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Capitalization without Proletarianization in China's Agricultural Development

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Abstract

Marxist as well as classical and neo-liberal theories expect that the development of capitalist agriculture will be accompanied by the spread of an agricultural proletariat. That was what happened in eighteenth-century England; it is also what is happening in contemporary India. This article asks, first of all: just what is the size of China's present agricultural proletariat? And how do we understand and explain those dimensions? Our finding is that, contrary to our own initial expectations, hired agricultural year-workers in China today total only 3 percent of all labor input in agriculture (and short-term workers another 0.4 percent), in sharp contrast to India's 45 percent, this even while the past two decades have seen very substantial "capitalization" (i.e., increased capital input per unit of land) in agriculture. We term the phenomenon "capitalization without proletarianization," perhaps the most distinctive characteristic of recent Chinese agricultural development.

Keywords

hired agricultural workers, statistical data, family farms, agricultural enterprises, familized production

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Introduction

A century ago, V. I. Lenin and A. V. Chayanov disagreed fundamentally over the empirical realities of Russian agriculture and the direction in which it was moving. Lenin believed hired agricultural workers were spreading rapidly along with the rise of an agricultural bourgeoisie (rich peasants). In the tradition of Marx and Engels, Lenin thought that capitalism was the dominant direction of change in Russian agriculture; what was required was socialist revolution in the countryside no less than in the cities (Lenin, 1956 [1907]). By contrast, Chayanov maintained that peasant family farming, which he argued was entirely different in principle from capitalist agriculture, was predominant and persistent. What was required was neither capitalism nor collectivization, but cooperatives to provide "vertical integration" (from production to processing to sale) for family farms in a market environment (Chayanov, 1986 [1925]; Shanin, 1986). That was the main division in opinion over agriculture until Chayanov and his cohorts were silenced by Stalin, Russian agriculture was collectivized, and a completely planned economy was instituted.

Today, after the collapse of ("socialist") collective agriculture and planned economies in the former communist states and in China, the old issue has returned, now not so much as the Marxist versus "peasant economy" division, as between neo-liberal capitalism versus peasant economy. For the former, the empirical reality as well as the direction of development of agriculture in China and other developing countries is, and ought to be, capitalism, that is, large-scale hired-labor-based agriculture. This neo-liberal perspective has in reform China acquired hegemonic dominance over other discourses of agriculture and rural development. An alternative perspective is that agriculture remains mainly based on the peasant family and not on capitalist farming, and its ideal direction of development should be toward neither capitalism nor socialism, but something different, along the lines of marketized cooperatives, in the manner originally envisioned by Chayanov.

The principal foil for this article is the classical Marxist and liberal definition of "capitalism"—as based on a market economy and individuated wage labor rather than family labor (Smith, 1976 [1776]; Lenin, 1956 [1907]; see also Huang, 2011b). That point of view remains hugely influential.

Of course, not all scholars follow either Marx and Smith's images or Chayanov's. There are, for example, those who argue that the "East Asian model" (of Japan, South Korea, and Taiwan) is a distinctive form of capitalist agricultural development, inasmuch as it is based on a combination of family farming and strong state support. China, in their view, now fits into this model

(Teruoka Shūzō, 2011; Zhang Yulin, 2011). But as Philip Huang has shown (Huang Zongzhi, 2010: 5–15), China's agricultural history is more like that of India than of Japan or South Korea or Taiwan. Japan had already entered into a period of slow demographic growth from about 1720 (Hanley and Yamamura, 1977) and, during the period 1890 to 1960 when modern inputs were introduced into its agriculture, its industrial expansion was sufficiently vigorous to draw in enough labor to keep its agricultural population nearly constant, which made it very different from China. As for South Korea and Taiwan, they had managed to spring off their 1960s and 1970s "green revolutions" (the use of chemical fertilizer, scientific seed selection, and mechanical power, initiated already under Japanese rule) into sustained industrialization, also very different from China's experience in which the gains from those same modern inputs were largely eaten up by population growth (more below). Subsequently in Japan, the model of the "East Asian model," as the proportion of its rural population shrank to well below 10 percent of the total, wage-labor-based capitalist agriculture actually spread quite widely, as will be seen, far more so than in China, even while family farming persisted strongly.

In population pressure and in the dimensions of its agricultural problem, China much more closely parallels India. It also shared with India, on the eve of the coming of modern inputs into agriculture in the 1950s, substantially the same per capita GDP, much lower than those in Japan, South Korea, and Taiwan at the time (Huang Zongzhi, 2010: 5–15). We therefore focus our comparisons in this article principally on India, although we will also comment on China's differences from the so-called East Asian model.

The issue before us is first of all an empirical one. Just what are the dimensions of wage-labor-based capitalist agriculture in China today? And just what is the direction of change in Chinese agriculture? And how do we understand and explain those?

The Data

In "transitional" China of the reform period, old rhetoric from the Mao Zedong era has been combined with neo-liberal practices and discourses to result in a peculiar mixture. The old rhetoric has been cleansed of any talk of "class struggle" (along with a "thoroughgoing repudiation" 彻底否定 of the Cultural Revolution), this while neo-liberal practices and discourses are framed within the category of "market socialism." One result is that in official statistical practice, class categories or class (production) relations have largely been ignored.

Thus, agricultural wage-laborers do not exist as a statistical category, nor do the huge numbers of peasant-workers employed off-farm. "Workers" exist statistically mainly as employees-workers 职工, in a curious remnant of the planned economy era when capitalist class relations were supposed to have been overturned and white and blue collar differences erased. The categories "labor" 劳动 and "laborers" 劳动者 are limited to regular, formal employees-workers (i.e., officially registered as such, and with legal protection and benefits) in industry, conceptualized as the "secondary sector," distinguished from the "primary sector" of agriculture. Hence one finds nothing about the "informal" peasant-workers in the statistical yearbooks on "labor" (*Zhongguo laodong tongji nianjian*, 2007), even though we know that there are about 150 million people registered as peasants who work away from home in industry and services, popularly dubbed those who "leave both the land and the village" 离土又离乡, and another 150 million who work off-farm near home, dubbed "leaving the land but not the village" 离土不离乡. Those people generally take the heaviest and dirtiest jobs, are the most poorly paid, do not enjoy legal protections, and work without benefits or with reduced benefits. We know these facts, not through official statistical categories but rather mainly from studies outside the established statistical categories (Zhonghua renmin gongheguo guojia tongjiju, 2010; for a summary discussion, see Huang, 2009; cf. Huang, 2011d).

"Peasants," or "agricultural people" 农民, remains a separate and distinct category from employees-workers and/or laborers. Earlier, "peasants" had been conceptualized as members of rural village collectives; now mainly as those formally registered by the government as rural residents, despite the social reality of huge numbers working off-farm. As for those still in farming, officially dubbed "people employed in agriculture" 农业从业人员, "hired agricultural workers" 农业雇工, like the peasant-workers in the towns and cities, do not exist as a statistical category.

This lacuna in statistical data accounts in part also for the dearth of serious research on agricultural wage labor. A search of the academic literature shows virtually no work at all on the subject within China. A search of the Chinese Academic Journals Full Text Database (CNKI) (in late August 2011) under the keyword "hired agricultural workers" 农业雇工 produces just 38 titles, most of them historical; only 6 short items deal to some degree with the subject in present-day China, and none contains any attempt at an estimate of the quantitative dimensions of such in any one locality, much less regionally or nationally.

Yet we know from field research and from incidental references in articles and books, as well as from personal experience, observations, and accounts,

that there is a significant amount of hired agricultural labor going on. But just how much is left in large measure to one's imagination, often shaped by ideological proclivities, with those favoring the classical Marxist and classical liberal views tending to exaggerate the incidence of wage labor and of "capitalist agriculture" in China today. Some lean very close to the picture outlined by Lenin; some even imagine that large, capitalist agricultural firms, both multinational and domestic, are sweeping the country. Those who question the standard Marxist and neo-liberal views, by contrast, tend to the opposite—to minimize or ignore capitalist farming.

