Egalitarianism, Subsistence Provision, and Work Incentives in China’s Agricultural Collectives

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Summary. — Collective agriculture in China failed because its reward system was too egalitarian to provide sufficient work incentives to the peasants. A popular view attributes egalitarianism to the difficulties of monitoring work effort in a team. An alternative view, presented here, argues that: (a) the egalitarian provision of “basic” foodgrains to peasant households reflected more generally the consumption problem of the peasantry who were impoverished by the state’s policy of extracting agriculture; and (b) as a remuneration system time rates better served the work-and-income-sharing purpose than piece-rates and therefore better protected households with high dependency ratios. Egalitarianism survives under the household farming system.

1. INTRODUCTION

As an institutional framework for rural development, collective agriculture in China was abandoned in the early 1980s in the wake of the “radical” post-Mao rural reforms. A microanalysis of the incentive properties of collective farms has led to the popular view that they were not viable economic institutions, as they failed to effectively link effort with reward. They therefore failed to provide strong work incentives to farm workers on which the success of peasant agriculture crucially depended (Lin, 1988; Nolan, 1988).

According to this view, peasant agriculture is seen to be suffering from an overly large-scale organization, as its low level of specialization and its relatively few discrete, intermediate components in the production process limit the division of labor, which therefore rules out the adoption of a remuneration system based on piece count. As a consequence, it renders the unambiguous unbundling of an individual worker’s contributions to the joint output within the team context a daunting managerial task — a problem commonly referred to as “nonseparability” in the economic literature (see Alchian and Demsetz, 1972; Bradley and Clark, 1972). This “effort observability” problem, in addition, is exacerbated by the spatial dispersions of agricultural production, and the unpredictable response of crops to natural climatic changes, both of which tend to complicate the task of monitoring work effort. In the light of these constraints, the only way for peasant agriculture to work is to provide a farmer with the so-called unsupervised initiatives, which it means giving him full control over the residual benefits that correspond to his work effort.1 Unfortunately, only the family farm institution is regarded as capable of providing such incentives (Bradley and Clark, 1972; Wittfogel, 1971).

The difficulties of monitoring farm workers in a team context, in the Chinese case, had allegedly led to the adoption of a payment system which remunerated workers only by approximating their “potential contributions” to the joint output.2 While it was a much simpler system to administer compared with the use of piece rates, which could entail the pricing and cataloging of many as hundreds of tasks, the narrowly differentiated range of labor grades that determined a worker’s wage rate nonetheless failed to provide sufficient work incentives for the diligent and the skilled workers, as household incomes were eventually equalized regardless of their actual effort contributions. The widespread shirking behavior which resulted from the poor incentives on China’s collective farms had allegedly led to the stagnation of China’s agricultural output for more than two

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decades, a problem that was cured only when family farms replaced collective farms as the primary unit of agricultural production. Seen from this perspective, the excessively egalitarian feature that characterized the incentive system of China’s collective agriculture was therefore not a consequence of conscious design, but was rather an outcome by default of the monitoring problems inherent in team production more generally.

Recently, this popular view of decollectivization of Chinese agriculture has been challenged (Puterman, 1987, 1988). The alternative view argues that the egalitarian practice found in team farming in China was caused not by poor monitoring, but was rather determined by the political objective of meeting the subsistence requirements of labor-poor households, as egalitarianism was not only embodied in the remuneration system, but also, more generally, associated with the equal rationing of foodgrains to peasant households independently of their labor contributions to the collective’s output. Egalitarianism, however, reached a point where the incentives of some individual members — those who contributed more effort to the collective but did not receive the comparable economic rewards — were severely hampered.

This paper aims to make further inroads along this line of inquiry. Our contribution to making sense of China’s recent institutional change is, however, distinct. Institutions in centrally planned economies are complex arrangements dealing simultaneously with such issues as resource mobilization (the extraction of agricultural surplus in this case), production (incentives and economic efficiency), and consumption (subsistence). These objectives can be, according to our interpretation, conflicting in nature. The attempt to simultaneously achieve these conflicting organizational goals implies that the institutional structures and arrangements that evolve are not the result of a straightforward maximization of one particular objective, but more likely involve the compromising of all of the objectives in question. Putting this analytical framework in perspective, we argue that, while the problems of monitoring an unmotivated agricultural workforce may have contributed to the prevalence of teams adopting the time rate payment system, it could not be the only responsible factor. The observed institutional arrangements arose also out of the pressing concern to overcome the consumption problem brought about by the state’s extractory policy toward the peasantry, whom it had paradoxically to protect as a result. From a distributional standpoint, time rates were preferred because they better served to minimize intravillage income differentials, since equality in consumption was both ideologically preferred by the Chinese leadership and was gradually fostered by the adverse circumstances under which the peasantry faced. This, we argue, explains why time rates, together with an unconditional distribution of “basic grain” to peasant households, were the two principal features that underlined the institutional arrangements in China’s collective agriculture.

Section 2 briefly outlines those forces that impoverished the peasant households, thereby making equality in consumption or more specifically subsistence provision a central organizational feature of China’s collective farm economy. Section 3 and 4 examines the institution of work and income sharing as articulated in the forms of the time rate payment system and an unconditional provision of foodgrain to peasant households, and argue that it was essentially an organizational response to the subsistence constraint. In section 5 we compare and contrast the institutional properties of farming before and after the reform and concludes on the basis of available evidence that the egalitarianism-sum-subsistence legacy has survived the onslaught of the otherwise radical institutional transformation. The evidence is most convincing in the aspect of land distribution, for land was primarily reparcelized to the peasant families on an equal basis with little prospects of having a swap market for exchange to improve efficiency, rather than according to the criterion that would maximize overall allocative efficiency. Section 6 closes.

