculture Yearbook, 1985 : 409-11.

was transacted in Tianjin; therefore, land transactions in China as a whole must have existed with only a very limited scope up to now.

These studies also found that the majority of households that leased out or returned their land were "specialized households" that engaged in noncrop jobs, such as transportation, repairing, food processing, other services, or fish-, poultry-, and pig-raising. Only a very small portion of households leased out or returned their land because of lack of labor endowment. From the supply side, we find that the scope of land transactions crucially depends on the job opportunities outside cropping.

Although the extent of land transactions is very limited, the forms it takes are more extensive. They can be classified into two basic forms: (a) without compensation or (b) with compensation.

In the first case, households either give their land back to production teams or give it to their relatives or close friends. In either situation, households still maintain their claim over the use right to the land. They can take it back in the future if they desire. Rent over use right is positive (see the discussion later). Households voluntarily give up the rent entitled to them. This fact implies that (1) the land market in these places must not have existed, so the households that want to migrate out of agriculture could not find other households to lease it and (2) that the labor market or the credit market had also failed, so the households could not find workers to farm their land or did

not have enough cash to hire workers.

For the cases with compensation, there are two main varieties: (1) rental and (2) sharecrop. Fan (1984) reported that in Fujian Province there were three ways in which rent was paid. In one case the households that leased out land were guaranteed the right to purchase a certain amount of food grain at the government procurement price. Because the government procurement price was lower than the market price at the local fair, the difference between these two prices became rent. Fan found that rent paid in this way was equivalent to Y 64.86 per mu. In the other case, the households were compensated with a given amount of free grain, ranging between 200-300 jin of grain. Fan found that the market value of it was about Y 60 per mu. In still another case, rent was paid in cash at also about Y 60 per mu. In all these cases the rent was about 30% of the gross value of output. Fan also reported a case of sharecropping. A bee-raising specialized household leased out its land of 5.2 mu and lent Y 300 to the renter for the cost of seeds and fertilizer. The renter harvested 5,600 jin of rice. For the required quota, 1900 jin were sold for Y 320 to the government. This money was paid back to the landholder for the Y 300 loan. The rest of the 5,600 jin were equally shared by the landholder and the renter. The rent amounted to Y 129.27 per mu according to the market value of rice at the local fair. In the other study of a county in Zhejiang Province, Zhou and Du (1984) found that fixed rent was paid in two ways. The rent was equivalent to Y 57.7 per mu when a

household was guaranteed the right to purchase a certain amount of grain at the government procurement price. It was about Y 52.5 per mu at the local fair price for rent in the fixed amount of free grain. The rent was also about 30% of the gross value of output. Zhou and Du found that there was a tendency to use the rent in the fixed amount of free grain. They also recorded a case that a household hired casual workers to farm its land. The net income per mu for the landholder in this case was Y 77.97. That was about 30% higher than the prevailing rent.

There are several interesting relations in these cases:

a) Rent in cash was a little bit lower than rent in kind. This may be explained by the facts that cash is preferred because of its general purchasing power and that the price for grain at local fairs may fluctuate, so there is some risk inherent in rent in kind.

b) Among the rent in kind, the rent was lower if it was paid by a fixed amount of free grain than if it was paid by a fixed amount of grain at the government procurement price. This again may be due to the fact that the landholder has to face larger risk because of the possibility of price fluctuation at the local fair.

c) The return to land was higher for a landholder if he hired workers to farm it instead of leasing it. This can be explained by the fact that a landholder has to face the risks arising from production and market fluctuations and that he also contributes his entrepreneurship to production.

d) The land market is tied with the credit market in the case of sharecropping, as reported above. The return from leasing to the landholder depends on how the interest rate is calculated. In Chinese rural areas the interest rate is extremely high for private credit. It ranges between 4%-10% per month or even higher. Because the interest of the loan to the renter was not explicitly paid, after deducting the implicit market interest rate, the rent for the sharecropping case was not as high as it appeared to be.