How then can we get a more systematic picture? Our exploration through the existing data suggests that fairly reliable numbers do exist, though they need to be excavated from the enormous masses of quantitative information accumulated by the huge statistical apparatus of China. One widely used source is the annual national survey of costs and incomes for different farm products, based on detailed annual sampling of 60,000 farm households in 1,553 counties throughout China (*Quanguo nongchanpin chengben shouyi ziliao huibian*, 2002: editor's explanation, 2). It in fact contains precise information on hired labor among the surveyed households. But those data on hired labor are given expression only under the tallies of costs and incomes for different farm products. They appear as averaged-out hired labor input, distinguished from family labor input, in terms of monetary costs and number of days, for each unit of land and output.[1]

We can use those data to obtain a fairly precise indication of the proportion of hired labor used by the surveyed households, for a variety of agricultural products, and thus also to arrive at an approximation of total hired labor among all farm labor input. Table 1 and Figure 1 use this approach and give the proportions of hired labor input (in labor days) for five major agricultural products: grains (the average of the three major grains: rice, maize, and wheat) (food grains 粮食作物 as a whole amount to 68.7 percent of the total sown area in 2009), vegetables (11.6 percent of sown acreage), peanuts and oilseeds 花生+油菜籽 (7.4 percent; "oil crops" 油料作物 as a whole amount to 8.6 percent of total sown acreage), cotton (3.1 percent of sown acreage), and apples (as an approximation of all fruits and melons 瓜果, which total 1.5 percent of sown acreage) for which there are systematic data (*Zhongguo nongcun tongji nianjian*, 2010: table 7-3). These are the five major categories of agricultural products, accounting for a total of 93.5 percent of total sown acreage.

As can readily be seen, the use of hired labor in the largest category—grains, at 68.7 percent of the total sown acreage—of agricultural products amounts to under 5 percent of all labor input, and has not shown any substantial

Table 1. Proportions (in Percentage) of Hired Labor Used (in Labor Days) for Major Agricultural Products, 2000–2009

Year	Grains	Vegetables	Peanuts and Oilseeds	Cotton	Apples
2000	4.1	2.9	2.1	3.1	3.0
2001	4.2	0.7	2.1	2.7	5.0
2002	4.3	1.4	2.4	3.1	2.6
2003	4.5	1.6	3.1	3.0	5.0
2004	5.3	4.5	2.0	5.2	15.8
2005	4.6	7.5	2.6	4.9	17.7
2006	4.5	7.7	1.3	5.9	17.4
2007	4.8	8.8	1.5	7.0	31.6
2008	4.7	8.2	1.1	6.9	20.6
2009	4.4	8.5	1.3	6.7	39.6

Source. Quanguo nongchanpin chengben shouyi ziliao huibian, 2006, 2010.

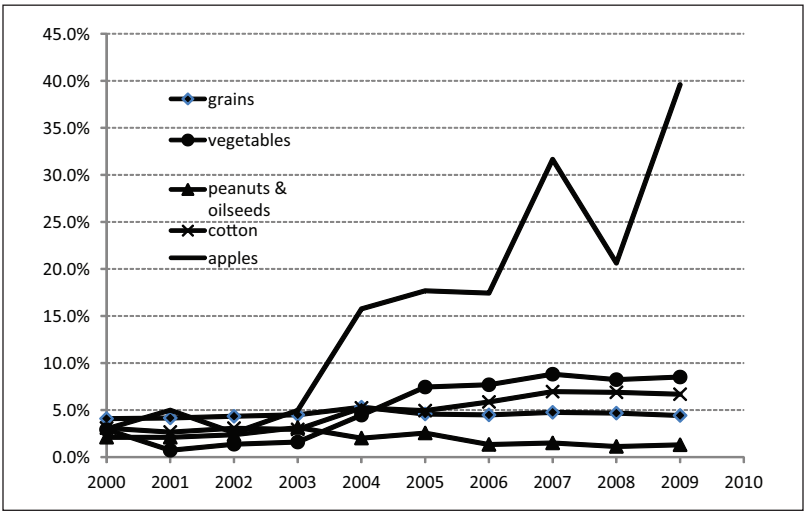

Figure 1. Proportions of hired labor used (by labor days) for major agricultural products, 2000–2009
Source. Quanguo nongchanpin chengben shouyi ziliao huibian, 2006, 2010.

increase in the past ten years. On the other hand, hired labor in the next largest category—vegetables, at 11.6 percent of total sown acreage—has risen substantially in the past decade (largely because of the coming of "capital and labor dual intensifying" plastic-tented vegetable farming close to urban

centers and transport routes) (Huang Zongzhi, 2010), but still remains at just 8.5 percent, this because vegetable cultivation remains mainly a family farm operation, requiring intense and meticulous, if irregular, inputs of labor (Huang, 2011b; more below). The typical pattern is for a farm family/couple to hire a worker or two, mostly part-time, to help with its plastic-tented vegetable cultivation. As for the third largest category—oil crops, at 8.6 percent of total sown acreage—the proportion of hired labor used, like for grains, has remained steadily low, just 1–3 percent throughout the period.

The fourth largest category, cotton, at 3.1 percent of sown acreage, has seen a significant increase in hired labor, now up to 7 percent of all labor input for the surveyed households, perhaps partly because of the concerted efforts in recent years to develop new cotton fields in Xinjiang, rising from 24 percent of all acreage under cotton in 1996 to fully 41 percent in 2006 (*Zhongguo di er ci quanguo nongye pucha ziliao zonghe tiyao*, 2008: 7-2-8). Given the relative abundance of land as opposed to labor there, fully one-quarter of the farms are larger than 100 mu and therefore employ a considerable amount of hired labor (and also at a higher cost per laborer than in other areas). Still, hired labor remains largely just seasonal short-term labor for cotton picking; family farming remains predominant (Mao Shuchun, 2010).

The one case of a truly dramatic rise of hired labor use is for apples (the only fruit for which such systematic data exist), as an approximation of "fruits and melons," which account for 1.5 percent of sown acreage. Hired labor reached nearly 40 percent of total labor input in 2009. This is partly because orchards on hilly land are sometimes leased out in larger tracts (but are also often distributed equally by household) and also because of the spread of high-value varieties requiring intensive labor, for covering the fruit with bags 果袋 in order to enhance quality and appearance and for fruit-picking. (See, for example, the description of apple growing in Yantai, Shandong—2010 Yantai pingguo, 2011.) But the dramatic rise in this sector of agricultural production should not be exaggerated, since total acreage under fruit amounts to just 1.5 percent of all sown acreage.

The spread of high-value vegetables (and fruits) has accounted for a good deal of the "hidden agricultural revolution" of China, of a nearly six-fold rise in output value of agricultural products (in comparable prices) in the last three decades, driven mainly by increased demand for such products stemming from the striking rise in incomes. The term "hidden agricultural revolution" is used by Huang to distinguish this recent Chinese phenomenon from the conventional understanding of "agricultural revolutions" as based mainly on the rise in absolute output per unit land or labor in the same crops, as was the case in the classic eighteenth-century English agricultural revolution and the more recent "green revolution" of the 1960s and 1970s. China had

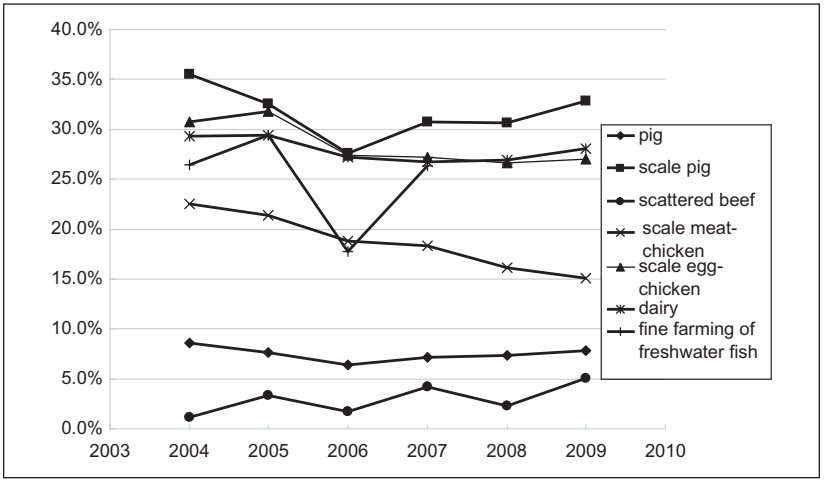

Figure 2. Proportions of hired labor used (by labor days) for major animal products, 2004–2010
Source. Quanguo nongchanpin chengben shouyi ziliao huibian, 2005, 2006, 2007, 2008, 2009, 2010: table 1-23-2.

undergone its "green revolution" also in the 1960s and 1970s; the more recent "hidden agricultural revolution" comes not so much from expansions in the yield of certain crops but rather from the fundamental restructuring of Chinese food consumption and its accompanying agricultural structure—from a diet of 8 to 1 to 1, in grains to vegetables and to meat to one tending toward a 4 to 3 to 3 ratio (Huang Zongzhi and Peng Yusheng, 2007; Huang Zongzhi, 2010: chap. 6; Huang, 2011c; *Zhongguo nongcun tongji nianjian*, 2011: table 6-22).