2. “DUALISM” SURPLUS LABOR, AND THE DECLINE IN PEASANTS’ INCOME

It is hypothesized here that the choice of an egalitarian income distribution system was affected by the rapid growth of China’s rural labor force and, simultaneously, the slow pace of technical change during much of the 1960s and 1970s. These forces were, in turn, the results of a “dualistic” development policy adopted by the Chinese in the 1950s; a policy that forced the agricultural sector to operate with a low capital-output ratio, as resources were allocated largely to the producer-goods (the “priority”) sector, but also to absorb the bulk of the country’s growing labor force given the limited capacity of the industrial sector in generating employment (Table 1). Faced with these dual pressures, the Chinese collectives were forced to adopt a “land-augmenting, labor-using” strategy in agricultural development, involving a huge increase in both labor and other inputs (Ishikawa, 1982, 1983). Despite the labor-absorption function of such a strategy, the huge increase in labor input during 1957–77 and the slow rate of technological change had nevertheless resulted in a drop of peasants’ income. In the relatively well-off region of the Lower Yangtze Valley which Ishikawa (1982) studied, for example, it was found that the value of a labor day fell from 1.82 yuan in the 1950s (1957–59) to 1.26
WORK INCENTIVES IN CHINA’S COOPERATIVES

Table 1. Population and agricultural labor force growth, and the ratio of rural-urban population and employment

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<tbody>
<tr>
<td></td>
<td>Average annual growth rate (%)</td>
<td>574.82</td>
<td>646.53</td>
<td>672.95</td>
<td>725.38</td>
<td>829.92</td>
<td>924.20</td>
<td>962.59</td>
</tr>
<tr>
<td></td>
<td>Agricultural Labor Force (millions)</td>
<td>173.17</td>
<td>193.10</td>
<td>170.19</td>
<td>233.98</td>
<td>278.14</td>
<td>294.90</td>
<td>294.26</td>
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<tr>
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<td>Average annual rate of growth (%)</td>
<td>—</td>
<td>2.5</td>
<td>0.8</td>
<td>2.6</td>
<td>2.9</td>
<td>2.3</td>
<td>1.4</td>
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<td></td>
<td>Rural pop’n as a % of total pop’n</td>
<td>87.5</td>
<td>84.6</td>
<td>22.2</td>
<td>—</td>
<td>6.6</td>
<td>3.5</td>
<td>1.2</td>
</tr>
<tr>
<td></td>
<td>Proportion of those employed in agriculture to total employment (%)</td>
<td>83.5</td>
<td>81.2</td>
<td>82.1</td>
<td>82.0</td>
<td>82.6</td>
<td>82.7</td>
<td>82.1</td>
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†Figure is for the year 1980, or is denoting the rate of growth for 1975–80.

ypuan in the mid to late 1970s, whereas the number of labor days worked increased from 131 to 244 in the period (pp. 16–17; also see Lardy, 1983, p. 87; Zhu, 1991, p. 64). Similarly, the data collected by this author from a recent visit to a former commune in South China confirm this trend.

In Table 2, column (A) displays the labor day value \( v \) of this commune during 1962–77, which on the whole declined after 1969, and by 1977 it was only half of the value in 1962, the latter being the year when China recovered from the famine induced by the Great Leap Forward. The data in column (C) show that, while the total number of workpoints had increased over time, suggesting that although peasants may have worked harder, they had not experienced noticeable improvements in their standard of living, since the value of a labor day fell. Although as a measure of peasant income column (B) seems more relevant and, unlike data in column (A), it does not display any discernably unfavorable trend, the inescapable conclusion remains that peasant income had been stagnant throughout the entire period of collective agriculture, especially after 1964.

Indeed, net agricultural revenue did decline over 1957–78 in per agricultural laborer terms for the nation as a whole. Table 3, which computes the Net Agricultural Output Value (NAVO) at constant prices for 1952–78 using a series of indices provided in official Chinese statistics, shows that the level of output value attained in 1957 had been recovered by 1965, and that it grew steadily thereafter. Because of the rapid increase in the agricultural labor force over the same period (averaging more than 2% per annum, Table 1) real NAVO per employed agricultural worker declined from 211.92 yuan in 1957 to 187.23 yuan in 1978.

Table 2. The value of labor day in Shatian Commune, Dongguan County, 1962–77

<table>
<thead>
<tr>
<th>Year</th>
<th>A Labor day value (V) (in yuan)</th>
<th>B Collectively distributed income per agricultural laborer (YIL) (in yuan)</th>
<th>C Number of workpoints per agricultural laborer (YIL)/V (in workpoints)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1962</td>
<td>1.59</td>
<td>473</td>
<td>297.48</td>
</tr>
<tr>
<td>1963</td>
<td>1.17</td>
<td>377</td>
<td>322.22</td>
</tr>
<tr>
<td>1964</td>
<td>0.55</td>
<td>185</td>
<td>336.36</td>
</tr>
<tr>
<td>1965</td>
<td>0.99</td>
<td>344</td>
<td>347.47</td>
</tr>
<tr>
<td>1966</td>
<td>0.86</td>
<td>312</td>
<td>362.79</td>
</tr>
<tr>
<td>1967</td>
<td>1.19</td>
<td>407</td>
<td>342.02</td>
</tr>
<tr>
<td>1968</td>
<td>1.05</td>
<td>383</td>
<td>364.76</td>
</tr>
<tr>
<td>1969</td>
<td>0.89</td>
<td>318</td>
<td>357.30</td>
</tr>
<tr>
<td>1970</td>
<td>0.86</td>
<td>321</td>
<td>373.26</td>
</tr>
<tr>
<td>1971</td>
<td>0.75</td>
<td>276</td>
<td>368.00</td>
</tr>
<tr>
<td>1972</td>
<td>0.80</td>
<td>308</td>
<td>385.00</td>
</tr>
<tr>
<td>1973</td>
<td>0.77</td>
<td>308</td>
<td>400.00</td>
</tr>
<tr>
<td>1974</td>
<td>0.93</td>
<td>385</td>
<td>413.98</td>
</tr>
<tr>
<td>1975</td>
<td>0.68</td>
<td>310</td>
<td>455.88</td>
</tr>
<tr>
<td>1976</td>
<td>0.70</td>
<td>318</td>
<td>454.29</td>
</tr>
<tr>
<td>1977</td>
<td>0.77</td>
<td>352</td>
<td>457.14</td>
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Source: Author’s fieldwork, 1987.
Table 3. Changes in total and per capita net agricultural value of output (NAVO), nationwide and selected counties, 1952–78