In the Chinese rural land market, a long term lease with advanced payment of the present value of all rent for the use right of land for 15 years has not been found. For a household leaving agriculture to establish a nonfarm business, this kind of transaction should be attractive. It is a good way to overcome the possible cash constraint for starting a business. Why this kind of transaction was not observed needs to be investigated.

Stylized facts and related hypotheses:

Fact 1: Land transactions are more active in areas closer to big cities. The majority of households that leased out their land were "specialized households" that engaged in nonfarm or noncrop activities.

Hypothesis: A household will not lease out its land unless it engages in nonfarm or noncrop activities that produce an expected income higher than the income from cropping. There are more profitable nonfarm and noncrop job opportunities in areas closer to big cities.

Fact 2: Rent is collected annually. No long term lease for the use right of land with an advanced payment of the present value of all rents was observed.

Hypothesis 1: Such kind of contract is not protected by government. The renting household may be

forced to return the land if the leasing households fails its nonfarm business and tries to take its land back.

Hypothesis 2: The household wishing to rent land in such a contract faces a cash constraint because rural credit markets are poorly developed, credit is very expensive and/ or because land so rented cannot be used as collateral to raise cash:

### III. RURAL LABOR MARKETS

Transactions in labor are another way to equalize differences in marginal products across regions and households. Labor-hiring was prohibited before the recent reform. When labor transactions are prohibited, migration between teams and across regions can be another way to bring marginal products into equality. However, as rent was suppressed in a collective system, workers were compensated with the average net product instead of the marginal product. Consequently, a portion of their income actually was rent. Workers in a team with a lower average income certainly have the incentives to migrate to a team with a higher average income. They would be able to receive the same higher average income as the original members in the higher-income team. Nevertheless, the workers in a higher-income team would be reluctant to accept migrants from other teams for fear that their rent would be shared by the newcomers.<sup>9</sup> Therefore, when payment of marginal product to workers was prohibited, the migration

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<sup>9</sup>A worker will be accepted only if his value of marginal product is greater than the value of the average product. Therefore, if any rent exists, the size of a collective team will be smaller than the size of a capitalist team because the latter only has to pay the new worker his value of marginal product (see Ward 1958).

between production teams or across regions was virtually nonexistent.

When the household responsibility system was first introduced, hired labor was explicitly prohibited (Editorial Board of China Agriculture Yearbook 1981, pp. 409-411) on the grounds that exploitation of the surplus value was not allowed to be restored. Nevertheless, labor-hiring can be mutually profitable for both the employers and employees. With such underlying incentives, it is difficult to enforce the decree. As more and more cases of hired labor appeared and the government realized labor transactions were beneficial for the economy as a whole, the policy was revised to allow hiring labor. Yet a household is limited to hiring not more than eight workers. The limit of eight workers is chosen because once Marx wrote in Capital that a person who hired less than eight workers could not be classified as a capitalist, as he still had to attend to the physical work himself. The arbitrarily set limit has never been strictly abided by. Some households in rural areas have hired more than 100 permanent workers.<sup>10</sup> While the upper limit of eight workers is still officially maintained, the government does not seem to enforce it.<sup>11</sup>

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<sup>10</sup>Zhang Songmao(1985) reported in his paper that a household hired 102 workers for manufacturing electric applicants and made Y 200,000 profit in 1984.

<sup>11</sup> This "close one eye" policy is vividly reflected by the attitude of a party leader. Having been briefed on a trip to Hainan, Guangdong Province, that a person rented a sugarcane plantation from a collective and hired 20 workers to run it with a certain degree of success, he responded that (a) this story should

Table 3  
LABOR-HIRING IN WU COUNTY AND YANGSHI COUNTY

	No. of household	No. of workers hired (%)
<u>Wu County<sup>a</sup></u>		
Total	356	2073 (100)
Civil engineering	145	842 (40.6)
Manufacturing	112	651 (31.4)
Retailing	52	303 (14.6)
Stock-raising or farming	8	52 (2.5)
Transportation, fish-raising, and others	39	225 (10.9)
<u>Yangshi County<sup>b</sup></u>		
Total	105	970 (100)
Civil Engineering	5	277 (29.9)
Manufacturing	27	143 (14.7)
Retailing	6	19 (2)
Farming	48	439 (46)
Transportation	19	92 (18)