Increased animal husbandry is very much a part of the new "hidden agricultural revolution." Figure 2 gives the proportions of hired-labor use in the major categories of animal products, in the same manner as for the crops. First, for the three main meats—pork, poultry, and beef, accounting (by weight) for 64 percent, 21 percent, and 8 percent respectively (or a total of 93 percent) of all meat produced in China in 2009 (*Zhongguo nongcun tongji nianjian*, 2010: 7-38, 7-40). As can readily be seen, hired labor as a proportion of all labor input for pork has varied between 6 percent and 8 percent in the past five years among these surveyed households (for which detailed and comparable data are available). The typical pattern is for a small family farm to raise just one or two pigs in the old manner, feeding them with scraps from the family table and such, called today 散养, or "scattered raising." Even

so-called "[large-]scale pig raising" 规模养猪 (i.e., more than 30 pigs—*Quanguo nongchanpin chengben shouyi ziliao huibian*, 2010: appendix 1 and 3), is still to a considerable extent a family-farm operation, in which the family provides (on average) about two-thirds of all labor. Such scale pig raising, we have seen, has only raised the total proportion of hired labor used for all pig-raising to 8 percent in 2009. In beef production, data exist only for "scattered raising," in which hired labor amounted to just 5 percent in 2009 (*Zhongguo xumu nianjian 2009*, 2010: 205.[2] In (meat-) chickens 肉鸡 (the dominant item in "poultry" 禽肉), no reliable data exist for all chicken raising, because of the difficulty of counting up scattered family-farm raising of chickens.[3] But even in "[large-]scale chicken raising" 规模肉鸡, hired labor declined from a high of 22.5 percent in 2004 down to 15 percent in 2009, showing the powerful persistence of family raising of chickens. We know from anecdotal evidence that even very large firms marketing chickens and eggs continue to rely a good deal on contracting with multitudes of scattered family farms rather than concentrated production on one site (*Zhongguo nongye chanye-hua fazhan baogao*, 2008; see also Huang, 2011c). In short, just as in crop production, family labor remains predominant in meat production in China.

Milk and eggs, the other two major animal products (a total of 65 million tons in 2009 compared to 76 million tons of meat—*Zhongguo nongcun tongji nianjian*, 2010: 7-40, 7-41), because of the stricter demands for uniformity of product, are where capitalistic operations have apparently made greater inroads. As shown in Figure 2, 28 percent of total labor input in dairy farming in 2009 is hired. As for eggs, hired labor input in large-scale production rose to a high of more than 30 percent in 2005 but has since leveled off at 27 percent (again showing the persistence of family farming using family labor). (No reliable data exist for scattered production of eggs by small family farms; as with meat-chickens, the costs-incomes survey abandoned data collection in 2006.)

In aquatic products 水产品, which in tonnage totaled (in 2007, the last year for which such data are available) 47 million tons (compared to meat at 69 million tons that year, and milk and eggs at 62 million tons—*Zhongguo nongcun tongji nianjian*, 2008: 7-44), capitalist production has also made strong inroads, given the relatively high capital outlays required for aquaculture of fish. Data are only available for "fine farming of freshwater fish" 淡水鱼精养 for the years 2004 to 2007. As can be seen from Figure 2, hired labor totaled 26 percent of all labor input in such fish-farming in 2007.

In sum, there can be no question that family farming has remained predominant. This is especially true of what Philip Huang termed the "old agriculture," mainly family farming of grains and oil crops and such, and even of cotton.

It is also largely true even of what Huang terms the "new agriculture," higher-value agricultural products, especially vegetables and meat (pigs, poultry, cattle), which involve intensification of both capital (e.g., plastic tents, biological enzymes to convert grain stalks into feed) and labor. Thus, while one labor unit can cultivate four mu of open-air vegetables, it can generally manage just one mu of plastic-tented vegetables. Similarly, while a typical family farm of 5–10 mu can maintain just one or two pigs on scraps, a farm using biological enzymes to convert grain stalks into feed can raise ten or more, with proportionate increases in labor input (Huang Zongzhi, 2010). Fruits, and milk and eggs production, on the other hand, use more hired labor.

Precise quantification of all hired labor as a proportion of total labor input is not readily available, and perhaps not even desirable. This is in part because of the sharp differences between, on the one hand, the majority of agricultural products—such as grains, vegetables, peanuts and oilseeds, cotton, and pigs–poultry–cattle—in which family farming remains predominant, and on the other hand, the select few products in which wage-labor-based capitalistic farming has made bigger inroads—mainly fruits, milk, farmed fish, and eggs. Nevertheless, we might still conclude, with the caveats just noted, that in all, hired-labor farming accounts for a relatively low proportion of labor input—an average of 5 percent for the five tabulated crops, which total 93.5 percent of total sown acreage, and about 7 percent in meat production, but higher in fish-farming, which requires a higher degree of capital input, and in milk and eggs production, which requires a higher degree of standardization. The total for all categories of production might on the basis of these surveys be estimated in the range of 5 percent to 8 percent; certainly less than 10 percent. This, at least, is what the costs-incomes data based on a sampling of farms tell us.

A Different Set of Data

The 5 percent to 8 percent, or "certainly less than 10 percent," figure may seem to some lower than might be expected, but the fact is that it might well be an overestimate. The preceding data come entirely from the annual surveys of costs-incomes of 60,000 farm households nationwide. While that seems a sizable sample, we must nevertheless face the issue of possible distortion from selection. To be sure, the households are drawn from an impressive number of 1,553 counties[4] but, it must be remembered, that means that an average of just 38 households are surveyed per county, which in turn means the data might very well not be truly representative. In addition, the purpose of the surveys is not so much to capture the reality of all of Chinese agriculture as to provide a basis for price policies, on the basis of the changing relationship

among costs of different factors of production. Second to that primary purpose, the surveys have also sought explicitly to provide "models" for a desired path of development. As the chairman (Zhao Xiaoping 赵小平) of the Price Office 价格司 of the State Development and Reform Commission 国家发展改革委员会 (formerly the Planning Commission), which conducts the costs-incomes survey, put it:

> Our investigators . . . should pay attention to the model function of the surveyed households, endeavor to identify special advanced activities 特色产业 well suited to local conditions, and show the peasants a visible path to becoming rich, using one household to bring along a hundred. . . . The saying "to get rich, just look at the surveyed households" has become an accurate description of what the costs-incomes surveys have done in the way of helping raise the incomes of peasants. (Zhao Xiaoping, 2004)

Given this stated purpose of selecting households "to serve as models" 示范作用, we ourselves, contrary to our own initial expectations, are inclined to think that the costs-incomes surveys are likely biased toward households that are considered more "advanced."