<table>
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<tr>
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<tbody>
<tr>
<td>Net agricultural output value (100 million yuan) (constant prices)*</td>
<td>340</td>
<td>409.02</td>
<td>301.58</td>
<td>417.86</td>
<td>484.16</td>
<td>561.58</td>
<td>557.94</td>
</tr>
<tr>
<td>NAVO per employed ag. worker (yuan)</td>
<td>196.53</td>
<td>211.92</td>
<td>177.40</td>
<td>178.57</td>
<td>174.16</td>
<td>190.37</td>
<td>187.23</td>
</tr>
<tr>
<td>Food grain output per employed person in 89.09 agriculture (kg.)</td>
<td>95.08</td>
<td>83.10</td>
<td>86.30</td>
<td>96.50</td>
<td>103.60</td>
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*Constant prices are obtained by deflating current prices using the set of national income indices provided in official Chinese statistics, with 1952 = 100.

3. THE ATTENUATION OF THE TEAM’S RIGHT TO MAXIMIZE “COLLECTIVE” INCOMES

Peasants’ welfare was also negatively affected as they were constrained both in their choice of the most profitable output mix and production technique, as well as in their pursuit of sideline production as a means to supplement their meager income. These unfavorable policy measures further contributed to a drop in peasants’ income, which meant that an incentive-based reward system such as piece rates was no longer viable, as it would imply wages below subsistence level especially for households with a high dependency ratio.

(a) Local self-sufficiency in grain and unfavorable terms of trade

Motivated in part by ideology, but perhaps more so by military concerns, the leadership in the mid-1960s began to require regions to become self-sufficient in grain supply irrespective of comparative advantage considerations, in particular the physical productivity of land. As the policy was meant to apply universally, regions that had a comparative advantage in crops other than grain were forced to devote part of their resources to grain production in order to become self-sufficient in grain. Analytically analogous to a drop in the product price received by the production team, the restrictions which this policy imposed on peasant’s choice of the most efficient output mix reduced both peasants’ per capita collectively distributed income and consumption, a trend which was reversed only in the late 1970s as a result of reintroducing specialized production (Lardy, 1983, pp. 71–72 and p. 179).

Finally, peasants’ income was also negatively affected by the discriminatory terms of trade set against agriculture, and the dictates of production planning imposed from above, the most notable example being the intensification of cropping patterns achieved at increasing costs.

(b) The suppression of the private economy

Originally designed as a source to supplement peasants’ income and diet, the private plots, or more generally the household sideline activities, had been intermittently suppressed. This tended to affect households with high dependency ratios or families with feeble workers adversely, since earnings in the collective sector were largely correlated with a peasant household’s demographic position; the more skilled, more able and more male workers there were in a household, the higher would be this household’s earnings, and vice versa. This explains why households with a high dependency ratio tended to obtain a much higher proportion of income from the private sector economy, which helped not only to narrow the income differentials among peasant households, but also to enable these weaker households to subsist in a basically harsh economic environment (Croll, 1983; Griffin and Griffin, 1984; Hsiung and Puterman, 1989; Selden, 1988; Zhu, 1991). The rigorous suppression of the private sector economy may therefore have contributed in part to the collectives’ policy of upwardly adjusting the weight of “needs” distribution, as it became increasingly necessary to assist households with a high dependency ratio to obtain the minimum bundle of daily necessities essential to their consumption needs.

4. THE IMPACT OF WORK SHARING AND SUBSISTENCE CONSTRAINT ON CHOICE OF PAYMENT SYSTEM

Implicit in the monitoring costs argument is the presumption that, barring individualized, private farming, and given the prohibitive costs involved in monitoring an unmotivated agricultural workforce using piece rates, the time rate payment system was indeed an “optimal” institutional choice. Such a presumption in turn invokes the idea that China’s agricultural teams were able to maximize profits by varying
important parameters such as product mix and work organization. Elsewhere (Kung 1993a; 1993b) I have argued that this was not the case: China's agricultural teams were allowed to experiment and innovate with the ways work was organized only for a very brief period prior to communalization, 1955–57, but not afterward. During this period the collectives relied on the principles of decentralization and the technology of mutual monitoring to improve effort observability, thereby enabling them to tie effort with rewards more intimately. This limited degree of freedom enjoyed by the agricultural collectives was, however, no longer available in the ensuing two decades, as the policy constraints mentioned above had reduced the net incomes of the collectives, and, when combined with the pressures of population growth but insufficient demand for labor, resulted in a situation in which the provision of subsistence had become a pressing concern relative to that of work incentives. Given China's leadership's clear preferences for promoting material equality in villages (see, e.g., Chang Chun-chiao, 1975; Parish and Whyte, 1979, chapter 5 but especially pp. 62 and 63), but even more significantly the pressing need to provide peasant households with a minimum amount of work and income to ensure them of subsistence (which perhaps also reflected peasants' own preference for certain sharing arrangements that they saw would achieve the same social objective), the time rate remuneration system, together with the program that distributed foodgrains to peasant households based solely on their "needs" were adopted. 18

Consider first the subsistence problem. Even after two decades of collective agricultural development, a substantial number of peasants were still found to be on the borderline of subsistence (Chan, Madsen and Ungar, 1984; Kao, 1983; Lardy, 1983; Smil, 1977, 1986; Zhang, 1980). 19 This fact is supported by the widely accepted view that the radical post-Mao rural reforms were motivated in part by the concern of the new leadership to improve the peasants' standard of living (see, e.g., Perry and Wong, 1985). As of 1979, the year when the reforms were launched, peasants of an "average" commune were able to consume only 62% of grain and less than 30% of the meat, dairy and aquatic products set as a standard of minimum consumption by the state (Kao, 1983, pp. 26–29). 20

Related to the subsistence issue were problems of underemployment in the countryside, and, arising from it the pressures and norms about work and income sharing as a means to ensure subsistence for the majority. Liu (1991) argues that there was "extensive job-rationing and job-sharing . . . " as "some members worked on one day, followed by others working on another. Such practices can be directly attributed to collective job scarcities" (p. 620). 21 Both anecdotal evidence and quantitative analysis concur with this observation, as indicated by the prevalence of slogans such as "taking turns to work," "only one in a family works," and "only the male laborer will be given work"; and a production function analysis undertaken for 1957–79 confirms that work sharing was not only substantial, but that it intensified over time (Kao, 1983). 22 Perhaps the most convincing of the work-sharing thesis is the fact that a few years after the peasant household was restored as the primary unit of farm production, 1988, an enormous pool of surplus labor was released, estimated to be as many as 120 million workers (Chen Jiuyuan et al., 1991).