SOURCE: a: Zhang, Songmao. "A Study of Labor-hiring in Rural Areas," Jianghai xuekan, 5(1985): 42-44.

b: Gao, Xuechen and Lu, Guozhi. "Adhering to the Orientation of Socialist, Cooperative Economy and Actively Guiding A Healthy Development of All Forms of Economies," Nongye jingji (Shenyang) 5 (1985): 15-20.

not be carried in the newspapers; b) this person's business should not be stopped (Zhou 1984). There are some indications that the limitation on the number hired may be lifted soon.

The opening of labor markets makes the equalization of marginal products across households possible by way of labor transactions. What is of interest is to what extent the difference in marginal products has been narrowed. A survey of labor-hiring in Wu County, Jiangsu Province, by Zhang Songmao (1985) found that more than 50% of the labor hired was used in nonagricultural work. Table 3 shows that in Wu County the majority of labor were hired for civil engineering or manufacturing. The major impact of opening labor markets in Wu County is thus the increase in job opportunities within the non-farm sector. Another survey by Gao and Lu (1985) of labor hired in Yangshi County, Shenyangshi, Liaoning Province has the same finding (see table 3). The impact of labor-hiring on narrowing the differences in marginal productivity across households is ambiguous for the workers hired for non-farm jobs. Non-farm jobs often require special talents; hence, from the supply side, the labor working for non-agricultural jobs is not necessarily coming from households with more labor endowment. However, from the demand for agricultural workers, three kinds of households may hire workers: (a) households specializing in stock-raising, fish-raising, or vegetable cultivation; (b) households renting large amount of land; (c) households keeping some of their labor force at homes for farming but having shifted the major part of their labor force out of agriculture. The first two categories indicate that the labor-hiring households have superior technology or entrepreneurship in agricultural productions. The last one

indicates that the remaining labor endowments in the labor-hiring households must be less than the average. Therefore, from the demand side, transactions in labor market tend to reduce the differences in marginal products across households.

The first two categories of households usually hire workers on a monthly or yearly basis. Zhang Songmao(1985) reported that a household in Wu County rented 430 mu of land from its own and neighboring counties and employed 18 workers for producing grain, watermelon, soybeans, and so on. It also raised 550 chickens and ducks. The head of this household was formerly a production team leader. Zhou (1984) found that a household in Hainan, Guangdong Province, rented a 300-mu sugarcane plantation and hired 20 workers to run it. The last category of households usually hire casual workers either by piece rate or day rate. The wage rate for a permanently hired worker was about Y 1000 per year in both Zhang's and Zhou's studies. For the casual workers, Zhou and Du (1984) found that the wage rate was about Y 5 per day in the peak period and about Y 4 per day in the off-peak period in 1983 in Zhejiang Province. Shi (1981) found that the piece rate in the suburbs of Shanghai in 1979 was Y 15 to Y 17 for transplanting a mu of rice-seedlings. It was equivalent to Y 2.5 to Y 2.8 per day.

As discussed before, it was uncommon for a production team to be willing to accept a migrant from the other teams or from the other regions before the transactions in labor were legalized. Therefore, another natural impact of opening labor

markets was the migration of labor across regions. A study found that by 1984 over 1,000 workers had been employed permanently from other provinces to work in the suburbs of Shanghai. Some of them worked in the village-run industries. However, a substantial portion of them worked in vegetable gardening, duck-raising and chicken-raising. A brigade was found to have hired 85 migrant workers in 1984, it had planned to hire 50 more in 1985. The migrant workers would consist of 56% of the labor force in this brigade by 1985 (Peng and Zhang 1985).

Labor markets in China's rural areas are still very limited.<sup>12</sup> Furthermore, only a portion of labor hired in rural areas is actually engaged in agricultural work. From the characteristics of households that hire workers for agricultural work, as discussed in page 23, we find that none of them are households with the least family labor endowment before any market transactions. Why households with the least labor endowment do not hire workers for agricultural work needs to be investigated.