What, then, might be done to correct for the bias of these data which have been widely relied upon for scholarly research (for a very recent example, see Wang Meiyan, 2011)? Perhaps partly to overcome the problems of the small and not so representative sample, China has since 1996 introduced the practice of decennial surveys of agriculture, similar in strategy to the decennial population censuses that have been the foundational data on population. To date, we have the results from two surveys, in 1996 and 2006, pegged at 24:00 hours, December 31, 1996 and 2006. These are mammoth surveys that require all questionnaires be filled out on the spot during the course of the interview by the investigator together with the interviewee. They employ nationally standardized four-page questionnaire forms, along with detailed instructions to all investigators. The questionnaires include (question #10 of the standard form) items about the number of agricultural workers hired, divided between those hired for more than six months and those less than six months (also broken down by gender). For the latter, the exact number of workdays hired is to be given (*Zhongguo di er ci quanguo nongye pucha ziliao zonghe tiyao*, 2008: section 8, 285-339).

Overall, these decennial surveys are clearly intended to do for agriculture what the decennial population surveys have done for population. Unlike the annual 60,000 households surveys, these are intended to capture current

realities as precisely as possible, without any complicating mission of setting up certain households as models. In fact, they have come to set the new standard for data on Chinese agriculture. They have been used, for example, to update and correct past data on Chinese agriculture, much as the decennial censuses have been used to correct past demographic and employment data. (See, for example, *Zhongguo nongcun tongji nianjian*, 2008: table 7-38, on livestock raising 畜牧业.)

The organizing category used in the survey is of "managerial entities" 农业生产经营者, divided into "agricultural production managerial households" 农业生产经营户, which we might call simply "family farms," totaling in 2006 200.2 million households, with 342 million "household's own labor units" 本户劳动力. These family farms are distinguished from 0.395 million "agricultural production managerial units" 农业生产经营单位, which include "enterprises" 企业, "public service units" 事业单位, "government agencies" 机关, "societal organizations" 社会团体, "people-operated nonprofit entities" 民办非企业, and "other legal person units" 其它法人单位.

For these latter managerial units, further breakdowns exist for the 0.239 million units with official "agricultural legal person" status 农业法人单位. Those total 6.278 million "employed persons" 从业人员 (or 26 persons per unit), among which "enterprises" 企业 account for the largest number, 3.583 million employed persons, or 57 percent of all employed persons in these enumerated "managerial units." Employees of these enterprises, in other words, total just over 1 percent of all persons (including both those in family farms and in farm "units") engaged in farming (*Zhongguo di er ci quanguo nongye pucha ziliao huibian, nongye juan*, 2009: table 1-5-1). Many among these employees-workers of agricultural enterprises would come the closest to what might be considered an "agricultural proletariat"—i.e., full-time wage-workers employed by (capitalistic) agricultural enterprises.

As for the unregistered remainder, if we assume, as an upper limit, that all of those without "legal person" status, and therefore not included in the above count, are private profit-seeking enterprises (because the others, which are official and semiofficial entities, or private charities, are much more likely to be formally registered with legal person status), and further that they average the same number of employees as the registered enterprises (even though realistically, they are likely to be smaller units), we would come to a figure of another 4.056 million of such employees, to make up a total of 7.639 million, or 2.2 percent of all farming persons, as the upper-limit estimate of agricultural workers hired by (agricultural) enterprises.[5]

The data for the family farms ("agricultural production managerial households") are more precise. A total of 342 million enumerated persons are

identified as "employed family labor units" 家庭户从业劳动力 of those farms, of whom 337 million or 98.5 percent are identified as "self-employed" 自营 (the others, in much smaller numbers, being variously "employers" 雇主, "family helpers" [family members who help out] 家庭帮工, "working in industry" 务工, and public service 务职) (*Zhongguo di er ci quanguo nongye pucha ziliao huibian, nongye juan*, 2009: table 2-1-14).

These data, it must be pointed out, are complicated by the great variety of peasant family economic activities these days. The majority of farm households today work simultaneously in several capacities, not just in farming but also variously in trade, and transport and other services, among a myriad of off-farm pursuits. The decennial surveys adopted the practice of dividing the family units between those who work more than six months a year in farming and those working less than six months. With that distinction, the 2006 survey enumerated a total of 305 million persons, 214 million of them working more than six months a year in farming, and 91 million less than six months. Among the former, 1.6 million persons, or 0.7 percent, are counted up as "hired workers" 雇工, and among the latter, an uncounted number of persons were hired for a total of 275 million work-days. The survey then converts for statistical purposes those person-days into person-years according to the formula of 300 workdays per person per year—yielding a total of the equivalent of 0.9 million work-year persons (*Zhongguo di er ci quanguo nongye pucha ziliao huibian, nongye juan*, 2009: table 2-1-15). Putting the two groups together, we get a total of 2.5 million hired labor units, or 0.8 percent of all the 305 million enumerated.

We need, however, to account for the fact that the statistical equivalent of 300 days a year, while sensible for full-time hired year-laborers, is in all likelihood substantially higher than the average number of labor days actually put in by the 214 million self-employed peasants who work "more than six months a year," and certainly very much higher than the 91 million self-employed who work less than six months a year. A more accurate figure of hired labor as a percentage of total labor would be to count both self-employed and hired laborers by labor days. If we use an average figure of 250 days for the former, and 100 days for the latter, the proportion of hired labor used by these family farms, tallied in terms of labor days, would be substantially higher, 1.2 percent instead of 0.8 percent.[6] Of that, 64 percent are long-term (more than six months) and 36 percent short-term (less than six months). The majority of short-term laborers would be persons who have their own family farms who hire out just part-time and would not quite fit the category "agricultural proletariat." They are more like a "semi-proletariat." For the size of the "agricultural proletariat" in family-operated farms, we might use the working figure of 0.8 percent.

If we add to that 0.8 percent figure our upper-limit estimate of the number of hired workers employed by agricultural enterprises, another 2.2 percent of all those engaged in farming, we would come to a total figure of 3.0 percent of all farming being done by an "agricultural proletariat." If we include the part-time workers who own family farms of their own, the total figure would be 3.4 percent.

These figures are considerably lower than those from the annual surveys of costs and incomes in farming on the basis of the 60,000 households sample. They do suggest strongly that the sampled data are likely biased upward toward households that are local "models" on the path to becoming "rich." Until better data become available, the figure of 5 to 8 percent (or "certainly less than 10 percent"), based on the annual costs-incomes surveys of 60,000 households might be taken as the upper-limit estimate of total hired agricultural labor in China, while the figure of 3.0 percent or 3.4 percent, based on the more thorough decennial survey in 2006, might be taken as the lower-limit estimate. Given that the surveyed households are intended to serve as "models" for others, we ourselves are inclined to the lower set of numbers.

Local and Microsocietal Evidence

We turn now to local- and village-level evidence to lend a better sense of reality to the above figures.

The "Green Revolution" in Songjiang, Shanghai, 1960s and 1970s

In Songjiang county (in Shanghai, in the "south"), the site of Philip Huang's field research from 1982 to 1995, the 1960s and 1970s saw the coming of a "green revolution"—that is, chemical fertilizers, scientific seed selection, and tractors. Those, together with electrification and improved water control, plus greatly intensified labor input, led to a rise in yields (per sown mu) between 1955–1959 and 1975–1979 of 316 percent in cotton, 131 percent in rice, and 274 percent in wheat. Those increases mirrored, if with enlargement, the trends in China as a whole (see Table 2).

Labor input, however, went up by almost the same extent, driven by population increase and more intensive cultivation, most dramatically in the introduction in the late 1960s of the double-cropping of rice (early rice 早稻, late rice 晚稻, followed by winter wheat), itself made possible by the coming of tractor plowing (so that the tight turnaround schedule between harvesting of the early rice crop and planting of the late rice crop, in the "double-rush" 双

Table 2. Crop Yields (Catties per Sown Mu) in Songjiang and China, 1955–1959 versus 1975–1979 (Cotton, Rice, and Wheat)

	Cotton		Rice		Wheat	
Years	Songjiang	China	Songjiang	China	Songjiang	China
1955–1959	45	38	534	341	149	118
1975–1979	142	60	697	502	408	236
Percentage change	316	158	131	147	274	200

Source. Based on Huang, 1990: table 11.1, p. 224.