To the extent that the imperative of providing subsistence to the many impoverished peasant households was pressing, and that the prospects of altering such unfavorable policies toward agriculture were slight, the noted problem could only be "resolved" by changing the remuneration system, and, perhaps even more significantly, the grain distribution system. In an economic system in which private ownership was rigorously suppressed and accordingly the private economy was kept small, as in the case of China's rural economy during its collective era, the peasantry could only earn a living by laboring primarily in the official sector. In this case a peasant household's prosperity basically depended on: (a) the skills and physical ability of its main workers (s); and (b) the number of workers eligible and willing to work in this sector (n). In a nutshell, \( Y_t = f(s, n) \), where \( Y_t \) denotes the income of a peasant family.

If the provision of strong work incentives were the primary concern of collectives and it was not technically unfeasible to devise a payment system that rewarded the farm workers on the basis of the discrete farm tasks they performed, then piece rates, not time rates, should be the principal remuneration system in use. On the other hand, if the policy concern was to contain household income inequality arising from the above two factors, namely, \( s \) and \( n \), then time rates should be used more widely. The reason is that, under piece rates, the tasks commanding the highest work points would certainly be earned by the physically able and/or skilled workers, and households that had an abundant supply of these workers prepared to carry out these tasks. It was thus regarded as "less desirable" in terms of promoting intravillage equality (Parish and Whyte, 1979, p. 62; Potter and Potter, 1990, p. 127; Selden, 1988). 23 Although it remains the case that weak and strong workers tended to earn a different number of work points for the same amount of work under the time rate system, labor-weak households were nevertheless still better protected under the time rate system as it is administratively easier for the collectives to minimize the differentiation of work points per day simply by narrowing the range of the labor grades, than by minimizing the differentiation of corresponding effort, as in the case where piece rates were used, and in doing so it ensured peasant households with a high dependency ratio in receiving an
income closer to, if not already adequate for, subsistence. In the extreme case, for instance, all that was required of a physically feeble worker to earn his work points under the time rate system was simply for him "to show up in the fields," whereas the requisite task had to be satisfactorily completed under the piece rate system.29

In addition, it seems reasonable to hypothesize that, in the presence of the dual problems of underemployment and subsistence, common notions of fairness regarding work and income sharing may evolve, given the need for "assurance" (see Sen, 1984). In this case, either group dynamics alone, or, as in the Chinese case, the team leaders' concern for providing subsistence to the less-able peasant households, may prevent individual households from "free riding" by working more. This could be done simply by constraining the amount of time each was allowed to work, than by applying quota restrictions to limit the maximum amount of work a household was allowed to undertake, as the act of determining quota for each household may be subject to a great deal of haggling (see below).25 By preventing households with a low dependency ratio from earning their marginal incomes at the expense of those with a high dependency ratio, the uncertainty that the latter might not be able to subsist was thereby reduced. This may perhaps explain why villages with a high labor-to-land ratio tended to use a time rate system, because jobs, being inadequate, had to be shared and rationed among workers eager to work, whereas the better-endowed villages had a higher incidence of using piece rates (Parish and Whyte, 1979, p. 66).26

It is perhaps also worth pointing out our other observation that the higher incidence of time rates being adopted could in part be attributed to the difficulties involved in allocating farm tasks of differing values (rates) to peasant households of differing labor capacity, rather than to the high costs of monitoring farm workers under the administration of a piece-rate system. The process of task allocation, as available evidence suggests, is more than just one of "matching" different skills and abilities to different tasks; the rather multifaceted social relations in a village economy vastly complicated this critical responsibility of the team leader.27 Where work was found inadequate, cadres would have had to ration those jobs which promised higher reward to the oversupply of workers often eager to perform them, in which case, as Parish and Whyte (1979) have observed, that the use of piece rates and the competition it provoked would typically cause a problem: "The rate buster who gets up very early in the morning and works late into the night to earn more points will be taking work away from others in the team. To make sure that there is enough work to go around then, it is advisable to use less competitive time rates" (p. 69). Thus, to the extent that the provision of subsistence replaced that of work incen-

tives as the primary organizational objective of the collectives, team leaders simply used the time rate remuneration system to avoid politicizing their daily administrative work,28 as the objective of the team now was to maximize the welfare of an average, not a marginal peasant household.29

Even with its strong egalitarian properties, the time rate system may still not have been sufficient to bring all peasant families to subsistence, particularly if the average income of the team was very close to subsistence, simply because some families had higher dependency ratios. The rationing of basic foodgrain to all households irrespective of their actual work contributions to the collective sector was therefore combined with time rates to better ensure that the subsistence objective was met — a feature that fostered equality in consumption of basic necessities (grain, vegetables, cooking oil, fuel), thereby provided a cushion of security to virtually all peasant households.