Stylized fact and related hypotheses:

Fact: It was not observed that households with the least family labor endowment hired workers for agricultural work.

Hypothesis 1: Labor-hiring requires cash. Because credit markets are not well developed, households with the least family labor endowment cannot overcome the cash constraint. Therefore, they refrain from hiring labor and engage in direct labor exchanges with friends

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<sup>12</sup>For example, only 0.6% of agricultural households in Shenyangshi (one of the largest cities in China), Liaoning Province hired workers in 1984. The hired workers consisted of 1.8% of total labor force in Shenyangshi (Gao and Lu 1985).

or relatives.

Hypothesis 2: Households with the least labor endowment grow crops with different harvest periods in order to even out labor requirements over time.

#### IV. RURAL CREDIT MARKET

In the above two sections, it is found that the limited extent of rural land and labor markets may be closely related to the limited rural credit markets. The subsequent discussions focus on the extent and constraints of credit markets in Chinese rural areas.

In a socialist society, there is a strong sentiment against the taking of interest. In Marx's teaching, interest in a capitalist society is a redistribution of the exploited surplus value between financial capitalists and industrial capitalists. However, the seasonality of agricultural production gives rise to seasonal needs for funds to bridge gaps between receipts and expenditures. Both formal and informal credit markets existed in rural areas even before the household responsibility system reform (see the discussions followed).

There are no private financial institutions in China. Formal credits are provided by the Chinese Agricultural Bank and credit cooperatives. The Chinese Agricultural Bank is a state bank. It has branches in every commune. Credit cooperatives are formally owned by commune members. However, credit cooperatives in the past, in reality, acted as branches of the Agricultural Bank. In many areas, the Agricultural Bank and credit cooperatives shared

the same offices and had the same staff.<sup>13</sup> The credits were provided at subsidized interest rates in the past. The interest rate charged for a loan was 0.25% per month until 1981. However, the average interest rate for deposit was 0.312% in 1980. The government in Shanxi Province thus had to subsidize Y 11.5 million for the Agriculture Bank and the credit cooperatives in 1980 alone (Qin 1982).<sup>14</sup> Not only were the interest rates charged low, but loans were often provided without consideration of their prospects of recovery. For example, in Shanxi Province, only 84.6% of loans between 1976 and 1979 were paid back (Huang 1981). The situation was not better in the other provinces. According to national statistics, Y 4 billion of bad agricultural loans were cancelled in 1961 and another Y 8 billion of bad loans were accumulated between 1962 and 1980 (Zhao 1983). The availability of credit was thus severely limited. A survey of several counties in Henan Province found that, due to poor recovery, each county had only about Y 2 millions for new loans although each of them were officially allotted more than Y 10

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<sup>13</sup> There have been some attempts to increase the independence of credit cooperatives from the Agricultural Bank. However, a credit cooperative in a township or even in a county is too small to overcome the problems of synchronic timing in deposit and withdrawal, as well as of covariance of defaults risk due to the covariance of yield risk in a small area (Binswanger and Rosenzweig 1986).

<sup>14</sup> The interest rates charged for loans were raised to 0.36%-0.72% in 1981 depending on the type of loan (see Zhongguo nongminbao, March 8, 1981)

millions for agricultural loans.<sup>15</sup>

The results of low interest rates and low pressure for repayment are not hard to figure out. Credits were not used with care. For example, in Linfen county, Shanxi Province, Y 140,000 of agricultural loans from credit cooperatives before 1978 were not used properly. Among these loans of Y 140,000, Y 100,000 were used on construction that had never been completed; Y 20,000 were expended on unusable materials; and Y 20,000 were wasted on administrative expenditures (Qin 1982). The other result is credit rationing. As interest rates were low and pressures for repayment were not strong, real opportunity costs for using credits were close to zero or even negative. Therefore, the demand for credits was definitely higher than the supply of credits. The market could thus not possibly be cleared without non-market measures. The criterion for rationing varied from time to time. Sometimes the priority was to help poor teams. At other times the priority was given to rich teams that had better uses for the funds (Huang 1981). However, it was often found that a county leaders used ad-hoc criteria in deciding who should be given a loan.<sup>16</sup>

The availability of formal credit declined because of the accumulation of bad debts and because of the unwillingness for

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<sup>15</sup>See "Current Situations and Problems of Agricultural Production Fund" in Nongye jingji congkan 1 (1980): 19-20.