Table 3. Cash Value of Workday Equivalent (Gong) in Xubushanqiao Village, 1965–1969 and 1975–1979

Years	1965–1969	1975–1979
Cash value (yuan)	1.02	0.90

Source. Based on Huang, 1990: table 11.4, p. 239.

抢 period of August each year, could be met). The result was that output per unit labor improved only modestly or not at all. Table 3 shows the cash value of each labor day in Xubushanqiao hamlet (for which such detailed data are available), one of the four hamlets of Huang's field research. As can readily be seen, cash income earned by the villagers remained basically the same, hovering throughout the period 1965 to 1979 at about one yuan per labor day.

The fact is that improved yields from new inputs of the green revolution barely kept up with the population increase. The gains in output, we might say, were largely eaten up by increased labor input (and involution), made possible and necessary by population increase. This is what distinguished China crucially from Japan, South Korea, and Taiwan's experiences with these first introductions of "modern inputs" (Huang Zongzhi, 2010: 5–15). According to Perkins and Yusuf's authoritative study, while China's agricultural output increased by 2.3 percent per year between 1950 and 1980, the population grew by 2 percent per year in the same period (Perkins and Yusuf, 1984: chap. 2). That is a well-known story.

The New "Hidden Agricultural Revolution" in Liaocheng, Shandong

The rural areas of Liaocheng city (in Shandong province, in the north), the site of Gao Yuan's field research in the last two years, went through a green revolution much like Songjiang's, only somewhat later. The introduction of the modern inputs of chemical fertilizer, new seeds, herbicides, and tractors

came after 1978 and rural reforms. They raised yields substantially in the main crops of the area—corn, wheat, and cotton.

But unlike Songjiang county, which went on around the turn of the century to become so thoroughly urbanized as to be simply incorporated into Shanghai city as one of its urban districts, with agriculture now virtually nonexistent, the rural areas of Liaocheng have undergone, after the earlier "green revolution," a more profound new agricultural revolution. Unlike the "green revolution," with its obvious increases in yields of the same given crops, this new revolution can be easily missed. It is powered above all by consumption demand stemming from the improved incomes that have come with accelerated Chinese economic development in the reform era.

The new consumption demand has brought a fundamental restructuring of Chinese food consumption habits and hence also of China's agricultural structure. The old pattern had been a roughly 8 to 1 to 1 structure of grain to vegetables to meat, closely reflected in the typical common Chinese meal, with "dishes" (*cai*) comprising vegetables and shreds of meat, to accompany the staple grain of rice or wheat (noodles or buns). The new structure, already in place among the urban "middle classes" (and also in wealthier Taiwan, as well as South Korea and Japan), is closer to a 4 to 3 to 3 structure of grain, vegetables, and meat. Philip Huang and Yusheng Peng have done detailed work tracing and projecting the trends in food consumption and agriculture, with a forecast for a complete transition to such a ratio of foods in perhaps another two decades (Huang Zongzhi and Peng Yusheng, 2007).

Such changes have meant much greater demand for the higher-value agricultural products of meat–poultry–fish–milk–eggs and vegetables–fruit, which has caused greatly increased production of those higher-value products, especially in areas close to urban centers and transport routes. These have powered what Philip Huang calls the "hidden agricultural revolution," "hidden" because they do not come with the obvious changes in yields of given crops, as had been true of agricultural revolutions historically. Instead they take mainly the form of the restructuring of agriculture toward much greater proportions of higher-value products.

Nationwide, the dimensions of the "new agricultural revolution," in terms of output value, dwarf those of the "green revolution." Philip Huang has shown in his recent book *China's Hidden Agricultural Revolution* (Huang Zongzhi, 2010) that the gross output value in agriculture expanded 5.1 times between 1980 and 2007 (table 6.1). By 2010, it was nearly six times. This was a rate of increase that was far greater than the rate in the eighteenth-century agricultural revolution of England (doubling in 100 years) or the 1960s and 1970s green revolution (with output increases of 2 to 3 percent per

year, requiring, in other words, 24 to 36 years to double). Between 1985 and 2007, acreage under vegetables went up 3.7 times and, between 1980 and 2007, meat production (pork, beef, and lamb) (in tonnage) increased 5.8 times (p. 129). Those increases lie at the heart of the new revolution.

The story is thoroughly illustrated on two levels by Gao Yuan's field study. One is Liaocheng-wide data, coming from a detailed "1000 villages, 100 agricultural households" 千村百户 survey in May–August 2011, conducted under the Liaocheng municipal agricultural committee, for which Gao Yuan designed the questionnaires about hired agricultural workers. The other is Gao Yuan's detailed on-site investigation and survey of Gengdian village over the course of a two-year period. These are unusually detailed local and micro-level data.

In Liaocheng's rural areas, the "new" agricultural revolution has been powered above all by vegetable growing, which by 2010 has reached 47 percent of the gross value of agricultural output in the city as a whole, with 40 percent of the area's agricultural labor force engaged in the activity. Here the typical pattern has been the use of plastic tents for temperature-controlled intensive year-round cultivation of high-value vegetables. Today, as Gao Yuan's detailed account of Gengdian village shows, the most advanced tents are elaborate structures with steel-cable ribs and even automated drapes to let in or shut out fresh air (Gao Yuan, n.d.).

As Gao Yuan's data—from both the Liaocheng-wide sample and from Gengdian village—demonstrate, the new tented vegetable farming is done almost entirely by family labor, with a minimum of hired labor. Table 4, based on a sample of 2,784 households in 100 different villages in Liaocheng, of which 2,221 are engaged mainly in farming, confirms our macro-level data, showing a very low degree of wage labor use among the surveyed households. For grains, cotton, and oil crops, just 1.7 percent of the surveyed households used hired labor. For vegetables and fruits and mushrooms, only 5 percent hired laborers and, for animal and poultry raising, 13.3 percent. Overall, just 3.5 percent of all farming households hired labor. Among those they hired, short-term workers (hired for less than 100 days a year, including day-laborers and seasonal laborers) outnumber (in persons) long-term workers (hired for more than 100 days a year).[7]

The Gengdian village data serve the important purpose of documenting down to the level of individual households the fact that, in new tented vegetable farming, just 11 of 130 households (8.5 percent) used some hired labor, half of them for just 1 percent to 3 percent of total labor input (in hours), the remainder all below 7 percent, except for one (at 9.9 percent) (see Table 5). The great majority of the hired labor consists of middle-aged women working as casual laborers, who take on these relatively low-paying jobs to supplement

Table 4. Use of Agricultural Wage Laborers in Liaocheng City in 2010

Main Activity	No. of Households Surveyed	Households Hiring Labor	% Households Hiring Labor	No. Of Laborers Hired	Long-Term Laborers[a]	Short-Term Laborers[a]	Total Days Hired	Average Days per Laborer	Average Days per Household
Grains, cotton, oil crops	1,592	27	1.7	45	16	29	1,873	41.6	69.4
Vegetables, fruits, mushrooms	382	19	5.0	42	6	36	1,709	40.7	89.9
Animals and poultry raising	210	28	13.3	45	30	15	7,060	156.9	252.1
Forestry	37	3	8.1	8	0	8	43	5.4	14.3
Total	2,221	77	3.5	140	52	88	10,685	76.3	138.8

Source. Liaocheng City, Committee on Agriculture's "thousand villages hundred households" survey.

a. Long-term laborers are defined here as those hired for more than 100 days a year; short-term laborers are those hired for less than 100 days.

Table 5. Family Labor Input and Hired Labor Input of Gengdian Village Households Using Hired Labor

Household No.	No. of Laborers			Family Labor Input (Hours)			Hired Labor Input (Hours)				Hired Labor Time as % of All Labor
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Wages (in yuan)	
130	2		2	5,853	3,109	2,744	120		120	478	2.0
87	4		4	8,276	4,286	3,990	550		550	2,200	6.2
23	2		2	6,000	3,000	3,000	375		375	1,500	5.9
15	2		2	4,584	2,308	2,276	280		280	1,050	5.8
48	1	1		6,260	3,230	3,030	200	200		450	3.1
44	1		1	4,432	2,216	2,216	140		140	700	3.1
168	1		1	4,950	2,479	2,471	100		100	300	2.0
2	1		1	4,440	3,660	780	320		320	1,200	6.7
64	4		4	5,328	2,664	2,664	80		80	300	1.5
125	3		3	2,176	8	2,168	240		240	750	9.9
79	3		3	4,350	2,175	2,175	216		216	648	4.7

Source. Gengdian village survey.

the income from their own farms. This is of course because the able-bodied males usually work off-farm for higher wages.