Indeed, a distinctive (egalitarian) feature of the team's distributive practice was the equal distribution of grain according to a household's "needs," calculated and adjusted on the basis of sex and age. In principle, the rationing of grain as a means to guarantee peasant households a minimum level of consumption is not incompatible with the team's objective of providing individual incentives to work, provided the team could set an optimal limit to the rationed amount, such as through the choice of a "median voter" (Puttermann, 1989). To the extent that the decision maker, i.e. the team manager, was more concerned about the well-being of the poor households, however, the resulting distributive rule may put more weight on needs distribution. That was precisely what happened. In principle, the grain drawn by a household was debited against the work points it accumulated from work in the collective sector. Therefore, only those who had a surplus of work points after the initial distribution would receive the balance in cash. In actual practice, however, households were often allowed to continually draw grain beyond the amount permitted by their actual work point earnings. There is sufficient evidence to show that during the latter half of the 1960s and 1970s up to 70–80% of a team's income were actually used for the purpose of "needs" distribution — a magnitude that must have well exceeded the optimal point in terms of creating incentives (Maxwell, 1979; Nolan, 1983; Wang et al., 1989).29 What is worse, as Zhu (1991) has pointed out, that the absolute number of debtor households had gradually increased over the years as a result of the adversities faced by the agricultural collectives, which implies that, for poor teams especially, the nondeficit households could often end up receiving an income less than their actual entitlement. The result was of course the weakening of work incentives.

While collective agriculture may have succeeded in providing the minimum means required for subsis-
tence to the poorest stratum of the peasant economy, it cumulatively sowed the seeds of its own demise over time. The general charge that there were incentive problems in collective agriculture is thus largely correct, since, given the egalitarian nature of its income distribution practice the work incentives were on the whole dulled. It was due precisely to the anticipation that one would not be allowed to starve even though one may not have contributed sufficiently to the team’s output that might have given rise to problems of a moral hazard kind, with some workers providing less effort than they were typically capable of.

A related problem of egalitarianism is that the same anticipation had removed the normal demographic disincentives to having large number of children, since a substantial proportion of the costs of raising more children were borne by the collective, whereas the expected benefits were internalized by the household. Given such an incentive structure, it is clear that the collective would be depleted of its resources over time.

5. EGALITARIANISM AND SUBSISTENCE: A POSTSCRIPT ON CHINA’S COLLECTIVE-ERA AGRICULTURE

The decollectivization of Chinese agriculture after 1979 has been hailed for its property of overcoming the incentive problem caused by “excessive egalitarianism” in collective agriculture. Incentives are regarded to be optimal under the household responsibility system because a peasant household is able to appropriate all the benefits and costs of its action, as its income is directly proportionate to the amount of output it produces. This sharpening of individual work incentives is, however, only one salient feature of the new system: the legacy of egalitarianism—cum-subsistence lingers on, if only in a somewhat different guise.

First, the scarcity of arable land relative to the rural population would require land in rural China be allocated to the most productive farmers in order to maximize total output. Granted, there may be difficulties in ascertaining and agreeing on who the most productive farmers are, given respectively the problems of privateness of information and conflict of interests, the constrained allocative efficiency criterion would nevertheless still require land be distributed to only those working members of a household. But that was not the case found. According to a nationwide village survey undertaken by the State Council, 69.4% of the sampled villages simply allocated land to the peasant households on a per capita basis (Table 4), with 97.3% of them not even bothering to make adjustments for sex and age. In addition, when changes occurred to the size of peasant families due to births, marriages, deaths, and, less commonly, migration to the cities, the initial equilibrium was disrupted and families’ holdings had to be adjusted time and again to take into account such changes. In point of fact, over 90% of the villages had adjusted farm holdings among the peasant families as a measure to uphold this egalitarian principle.

Egalitarianism under the household responsibility system is also reflected in the manner in which land was divided up among the peasant households. In order to minimize scattering and other inefficiencies to which fragmented farms would most likely give rise, independent farm tracts of varying grades should not be equally divided among the peasant households. As in the other case, however, the egalitarian principle predominates. The same survey referred to earlier found that 76.5% of the sampled villages had adopted this simple division method (Table 5). Only less than 7% of the villages had taken measures to minimize scattering by computing quality-to-yield coefficients and established comparable standards among the various classes of land (e.g., one unit of Class A land be made equal to two units of Class B land be made equal to three units of class C land, and so on), so that a household may be allocated an equivalent amount of a particular class of land instead of a fraction of all of the classes. Small wonder, therefore, a survey undertaken in 1984 showed that, after decollectivization, a peasant family had on average 10.7 plots of land, with each plot no larger than 0.83 mu (RCRD, 1986).

| Table 4. Criteria for land allocation in 280 villages in China, 1978–83 |
|---|---|---|---|---|---|
| Levels of village income (in Y) (criteria adopted (%)) | < 300Y | 301–450Y | 451–650Y | 651–900Y | > 900Y |
| 1. Per capita | 84.62 | 71.15 | 70.93 | 66.67 | 53.49 | 69.4 |
| 2. Per laborer | 0.00 | 0.00 | 1.16 | 15.56 | 11.63 | 4.37 |
| 3. (1) + (2) | 15.38 | 28.85 | 27.91 | 17.77 | 27.91 | 25.00 |
| 4. Group contracts | 0.00 | 0.00 | 0.00 | 0.00 | 6.97 | 1.19 |
| Total | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |

Table 5. Allocated criteria for land of varying qualities

<table>
<thead>
<tr>
<th>Levels of village income (in Yuan)</th>
<th>&lt;300Y</th>
<th>301–450Y</th>
<th>451–650Y</th>
<th>651–900Y</th>
<th>&gt;900Y</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Equal distribution of good,</td>
<td>84.6%</td>
<td>80.8%</td>
<td>84.7%</td>
<td>68.2%</td>
<td>57.5%</td>
<td>76.5%</td>
</tr>
<tr>
<td>average, and poor quality land</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Equal distribution of good</td>
<td>7.7%</td>
<td>7.7%</td>
<td>8.2%</td>
<td>20.5%</td>
<td>25.0%</td>
<td>13.0%</td>
</tr>
<tr>
<td>land and drawing lots for the rest</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Establish quality/yield</td>
<td>7.7%</td>
<td>5.8%</td>
<td>5.9%</td>
<td>11.3%</td>
<td>5.0%</td>
<td>6.9%</td>
</tr>
<tr>
<td>coefficients for land of different qualities and allocate complete holdings to households</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Others</td>
<td>0.0%</td>
<td>5.7%</td>
<td>1.2%</td>
<td>0.0%</td>
<td>12.5%</td>
<td>3.6%</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: China’s Land Issue Study Team (1992, p. 15).