<sup>16</sup>Same as footnote 15.

people to deposit in credit cooperatives.<sup>17</sup> However, the demand for credits increased sharply. Taking Gansu Province as an example, total agricultural income increased 107% between 1956 and 1979, yet production expenditures increased 278%. In 1956, expenditures consisted of 21% of gross income, it increased to 39.2% in 1979. The situation in other provinces was no better. Statistics involving 3.6 million production teams in 26 provinces, provided by the Agricultural Bank, showed that in 1980, on the average a production team had only 15% of the required working funds. Another survey showed that about 40% of the production teams in China did not have any working funds at all. Since formal credits could not satisfy the need for working funds, many production teams had to rely on private credits. The same report showed that in some regions as much as 70% of the production teams engaged in informal credit markets.<sup>18</sup> The interest rates paid for private credit were extremely high in some areas. One such case was recorded in a study of Dancheng County, Henan Province. The study found that the combined revenues for production teams was Y 21.76 million between January and September 1979, yet the expenditure was Y 36.33 million. Half of the deficit was financed by loans from the Agricultural Bank and credit cooperatives. The other half was borrowed from private sources. Seventy percent of the credit borrowed from private

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<sup>17</sup>Deposits in many credit cooperatives were unable to be cashed because of the accumulation of bad loans (Chen 1980).

<sup>18</sup>All the surveys and statistics mentioned here were reported in Sun (1981).

sources was used to purchase fertilizer, 20% was used to buy livestock, the remaining 10% was paid for administrative expenditures. The interest rates ranged from 3% per month to 30% per month. On the average, it was 10% per month.<sup>19</sup> Zhang (1980) in another study, however, showed that the interest rates only ranged between 2-5% per month. Private credits were mainly provided by members in the borrowing production team. Among the 256 people lending money to a production team in Miluo County, Hunan Province, Zhang (1980) found that 235 were members of this team, 18 were cadres and government staff (not team members), and 3 were urban residents.

Before the household responsibility reform, the majority of credits from the Agricultural Bank and credit cooperatives were given to production teams. A survey of Xiazi commune, Zunyi County, Guizhou Province, found that only 4% of formal credits were given to individual households. The other 96% were loaned to production team or village-run industry (Duan 1981). Borrowing and lending between individual households were also rare. Of the ¥ 3.03 million private credit in Xingmin County, Liaoning Province, January through May 1980, 1.3% was between state firms and production teams; 3.3% was among different production teams, 93.7% was between production teams and individual households, and only 1.7% was among different individual households (Qin 1981).

The individual household responsibility reform brought dramatic changes in rural credit markets. In the production team

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<sup>19</sup>Same as footnote 15.

system, an individual household would not need credit for production purposes. If a household had emergency needs for consumption, health, marriage, and so forth, its production team was more or less obliged to take care of them. The loans from a production team to individual households, in general, were interest free and were not required to be paid back until the households were able to do so. The household responsibility system restored the individual household as the basic unit of production and income distribution. It also eliminated the group insurance provided by the production team system. Therefore, individual households became the primary actors both in formal and informal credit markets. Only 4% of credit from the Agricultural Bank and credit cooperatives in Xiazi Commune was loaned to individual households before the household responsibility reform, as mentioned before; the figure rose to 68% after the reform (Duan 1981). Most loans to individual households were used for purchasing chemical fertilizer and draft animals, and for expanding sideline production. For the nation as a whole, among the Y 16.6 billion loans from credit cooperatives in 1983, 46% were given to individual households. The figure was only 19.6% in 1980 (Statistic Yearbook of China 1984, p. 423). The actual new credits to individual households should be higher than this figure suggests because many of the loans to the collectives were old loans that had not been repaid.