Gao Yuan's detailed data allow for a precise computation of total family labor input and total hired labor input for farming for this village, in labor days (converted from data in hours at 8 hours a day). The result speaks for itself: just 5.2 percent of all labor input in all farming in Gengdian village is hired labor; 94.8 percent is family labor.

Since vegetable farming in Gengdian is relatively well-developed, we might conclude that these local and microsocietal data tend to confirm the data from the decennial survey of agriculture rather than the higher figures from the annual sampling of selected "model" households. In other words, we lean toward the working figure that long-term agricultural workers account for 3 percent of total labor input in agriculture (and short-term workers another 0.4 percent).

Capitalization without Proletarianization

Such an incidence of hired agricultural labor forms a graphic contrast with India, a country with a population density and baseline per capita income in 1950 very similar to China's. In India today, fully 45 percent of the agricultural workforce are landless hired agricultural workers (Dev, 2006; Rawal, 2008).[8] An important consequence of such a rate of rural proletarianization

is a very much higher proportion of people living below the "poverty line"—as defined in a recent World Bank study using less than US$1.25 per day as the standard—42 percent in India, as opposed to 15.9 percent in China (2005 figures) (World Bank, 2008).

Our question is: just how are we to understand China's very low degree of hired agricultural wage labor? Or, conversely, the great tenacity of its family farming?

To judge by the work of Ashok Gulati, Indian agriculture has been undergoing something similar to what Philip Huang terms the "hidden agricultural revolution" in China: that is, a higher and higher proportion of all foods consumed consist of high-value agricultural products, most especially vegetables and fruits, dairy products, and meat. According to Gulati,

> the per capita consumption of cereals declined from 192 to 152 kilograms from 1977 to 1999 while the consumption of fruits increased by 553%, vegetables by 167%, dairy products by 105%, and non-vegetarian products by 85% in India's rural areas alone. Urban areas experienced a similar increase" (Gulati, 2006: 14).

Such changes come with unmistakable increases in capital input per unit land, or what we term "capitalization" in this article. We have already seen some examples of what has happened in China: the use of plastic tents with steel-cable ribs, of pre-picking "fruit bags" for apples, and of biological enzymes to ferment grain stalks for use as feed.[9]

As was mentioned in the beginning of this article, the conventional theoretical expectation is that capitalization will be accompanied by proletarianization—that had been the empirical reality of the eighteenth-century English agricultural revolution (with the rise of tenant capitalists employing agricultural wage labor), and the presumption of Adam Smith as well as Karl Marx. That is also what has happened in India, where hired agricultural workers stood at 25 percent of the total agricultural workforce in 1961, but 45 percent by 2000 (Dev, 2006; cf. Rawal, 2008). But China stands out in sharp contrast.

The Chinese pattern of agricultural development might be characterized, in contrast to India's, as "capitalization without proletarianization." The term is intended to point out its difference from the still widely held classical notion and is used here to highlight deliberately the "paradoxical" nature of the phenomenon ("paradoxical" because it runs counter to conventional theoretical expectations).[10]

Even by comparison with Japan, the model of the so-called "East Asian model" of Japan–South Korea–Taiwan, which is supposedly distinguished by

the persistence of family farming, we find some pretty sharp contrasts. For comparison purposes, we can take China of the reform period (with its de-collectivization and the household responsibility land system) and Japan after the U.S. Occupation (with its redistribution of land that largely eliminated earlier tenancy), since both shared in common relatively equal distribution of land. As for the restructuring of agricultural and food consumption patterns, Japan had done so already in the period 1960 to 1990, while China remains in the middle of the change.

The difference is that in Japan capitalistic agriculture has been much more highly developed. In 1990 in Japan, large farms—more than 75 mu (5 hectares)—totaled 6.5 percent of all farm households, and accounted for 33 percent of all agricultural output and 21 percent of the cultivated area, and most importantly, fully 25 percent of the agricultural labor force. What those facts point to is a hired agricultural labor force totaling perhaps 20 percent or more of the agricultural labor force. Of course, part of the reason Japan could reach such a scale of development of capitalist farms was that its agricultural labor force had already declined to 30 percent of the total labor force by 1960, and further to 7 percent by 1990 (Teruoka, 2011: 110, table 6-5). China, by contrast, will require at least another two decades to bring its agricultural labor force down to the 25–30 percent range. In China in 2006, farms larger than 60 mu[11] totaled just 1.3 million of 200.2 million farm households, or 0.65 percent. Long-term agricultural workers, we have seen, accounted for just 0.8 percent of all agricultural labor input, while short-term laborers accounted for another 0.4 percent. In addition, workers hired by capitalist agricultural enterprises accounted for a maximum of an additional 2.2 percent of the labor force. That makes for a total of 3 percent in terms of long-term full-time workers (Teruoka, 2011: 128, table 6-10; *Zhongguo di er ci quanguo nongye pucha ziliao huibian, nongye juan*, 2009: table 2-7-1).

Another good indicator of the scale of capitalist agriculture in Japan is that in 1990, farms larger than 75 mu accounted for fully 80 percent of all milk production, 60 percent of beef production (with another 10 percent each by firms and co-ops), 55 percent of pork production (with another 24 percent by firms, and 6 percent by co-ops), and 35 percent of chicken production (with another 44 percent by firms, and 6 percent by co-ops), far exceeding the dimensions of "scale production" of those products in China narrated earlier (Teruoka, 2011: 148, figure 6-11).

What all this means is that, to understand the nature of recent Chinese agricultural development, we must first set aside conventional theoretical expectations. We must ask instead: how do we explain the paradox? Why does the conventional theoretical expectation not apply?

Toward an Explanation

If we look to history, one explanation for the above paradox would be the high degree of "familization" of agricultural production in pre-revolutionary China down to the middle of the twentieth century, well told by the historical difference between China's highly commercialized Yangzi delta area and the less commercialized north China plain.

"Involution" and Familization of Farming

In both areas, as Philip Huang's two decades of research and books on the rural history of the two areas showed, wage-labor-based "managerial farming" had enjoyed some vitality historically. On the north China plain, it had amounted to about 10 percent of the total sown area in the 1930s. The rise of that measure of managerial farming had been driven by commercialization (especially of wheat and of cotton), and by the higher labor "efficiency" of the managerial farms, which could hire labor as needed, in contrast to family farms, on which labor was largely a given. Empirically speaking, while each labor unit on the managerial farms farmed upward of 20 mu, those on the family farms worked just 10 to 15 mu (Huang, 1985).

In the Yangzi delta, by contrast, larger managerial farms had fared well during the late Ming and early Qing, but then virtually completely disappeared by the twentieth century, despite the vigorous development of the cotton and silk economies. Hired wage-labor had shrunk to just 2 or 3 percent of the total agricultural labor force by the 1930s, and was to be found almost entirely on small family farms, not large managerial farms.

The key to the decline of wage-labor-based farming in the Yangzi delta was that the family farms had developed into entities that combined powerfully agricultural production with household industry, by the use of cheaper auxiliary household labor—in cotton (spinning and weaving) and silk (silkworm raising and silk reeling). Those supplementary handicraft activities, captured in the distinctive Chinese term *fuye* 副业 (literally, auxiliary activities), enhanced the family farms' incomes. Philip Huang used the term "familization" of farm production to describe the phenomenon. That familization had enabled the family farms to sustain higher rent rates, thus also higher land prices, than the managerial farms based on (more costly) hired labor could. They thus drove out managerial farming (Huang, 1990).