Why has this egalitarian ideology tenaciously survived the otherwise radical rural institutional change? Once again, available evidence seems to suggest that egalitarianism is deeply rooted in the subsistence nature of China’s agricultural economy. A salient finding of both Tables 4 and 5 is that the low-income villages were overrepresented both in the sample of villages which distributed land on a per capita basis (84.6% versus the average 69.4%, Table 4), and the villages which divided all the land equally (84.6% versus only 57.5%, Table 5). Correspondingly, the high-income villages were under-represented in both instances (53.5% and 57.5% respectively). The reason behind the observed differences is straightforward: the poorer a village, the more dependent it is on agriculture for subsistence. As land is not a substitutable factor, the assurance of having access to it is of paramount importance to a peasant household. Under such circumstances, there are no distributive rules for satisfying one household without sacrificing the welfare of another, as each would prefer more land to less, and, in particular, more to less fertile land. The solution is therefore simply to adopt an equal distribution rule.

On the contrary, since the high-income villages were less dependent on pure crop production for their incomes, given their typically more specialized nature, they were therefore more willing to adopt a less egalitarian distribution rule in order to pursue to a greater degree the division of labor in their local economies. In other words, peasant households in these villages have plenty of opportunities to pursue economic activities other than crop production; opportunities that are not yet readily available to the poorer villagers, at least not during the initial phase of the institutional transformation when these village economies were still largely dependent on crop production for an income. Such a reasoning is to some extent borne out by the empirical evidence that the more a peasant community is dependent on land for its livelihood, the more egalitarian is its policy of land distribution, as none of the two lowest income villages distributed land on a per laborer basis, contrary to 15.56% in the second highest income village and 11.63% in the village with the highest income (Table 4). In sum, while the institutional change has successfully eradicated an egalitarian consumption policy that cumulatively contributed to the demise of collective agriculture, it is only to be replaced by one that stresses a peasant’s equal rights in his access to land.

6. SUMMARY AND CONCLUSION

The main purpose of this paper is to provide an alternative, more holistic interpretation of the recent institutional change in Chinese agriculture, based on the view that institutions in socialist economies are complex arrangements dealing simultaneously with the issues of extraction, consumption, and production. Rather than seeing the widespread adoption of a low-powered incentive scheme and an equal in-kind income distribution system as largely the result of monitoring (production) problems inherent in the nature of peasant agriculture, the paper argues that the institutional arrangements observed were also outcomes reflecting the much broader constraints posed by the dualistic development policy and other negative measures applied to extract an agricultural surplus from the peasantry. They also reflect the paradoxical need to provide the peasants with subsistence consumption as a result of the adverse economic consequences generated by these policy measures. The resulting institutional arrangements certainly appear "inefficient" from the standpoint of western economic theory, if one fails to appreciate the underlying causes of institutional structures and outcomes in these socialist economies.

As a compensation scheme, the time rate system
better served the objective of subsistence provision as opposed to piece rates, but at the expense of individual work incentives. An egalitarian income distribution system may not itself be enough to guarantee subsistence for households that have a high dependency ratio, however. The time rate system was therefore used in conjunction with the basic rationing of food-grain in Maoist China to provide a double cushioning. The subsistence constraint linked to the common notion of fairness out of which it arose, reflected a preference for an income and work-sharing arrangement—an option which must be appreciated within an overall context of job scarcity and a low standard of living. Time rates were preferred to piece rates, in addition, because under those circumstances the management of human resources under the use of piece rates could be so rife with conflict that the team managers simply adopted the much simpler and more egalitarian time rate system. While this subsistence-oriented institution seemed initially to have achieved its objective, as an institutional framework for China's agricultural development it undermined itself over time, for it weakened the work incentives of those workers/households who were prepared to work hard. Finally, the argument that the choice of organization in a socialist regime is not independent of welfare considerations is amply reflected in the egalitarian criterion that underpinned land allocation and subsequent readjustments during the radical post-Mao rural reforms and beyond.

NOTES

1. The argument that optimal incentives require the pairing of the rights of residual control and benefits is made more generally by Alchian and Demsetz (1972).

2. “Potential” in the sense that a worker was paid on the basis of his estimated skills and physical strength, which in turn were based on physiological and other attributes such as age, sex, and qualifications, rather than the actual performance.

3. The term “dualism” is used here to refer to the economic characteristics that Arthur Lewis (1954) used in describing a “typical” developing economy. According to such a characterization, economies that are underdeveloped have a small “modern” sector endowed with, by definition, modern technology that contributes to high productivity, and a large “subsistence” sector of population whose productivity is low. Economic development takes place as “surplus labor” in the subsistence sector is absorbed into the modern sector through a gradual process and as a result contributes to the overall value-added of the economy. Although in China the growth of employment in the modern, industrial sector and the backward, agricultural sector had been the result of a planned output structure as opposed to that of market forces, the economic structure which emerged as a consequence bears close resemblance to the kind of characterizations used to describe the developing economies in the sense outlined above.

4. Out of an estimated 7.8 million workers joining the labor force per annum, 1957–77, five million are believed to have been absorbed by the agricultural sector (Ishikawa, 1982).

5. As Chen Nei-luen et al. (1980), Ishikawa (1983), Rawski (1979), among others, have pointed out, the Chinese eventually adopted a labor-intensive approach to: (a) level the arable land and to improve soil fertility through the accumulation of farm-yard manures; (b) undertake flood control and irrigation works using primarily local labor and other resources, and to undertake research related to the experimental production and selection of high yielding variety (HYV) seeds; and (c) intensify the cropping patterns by increasing the applications of chemical fertilizers responsive to endeavor (b).

6. If this increase in labor input is measured in terms of the number of persons employed in agriculture, it amounted to 50% (Ishikawa, 1982). In terms of labor days worked per annum per worker it rose from 119 to 250 over the same period (Rawski, 1979) and in terms of labor days per mui it rose quite staggeringly, from 14 to 47 days (Kao, 1983).