The other new feature in rural credit markets after the household responsibility reform is the sharp rise of the amount

of cash in circulation. This is partly because of a marked price rise for government-purchased agricultural products in 1979 and partly because of remarkable output growth since 1978. This feature is reflected in the dramatic increase in deposits in credit cooperatives. The deposits in credit cooperatives by individual households were Y 7.8 billion at the end of 1979. This figure rose to Y 32.0 billion at the end of 1983. Most of the increased deposits were redeposited in the Agricultural Bank as reserve. Between 1978 and 1983, deposits in the credit cooperatives increased by Y 6.46 billion annually, however, loans from credit cooperatives increased only by Y 2.42 billion. It is suggested (Lu 1984) that the fact that loans increased by less than deposits was due to the inertia of credit cooperatives. However, It may be due to the fact that a local rural financial institution has to keep a high reserve ratio in order to prevent illiquidity. Which reason is correct can only be judged by further investigation.

As production expanded after the individual household responsibility reform, the demand for working funds also increased sharply. A survey of 21 households located at Xiachai Village, Ningdu County, Jiangxi Province, carried out by Mei (1985) found that per capita cash income was Y 59.25 in 1978 and Y 209.66 in 1983. Meanwhile, the total money borrowed in the sample was Y 415 in 1978 and Y 3,870 in 1983. The weight of borrowed cash in total cash income was 7.4% in 1978 compared with 20.5% in 1983. As the availability of formal credit was limited,

private credit was the major source of rural credits. Mei reported that in Ganzhou Prefecture and Jiujiang Prefecture, both of Jiangxi Province, private credit was two times as much as the credit from the Agricultural Bank and credit cooperatives. Zhang Zhiping (1985), making another survey of 20 households in two counties in Heilongjiang Province, had the same findings. Zhang's survey is summarized in Table 4.

Table 4

## A SURVEY OF CASH EXPENDITURE AND TYPES OF CREDIT

County	Households Surveyed	Cash Expenditure on Inputs (Yuan)	Credit	
			Bank and Credit Cooperative	Private Cooperative
Niujia	10	8,367	2,056	2,880
Chonghe	10	5,241	35	2,050

SOURCE: Zhang Zhiping, "A Survey of the Rural Private Credits in Wuchang County, Heilongjiang Province," Jingji wenti tansuo 7 (1985): 40-42.

Zhang Zhiping (1985) also found that about 40% of private credit was used to buy draft animals, tractors, chemical fertilizer, and pesticides for grain production; about 50% was used for expanding cash crops, husbandry, and other production; and about 10% was used for repaying matured loans and for consumption. The terms of credit for grain production in general did not exceed 10 months and for other production did not exceed 1 year. Private credit was obtained (a) from relatives or close friends; (b) from neighbors in the same village directly or

through middlemen; and (c) from residents in other counties through middlemen. All private credits in rural areas depended on oral agreements. No explicit contracts were written. Furthermore, no collateral was found in private credit. The interest rates charged depended on the relationship between borrowers and lenders, creditworthiness of borrowers and middlemen, and the expected returns of investment. The rate was about 3% per month for loans between close friends and about 5% per month for others. Mei (1985), however, found that in some cases the interest rates were as high as 10% or even 15% per month.

While a 3%-5% of interest rate per month for private, short-term agricultural production loans is not uncommon in other developing countries and also before the revolution in China's rural areas (Wiens 1982), the interest rates were much higher for other types of private credit. Liu and Liang (1985) reported that the interest rates faced by private enterprises ranged between 4%-10% per month; some were even as high as 20% per month. In a society where high interest rates have been condemned for so long, it is an interesting phenomenon that private interest rates could be so high. Besides, it deserves further investigation why interest rates in informal credit markets are, in China, lower for loans to agricultural production and higher for loans to private nonfarm business.