Thus, contrary to what happened in Western Europe under "protoindustrialization," handicraft industries in China remained tightly bonded with farming to form what Huang termed the "twin crutches" for peasant survival. They

were never separated out from farming to become an urban phenomenon in the manner of "protoindustrialization" (and vigorous small town development) in Western Europe (Huang, 2011b).

That was part of the phenomenon Huang termed "involution" (Huang, 1990; see also Huang, 2011b), to emphasize how population pressures on the land led to farms that were too small (an average of about 25 percent below the 10 mu minimum required) to provide adequate subsistence, thereby propelling the development of household handicrafts relying on household auxiliary labor—of the women, elderly, and children—to supplement farm income. The most dramatic example was cotton spinning, which took up the largest part of handicraft labor and paid just one-half to one-third as much as grain farming.

If in other areas of the world (like the United States), it was land abundance historically that made possible the predominance of family farming through "homesteading" (by the Homestead Act of 1862, allowing farmers who developed farmland to claim ownership, typically 160 acre parcels [960 mu]), in China the logic was the reverse. It was high-density population, and the pressures on land, that led to the development of an iron-clad bond between family farming and household industry, which ensured the predominance of family farming.

That story is apparent also on the north China plain, where the two activities were similarly bonded. There too family farming remained predominant and kept the development of managerial farming down through the 1930s at just 10 percent of all farming. In addition to handicrafts, many small poor peasant farms survived by hiring out part-time as day-laborers in the busy seasons (such hiring out, in fact, constituted the very definition of a "poor peasant" in the Chinese Land Reform Law of 1950). In the Yangzi delta, on the other hand, commercialized family production combining farming with cotton and silk handicrafts was much more highly developed, hence the complete elimination of managerial farming.

Of course, part of the explanation must be sought in the nature of Chinese landownership. Partible inheritance made for breakups of large holdings (most managerial farms of over 100 mu broke up over the course of three generations). Urbanization of "the upper gentry" (i.e., holders of higher examination degrees who were eligible for official appointment) from the Ming-Qing transition on also helped to remove large landowners from the countryside. Had there been more large landowner farmers in the countryside (along with primogeniture instead of partible inheritance), it is conceivable that pre-revolutionary north China and the Yangzi delta might have followed the pattern of agricultural proletarianization. Instead, relatively

equal landholdings made for a very large proportion of small family farms, including both "middle peasant" and "poor peasant" family farms, totaling about 90 percent of the farm population by the nineteenth and twentieth centuries. And those farms, under population pressure, developed the distinctive "twin crutches" mode of survival—combining farming with handicrafts and/or part-time hiring out—which drove out wage-labor-based managerial farming.

The Ongoing Hidden Agricultural Revolution of the Present

Conditions surrounding the current "hidden agricultural revolution" in China are of course very different in many respects. Philip Huang and Yusheng Peng have explored in some detail what they term "the convergence of three historic tendencies" in China's current agricultural production—the drop in birth rates that since the turn of the century has finally manifested itself in the beginning of a reduction in the absolute size of the rural labor force; the rapid rate of urbanization (at 1 percent per year), including especially the massive numbers of "peasant migrant-workers" (*nongmingong*) 农民工 in the cities; and the fundamental change in the structure of Chinese food consumption and agricultural production (detailed above) (Huang Zongzhi and Peng Yusheng, 2007), resulting in the demand for (what Huang calls) "capital and labor dual-intensifying" agricultural products (Huang Zongzhi, 2010). What that conjuncture has meant is agricultural de-involution, reducing by significant numbers the surplus labor of the countryside. Today, we can predict that possibly within two or three decades, agricultural labor will no longer be underemployed, as farms move toward more optimal scales.

In the face of those changes, the old "familized production" of the family farms no longer obtains. It has been overtaken first by the vigorous "rural industrialization" of the 1980s, which is based not on handicraft production but modern mechanical power. By 2009, 150 million peasants had come to be employed in such "township and village enterprises" (i.e., rural enterprises), and consequently the old "supplementary household production" 副业 no longer occupies the place it had earlier. It has, of course, also been overtaken by the equally massive movement of peasant workers "leaving both the land and the village" to work in the cities, also totaling nearly 150 million by 2009.

Nevertheless, it must be pointed out that surplus labor, mainly in the form of "underemployment," remains today still a fundamental condition of existence of most rural Chinese. It is surplus labor that has made possible the very low wages and (often inhumane) treatment of migrant-workers. It is also surplus labor that still underlies the low returns, not just to migrant workers, but

also family farmers. Current estimates of the dimensions of surplus labor in the countryside vary from a high of 200 million of the 300 million employed in farming to a low of 44 million (by the arguments of neo-liberal scholars who, following Cai Fang's lead, insist that China has already entered its "[Arthur] Lewis-ian turning point"—see, e.g., Du Yang and Wang Meiyan, 2010). What is not in dispute is that underemployed surplus labor still exists in substantial numbers. We ourselves are inclined to a middle range number of perhaps 100 to 150 million.

Regardless of the precise dimensions of surplus labor, there is no question that the differential in incomes between urban and rural work has widened greatly in the reform period. According to a 2009 World Bank study, urban-rural inequality has jumped from 1.8 to 1 in 1985 up to 3.3 to 1 in 2007 (World Bank, 2009: 34 and fig. 2.36). And then there is the great differential between urban formal employees and informal employees (i.e., peasant migrant workers and rural industry workers). Measured in terms of the widely used Gini coefficient for measuring inequality (with 0 being completely equal and 1.0 being completely unequal), according to the United Nations *Human Development Report* in 2005, China's has risen from 0.30 in 1980, one of the world's lowest, to 0.45 in 2005, one of the world's highest (China Development Research Foundation, 2005: 13). Full realization of a completely integrated labor market, rather than the two-tiered (urban vs. rural, and formal vs. informal) ones that exist at present, remains at best a distant goal.

In the present context, because of massive off-farm employment, it no longer makes sense to speak simply of the family as forming a single production unit on the "family farm," in the manner of Chayanov. Virtually every peasant household today has someone employed off-farm, usually the younger and most able-bodied, either locally in one of the rural enterprises (150 million), or away from home in the cities. The family's farming is often done by its auxiliary labor.

Nevertheless, the family today is very much still a single economic unit and like the family of the past is a unit comprising both principal and auxiliary labor. To be sure, the older farming + handicrafts (农业 + 副业) has been succeeded to a considerable extent by the new industrial employment + farming 工业 + 农业 combination; the old half-agriculture half-handicrafts 半耕半副 family unit has now become (what Philip Huang terms) the new "half-worker half-cultivator" 半工半耕 family unit (Huang Zongzhi, 2010). But the fundamental characteristic of the family unit depending for survival on both its principal and auxiliary labor, engaged in two different kinds of production activities, remains.

The key to the difference from the simple individuated worker is still low-cost auxiliary family labor. Today, much of the farming is done by the women and/or the middle-aged and older, in what has come to be described as the "feminization and seniorization" 女性化与老龄化 of agriculture. They are similar to the auxiliary labor of the Ming and Qing periods in that they are engaged in the lowest paying part of the family's activities. (In Gengdian village, for example, mostly middle-aged women hire out to help on the tented vegetable farms, for about 30 yuan a day, compared to the 50 to 100 yuan a day that men can earn, to supplement the household's income.) The principal labor units of the family now work either off-farm locally in town, in which case their incomes are simply merged with the farm's (and they also usually help with the farm work in the busy seasons), or they work in the cities away from home, and send money home to help with the family's subsistence and/or return after some years to build a new family home (Huang, 2011b). The overwhelming majority of peasant migrant workers today, even after years and years of urban employment, have little prospect of being able to purchase an urban home, with costs for such a home running from hundreds of thousands yuan at a minimum to millions in big cities like Shanghai and Beijing. Most return to "retire" in the home village.[12]

In this way, those employed off-farm and those employed in farming continue to form twin legs and/or crutches for one another. It is the family farm that lends the migrant-worker away from home a substitute for the benefits he or she is not getting from urban work, as well as security in the event of disemployment or unemployment and in old age. This while that same worker helps supplement the otherwise unsustainably low incomes of the auxiliary family members engaged in underemployed farming of small plots for low returns.