7. Denote the value of a labor day as \( v \), the team’s net distributable revenue \( R \), and total workpoints \( W \), \( v = R/W \). \( W \) was the sum of workpoints accumulated by individual households \( w_1, w_2, \ldots, w_r \) in the team.

8. It is perhaps also worth pointing out the observation that \( v \) fluctuated sharply in a single commune during the period of agricultural communalization.

9. The national policy for regional self-sufficiency in grain arose largely as an objective from the military’s fear that a potential war of attrition might have to be fought by decentralized, self-sufficient regional forces (Donnithorne, 1972; Lieberthal, 1976, in Lardy, 1983). In particular, the policy was aimed at reducing the dependence of north China on the south for foodgrain supply, fearing that such supplies might be cut off due to war. The country was therefore divided into 10 regions, each of them required to be self-sufficient in grain supply.

10. Throughout China, increased self-sufficiency in grain was achieved only at the expense of cash crops ranging from cotton, edible vegetable oils in the north to vegetable crops and fish ponds in the south in order to fulfill both the state purchase quotas and basic grain ratios (Lardy, 1983, p. 63; Potter and Potter, 1991, p. 113). From the mid 1960s to the early 1970s, for example, one observer suggests that peasants in the north suffered a decline in per capita foodgrain consumption to the extent that it was even below the 1953–57 standard (Walker, 1977, p. 580).

11. In 1976 in a village in Anhui province, team cadres pressured peasants to grow grain, because “visitors would be
impressed by the sight of grain being grown by the side of the road," in spite of the fact that the value of growing economic crops would have been higher (Yang, 1985).

12. By the same reasoning, the grain-surplus regions suffered too because they had to produce less grain in order to make room for previously imported noncereal crops, and marketed less surplus grain to other previously grain-deficit regions, as interprovincial transfers of grain were substantially curtailed during 1966–78 (Lardy, 1983).

13. Making up roughly one-third of total production costs, nonlabor costs had risen considerably during 1957–77 against a background of more or less constant procurement prices (Fashikawa, 1982; Lardy, 1983, p. 87). In particular, procurement prices had since 1966 remained unchanged for the next 12 years.

14. Liu (1993) has shown that in large parts of eastern and central China in the late 1960s, a triple-cropping system was introduced in place of the traditional double-cropping. While this change had on the whole increased the output of a collective marginally, it was nevertheless achieved at very high production costs in terms of both additional labor inputs and material costs. The point worthy of note here is that the intensification of labor activities had resulted in significant productivity losses, as it lowered the value of a labor day.

15. As an anecdotal example, cadres reportedly reached into the cage in the dark to ensure peasants did not raise chickens beyond the sanctioned number. Similarly, unapproved cash crops grown on peasants’ private plots were pulled out (Kung, 1991, p. 155).

16. As Selden (1988) notes, private plots tended to “moderate rather than exacerbate income inequality” because “the lion’s share of household collective income inequality is the product of the demographic cycle” (pp. 135–136).

17. The same point has been made by Zhu (1991) in her village study. She finds that, as a result both of stagnation of output and income of the collective and rural population growth, the absolute number of debtor households had been gradually increasing, rendering many collectives unable to pay those households that were entitled to be paid cash.

18. In a market economy where political constraints are less binding, the choice of compensation schemes for workers reflects primarily the attempt of employers to minimize total cost, which includes both the wage bill and the costs of monitoring workers. The same cannot be said to apply to China during the period in question, however, where market forces were rigorously suppressed.

19. The majority, as Kao (1983, p. 26) has noted, still spent the bulk of their income — 80% — on food.

20. Wang et al. (1980) suggest that even relatively well-off suburban areas surrounding the large municipalities were found to be struggling with the basic concern of obtaining an adequate diet.

21. Although, as noted earlier, the number of days an average worker worked had increased between the 1950s and 1970s (to roughly 250 days), it cannot be taken to imply that work was available all the time. According to Liu’s (1991) observation, “in the month of February only 8 fall days were worked by some or all male members in the team” (p. 620).

22. Such a result can be anticipated, since China is poorly endowed with land relative to the size of her population. The existence of surplus labor and as a corollary disguised unemployment implies, by definition, that total output would not be reduced if some workers left the land for non-agricultural employment, provided that the remaining ones are willing to work harder (Lewis, 1954). As the quantity of labor far exceeds the number of jobs available, some degree of job rationing or work sharing is necessary if open unemployment is to be avoided. The situation is one of substantial disguised unemployment (see Nurbek, 1989). In the Chinese case, since the agricultural sector had absorbed the majority of the growth in labor force since the 1950s, it is not surprising that some disguised unemployment resulted, the conscious adoption of a labor-utilizing strategy notwithstanding.

23. Mao’s preference for intravillage household income equalities and therefore time rates is evident in the following quotation: “Even if one acknowledges that material incentive is an important principle, it absolutely cannot be the only principle. There must be another principle — the principle of spiritual encouragement in the sphere of political ideology. We hold that the time-rate wage system should be primary and the piece-work [i.e., task rate] system should be supplementary” (cited in Parish and Whyte, 1979, p. 65).

24. There would be no difference between the two systems, of course, if monitoring was either relaxed under the piece rate system for the purpose of giving work points to the incompetent worker, or, as the costly monitoring thesis would contend, monitoring was so imperfect in agricultural team production that effort and reward did not match one another. Imperfections are a matter of degree, however, and it is doubtful that one could make the allegation that effort within a production team was completely unobservable. See, e.g., Puttermann (1991).