A feature that merits special attention is that no collateral is found in private lending and borrowing in China's rural area. While the use of collateral is also not very often in

informal rural credit markets in other developing countries, the nonexistence of collateral at all is unusual. If collateral is used, the interest rate charged will be smaller because the risk of default declines as the value of collateral increases. The lack of collateral will also severely limit the extent of the credit market from both the supply side and the demand side. Lenders have to charge high interest because of the risk of default. However, the risk of default is a function of, among other things, the interest rate charged and the loan size. The expected gain for lenders may go down as the interest rate increases. Therefore, even though a borrower is willing to pay high interest rates, he may not be able to find someone to borrow from. From the demand side, the market may also disappear because the higher the interest rate is, the harder it is to find investment opportunities that have high enough expected returns.\*\* Where loan sizes are large it would be beneficial for both borrowers and lenders to utilize collaterals. In China's rural areas, there is no lack of private property that can theoretically be used as collateral. Houses are always privately owned. After implementing the individual household responsibility system, tractors, pumps, mills, trucks, draft animals, and livestock are also all owned by individual households. Furthermore, the use right of land that lasts 15 years or more is a property that could be traded and therefore serve as a

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\*\*For the impacts of collateral on the interest rate and on the scope of the credit market, see Binswanger and Rosenzweig (1986).

collateral. Why, then, is collateral not used in rural China? This issue deserves more investigation.

Because of the lack of use of collateral, several forms of tied contracts appear in rural China, as in countries where suitable collateral do not exist. A landholder may provide credit to his tenant at a very low interest rate as part of a land contract, as mentioned in the discussion of land markets. A third party guarantee is also often seen when borrowers and lenders are not relatives or close friends. It is also found that some private enterprises require new employees to invest in the firms as a precondition for hiring (Liu and Liang 1985). However, the most powerful guarantee for a lender in China's rural areas may be the threat of losing future borrowing opportunities when a borrower does not repay the loan. The rural population in China is relatively immobile. Information on default will be transmitted quickly to all potential lenders. Because insurance is absent in rural areas, access to credit provides an important substitute for insurance. Therefore, the loss of future borrowing opportunities is a very high cost for any borrower.

#### Stylized facts and related hypotheses

Fact 1: Most of the increased deposits in credit cooperatives in recent years were redeposited in the Agricultural Bank.

Hypothesis: Because the seasonality of agricultural production which leads to the synchronic timing of deposits and withdrawals, and the covariance of yields that leads to the risk of covariant default, it is necessary for a local rural financial institution to maintain a high reserve ratio in order to prevent illiquidity.

Fact 2: In informal credit markets, interest rate charged for agricultural loans ranged between 3%-5% per month, however, it ranged between 4%-10% per month for loans to private nonfarm enterprises.

Hypothesis: The loans for agricultural production are, in general, small, and between households in the same village. The loans for private enterprises are, in general, larger, and may be between households without close relations. Lenders thus face greater risk for loans to private enterprises; therefore, they have to charge higher interest rate.

Fact 3: All private credits in rural areas depended on oral agreements and no collateral was used in informal credit markets in China.

Hypothesis: Lenders' right is not protected. They may subject to the risks of interest earnings being confiscated or even being persecuted if there is any political movement in the future. The government also will not help a lender repossess the collateral assets in the case of default. Therefore, only those people who are willing to bear this political risk will lend out money. The supply of credit is, thus, sharply constrained. As a consequence, lenders limit their credit only to high quality borrowers and/ or limit loan sizes to so small amounts that repayment incentives are high even without written contracts and collaterals. <sup>21</sup>

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<sup>21</sup>This hypothesis is supported by the observation that the majority of recent increases in cash in rural areas were invested in private housing. The sharp rises of the amount of cash in circulation were reflected in the dramatic increase in deposits in credit cooperatives. The deposits in credit cooperatives by individual households were Y 7.8 billion at the end of 1978. It rose to Y 32.0 billion at the end of 1983. (State Statistical Bureau 1984, p.423). However, if the estimate by Mei (1985) was correct, the private credit in rural China was only about Y 15.0 billion in 1983. Nevertheless, rural private housing investment was Y 21.4 billion in the same year (State Statistical Bureau 1984, p. 299). These facts seem to indicate that credit markets are constrained from the supply side not because funds are not available but because most people are reluctant to lend out their money.