25. For example, in the traditional sector of Bangladesh, Manove, Papanek, and Dey (1987) have found that: “In many (income sharing groups), rents are allocated according to time worked. Thus, additional work by one group member may adversely affect the rents allocated to the others. The situation gives rise to internal group pressure, possibly coercive in nature, that tends to constrain work time (emphasis added).” I am grateful to Louis Puttermann for bringing this passage to my attention. In an agricultural producers’ cooperative, one major reason why peasants might opt for a greater degree of needs distribution is that incentives tend to be excessive in a cooperative under pure distribution according to work (piece rates). When the income of household i is negatively related to the work effort of household j, i would like to discourage j from working harder (see Puttermann, 1986). I would argue that this is especially the case when there are inadequate jobs to the extent that they have to be rationed among the workers.
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26. It should be pointed out that the remuneration systems observed by Parish and Whyte (1979) in their village study are primarily explained in terms of the differences of these villages in their resource endowments, in particular the differing land-labor ratio. In villages where labor was scarce relative to land, there was a higher incidence of using piece rates, as it caused work to be speeded up. On the other hand, in villages where land was scarce, time rates tended to be used, as the opportunity costs of sloppy work resulting from using piece rates were higher in a situation of high land-labor ratio. It should be pointed out that Parish and Whyte only provide the sociological evidence that tends to support our argument. They need not share this author’s interpretation.

27. For example, Chan, Madsen, and Unger (1984) relate a case in which a woman wanted to matchmake the brother-in-law of the team leader who was in charge of job allocations, so that in gratitude he would be indebted to her and give her lighter work to do in the team (p. 202). Similarly, Potter and Potter (1990, p. 106) find that a team leader was often troubled by the question of task allocation because he had to avoid accusations of favoritism which would cost him his reputation. This is because a typical team contained not only members of the team leader’s own household, but also some of his close patrilineral relatives.

28. The difference between using the time rate and the piece rate systems in this respect is of course merely one of degree.

29. This is analogous to the labor market outcome when union "voice" replaces "exit" as the institutional mode governing an employment relation. The objective of collective bargaining is, according to Freeman (1986), to maximize the welfare of an "average" worker; in the sense that greater emphasis is placed on those workers who, as a result of their greater investments in acquiring firm-specific capital, would have the most to lose should the existing employment be prematurely terminated.

30. A highly equal income distribution pattern may also be gauged from the declining share of cash income in the collective’s net distributable incomes from 35% in 1957 to 20% during the mid to late 1970s (Laréy, 1983).

31. The difference in efficiency properties between time rates and piece rates can be likened to Williamson’s (1985, ch. 6) discussion of the different efficiency properties between an internal organization and the market. Analogous to piece rates, the market is a high-powered incentive system because it is more "unforgiving," whereas an internal organization (likened to time rates) makes allowance for error and inability because it pays due regard to human dignity (p. 151).

32. Such an irony is succinctly pointed out by Potter and Potter (1990): "In its structure and allocation of resources, the Maoist production team was one of the most pronatal organizations in human history. Ultimately, this pronatalism was to contribute to the demise of the team, and the reaffirmation of the household as the most important economic unit in rural Chinese society. Ironically, this result was created by some two decades of subsidies, provided to the households by the teams — in an institutional setting the formal purpose of which was to achieve just the opposite" (p. 112 — emphasis added).


34. Scattering is defined by Quiggin (1988) as "the separation of individual farmers’ land-holdings into a number of separate parcels of land, over and above the division implied by the need for crop rotation" (p. 88).

35. There is first of all physical waste involved, as the number of furrows and ditches that have to be erected for demarcation purpose is directly proportionate to the number of plots divided. The large number of boundaries created for this purpose was also found to be a major source of dispute among the peasant households (China’s Land Issue Study Team, 1992, p. 34). Inefficiencies have arguably cropped up in other areas, too. For instance, depending on a village’s man-to-land ratio and topographical conditions, peasant households now have to spend a great deal more time commuting between the tiny slivers of land that scattered across the village. The number of plots a household has may be so numerous that, as in Hebei province, a household was found to have forgotten to farm 3 of the 27 plots of farmland (with a total size of only 6 mu; 1 mu = 1/15 hectare or 1/6 acre) after they harvested the rest (Ministry of Agriculture, 1991). Finally, it has also been argued that scattering tends to retard the use of indivisible machinery, and thus fails to achieve economies of scale that could be brought about by a more intensive use of farm machinery. For sources, see the various issues in Problems of Agricultural Economy (Nongye Jingji Wenti).

36. In rural China, land is typically classified into various grades depending in the main on its soil fertility and location.

37. The Ministry of Agriculture’s (1991) survey undertaken in 1987 showed that the extent of scattering had been reduced. A peasant family then had 9.2 mu of land that scattered over 8.5 plots, amounted to 1.1 mu per plot. An authoritative spokesman from the State Council, Du Rensheng, regarded the average plot size as "too small and fragmented for technical improvements, for the lowering of the costs of production, and for raising productivity," Economic Information, November 25, 1987, p. 1.

38. While rural-to-urban migration has become somewhat more relaxed after the reform, so that in theory peasants of poor villages might be able to share the prosperity of the affluent ones by migration, such equalization of factor movements seldom occurs in reality. The most important reason is that one has to be a member of a village in order to be allocated a share of the village’s land. It is thus unlikely that one would want to migrate out of his own village just to become a casual migrant farm worker. Only where the typically better paid rural non-farm work becomes available might one contemplate the prospects of migration. While migration of this type has indeed occurred after the reform, most notably in the Pearl River Delta of southern Guangdong province, its magnitude appears to be modest, as it is restricted by China’s still poorly developed transport infrastructure, the high costs of information concerning alternative economic opportuni-
ties, and, above all, the fact that many villages are not yet developed to the extent that they are able to absorb a large number of peasant workers from villages other than their own.

39. The obvious shortcoming of distributing land equally among the peasant households is that households differ in their factor endowments and as a corollary marginal productivities. Economic efficiency would therefore require land to be reallocated among households in order to equalize such differentials. A swap market in the use rights in land, however, has been slow to emerge. There appears to be two reasons for this. First, as property rights in land have remained ambiguously defined, peasant families simply do not want to risk the prospect of losing their entitlement as a result of having leased out the land. Second, as an important source of rural surplus labor absorption off-the-farm employment in many Chinese villages are not yet sizeable enough to have induced the emergence of a market for use rights in land. This explains why, for the nation as a whole, only 1% of all farm households is found to have involved in the transfer of usufruct rights in land among themselves, involving a mere 0.44% of the nation’s total arable land. See Kung (1993c) for a more detailed analysis of this issue.

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