## V. CONCLUDING REMARKS

The household responsibility reform in China's rural areas has resulted in remarkable growth in agriculture. The success of the rural reform prompted the Chinese government to push the market-oriented reform to its urban economy. Meanwhile, the rural reform has also reached the second-stage. The urban economy is much more complicated. Any policy, good or bad, will not manifest itself in a short period. A policy essential for the long run may even cause great difficulties in the short run. Therefore, whether the market-oriented reform in urban areas will be persistently carried out may again depend on the performance of the rural reform. The gain in incentive efficiency brought about by the household responsibility reform should have been exhausted. The potential for a sustained high growth rate in agriculture in the coming decade lies in improving allocative efficiency. Factor markets, namely, land markets, labor markets, and credit markets are important institutions for improving resource allocation.

Most barriers for factor market transactions which existed before the household responsibility system reform have been cleared. Land can be leased out for rent. Interest can be charged for credit. Labor can be hired with a limitation that is not enforced. However, land, labor, and credit markets in rural China are still of a very limited extent. The main reason may be formulated as the following hypothesis:

The extent of land markets and labor markets in China's rural areas depend on the quantities available

and the interest rates charged in credit markets. Institutional credit is limited. Private credit is also constrained from supply side due to the fact that private lenders' right is not protected by the government. Private lenders have to charge high premium for political risks while they limit credit to only very few high quality borrowers or limit loan sizes to small amounts in order to reduce the risks of default. As a consequence, credit markets, land markets, and labor markets can only exist in a very limit extent.

On the one hand, the average landholding in China's rural areas, in general, will not produce an income comparable to the income from other sectors. Therefore, there is a general tendency for a household to shift out of agricultural sector, especially cropping. On the other hand, the egalitarian allotment of land after the household responsibility reform provides a safe shelter for every household. Unless a household is secured with a job that produces an income higher than cropping, it will not render its land to the other households. Because there also exists a labor surplus in urban areas, it is almost impossible for rural labor to find jobs in state or collective enterprises in urban areas. Outmigration from cropping sector will be possible only if a rural household starts its own non-cropping business, such as fish-raising, or nonfarm business, such as transportation, or finds a job in rural private enterprises that have emerged after recent reforms. Limited credit at very high interest rates will greatly reduce the possibility of profitable private businesses for households with a relatively poor cash endowment. Therefore, a limited credit market may result in a limited outmigration from cropping and, therefore, a limited land supply. Labor markets

may depend on credit markets almost in the same way as land markets. The average landholding is very small. Most households do not have enough land to farm. Therefore, unless a household rents in additional land from households moving out of cropping or has its own major labor force moving out of cropping, it will not hire workers for agricultural work. Hence, no matter if labor is hired for agriculture or non-agriculture, labor markets will be thin if nonfarm and noncrop job opportunities are limited by credit markets.

Whether the above hypotheses are correct can only be answered by more studies. If it is true, the extent of credit markets as well as land markets and labor markets can be increased by the changes in the government's position on lenders' right. If lenders feel no political risks in lending out money, the interest rates charged will be lowered. In order to do so, however, the government may also have to tolerate the emergence of a landless population. If lenders' right is protected by the government, then among other things, the use right of a piece of land for 15 years could become acceptable as collateral. The existence of collateral value for the use right of land would make the present value of this use right greater than the present value of its income stream. Therefore, once land is lost, it could not be purchased again with borrowed funds (Binswanger and Rosenzweig 1986). Since foreclosure implies loss of access to land, protection of lenders' rights may lead to some households becoming landless. At present, the government does not

seem to be willing to undertake a policy with such consequences. However, rent, hired labor, and interest were all not acceptable to policy makers a few years ago; they are all legal now. Therefore, it is not unimaginable that in a few years the Chinese government may change its position on enforcing lenders' rights.

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