So long as substantial surplus labor remains in the countryside, the key structural conditions for this new half-worker half-cultivator family economic unit will continue. It helps sustain in the cities cheap labor in industry and services; it also helps sustain low-return farming in the countryside. The byproduct is the persistence of otherwise unsustainable family farming of undersized plots for returns well below urban employment.

Once again, the landownership system figures importantly. China's distinctive household responsibility system, which distributes the use rights of land equally and forbids the buying and selling of land, makes for a basic precondition for the preponderance of small family farms. The current regulations do allow for "transfers" 转让 or "circulation" 流转 by leasing out or transferring ("selling") the use rights of the land. Under the current policies, it has become somewhat easier for entrepreneurial farmers to obtain larger tracts of land for farming. But the fact that land cannot be freely bought and

sold remains a powerful institutional restraint against more land alienation and the complete "proletarianizing" of family farmers.

Part and parcel of the household responsibility system is the household registration system. As is well known, peasant migrant workers in the cities are officially still treated as rural folk. That has meant they must pay very high change-school fees for their children to attend school in the cities, and that they have no entitlement to urban resident benefits, which means much higher expenses for hospital care. Schooling fees and health expenses, in addition to unaffordable housing, are what have kept peasants tied to their family's farm and their home village.

These systemic factors add importantly to our explanation for the persistence of family farming (and non-development of an agricultural proletariat) in China, in contrast to India, where freer exchanges of land (and what institutional economics would consider clearer definitions of property rights) have made for a much higher degree of development of a rural proletariat. The same consideration applies in the case of the so-called East Asian model. It is the concatenation of the political-economic institutions (of equal distribution of land and a rural–urban divide in household registration) of China with its mode of farm organization under population pressure that accounts importantly for "capitalization without proletarianization" in China. That is what makes for a China closer in current empirical reality to Chayanov's picture than to Lenin's or Adam Smith's and Karl Marx's.

As Philip Huang has already argued (Huang, 2011c), the choice before Chinese agriculture and rural society today is not between socialist planning and market capitalism, between collective society and an "olive shaped" society of middle classes, but rather between rural capitalism in the manner of India, with 45 percent of the rural labor force proletarianized as landless agricultural wage workers, in the manner foreseen by Smith–Marx–Lenin, and the further development of family farming, in the manner foreseen by Chayanov. For the latter path, what is needed is "vertical integration" and capitalization of agriculture for a market environment, through processing and marketing coordinated by public entities and co-ops, rather than simply large capitalist firms ("agribusiness"), as most neo-liberal economists believe.

What the government emphasized in the past decade was the "drawing in businesses and investments" 招商引资 and development of capitalist firms, called "dragon head enterprises" 龙头企业, to which local governments lent aggressive support, in the form of large subsidies and low-interest loans, in addition to special tax considerations and the like. "Dragon head enterprises" have been responsible for "bringing along" 带动 perhaps a quarter of all farming persons into the new agriculture, through what has been termed "contract farming." Generally, the firm provides the "vertical integration"

required to join the small peasant household producer with the "big market." Firms often provide the processing and the marketing, sometimes also the plant seeds and animal seedlings and necessary technical support. Under those arrangements, the peasant households are in a sense "semi-proletarianized," in that the bulk of the market profits from their production go to the firms and not to them. It is a path that could lead finally to the classical model of capitalization cum proletarianization.

Recent developments in Chongqing municipality (population 33 million, of which 23 million are registered as peasants 农民) provide an example in practice of what might possibly become a model of development that is alternative to simple capitalism. As Philip Huang has documented and analyzed in detail, Chongqing has undertaken two gigantic projects for peasant migrant workers: one is to build inexpensive public rental housing for them, projected at a rent of 10 yuan per square meter per month, or roughly 500 yuan for a 50-square-meter apartment, just a fraction of prices in other major cities. The plan, already launched, is to build such housing for 30–40 percent of the urban population. The tenants would be able to purchase the housing after five years at well below market rates. Currently, the market rate for housing in Chongqing stands at a reasonable 6,000–7,000 yuan per square meter, just a fraction of the minimum of 30,000 yuan in Beijing and Shanghai. In addition, Chongqing has developed a "land certificate exchange" 地票交易所 to enable peasants even in remote areas (and not just those in the suburbs) moving to the cities to sell their residential plots at a price that benefits from the very high values of urban development land: at the end of 2010, the price stood at 100,000 yuan per mu. That would give the urbanizing peasant a head start in developing a small business or purchasing urban housing (Huang, 2011a).

The Chongqing government has taken the equally dramatic step of enabling peasants to "capitalize" their land rights (i.e., to use their land rights as security for bank loans), in what is called the "three rights; three certificates" 三权三证 program, referring to issuing them certificates for their household residential plot/house, their use rights over forest land (Chongqing is a hilly municipality), and over responsibility farm land. The intent is to enable peasants to use such property rights as security for loans at 85 percent of the market value. The most important property would of course be the household residential plot which, if reconverted to cultivation, enables the government and private developers to enlarge the quota (allotted by the central government under its policy of strict controls to maintain a "red line" of 1.8 billion mu of cultivated land) of "development land" (for non-agricultural use). (For full details, see Huang, 2011a.) In July 2011, given government and private developers' demand, one mu of such land carried a market value of 155,000

yuan on the government-established land exchange. On the strength of such assets being used as security for loans, the Chongqing government launched in April 2011 its program for banks to provide within the next three years a total of 65 billion yuan in loans to peasants (which works out to an average of about 11,000 yuan per farm household). Part of the purpose is to support the "raise every [peasant] household's income by 10,000 yuan in three years" project (see Gao Yuan, 2011). By July 2011, a total of 4.3 billion yuan of such loans had already been extended (Liu Kang, Huang Huo, and Tang Yaoguo, 2011; cf. Gao Yuan, 2011).[13]

The Chongqing government, it would seem from the above, has turned its focus from supporting and promoting capitalist "dragon head enterprises" to supporting peasant households, to enable them to increase capital inputs in family farming and other family business pursuits. In the past, peasants had been very much at the mercy of those who controlled the capital for agricultural development, whether local governments, capitalist firms, or able local entrepreneurs. With the ability to turn their land rights into capital, it would seem, peasants will be in a much stronger bargaining position for a greater share of the profits from agriculture. As part of its efforts to find routes to agricultural development that are alternative to the past reliance on capitalistic "dragon head enterprises," the Chongqing government plans to promote the development of 2,000 shareholding co-ops 股份合作社 (Huang Qifan, 2011). In the past, co-ops had been very much dominated by those who controlled the capital, whether the government, the capitalists, or the select few leaders. Now, peasants' ability to "capitalize" on their land rights might lend them the necessary "bargaining capital" 谈判资本 to develop co-ops for vertical integration that truly represent their interests.

Of course, in actual implementation by local officials and by the banks, Chongqing's program might well end up still favoring large wage-labor-based farms over small family farms, and capitalist enterprises over family-farm-based co-ops. Much depends on whether the government will truly show the vision and the will to help develop co-ops that can genuinely provide the kinds of vertical integration services necessary for protecting and benefiting small peasants in their dealings with the big market.

Conclusion

To conclude, our investigation of the available data shows that the incidence of agricultural wage labor in China, though significant, remains lower than what many have assumed—year laborers account for just 3 percent of total labor input in agriculture (and short-term laborers another 0.4 percent). What such a low incidence suggests is that "capitalist agriculture" as usually

understood accounts for only a very small portion of Chinese agriculture today; family farming is what still predominates.

But small-peasant family farms have not kept Chinese agriculture from capitalization, that is, greatly increased capital inputs, to make up what we have termed here a "hidden agricultural revolution," with the value of agricultural output being sustained at a growth rate of 6 percent a year for more than thirty years, far exceeding what we have conventionally associated with agricultural revolutions historically.

The paradox of Chinese agricultural development through capitalization is that it has not come with commensurate increases in hired agricultural wage labor, but rather has been based mainly on small family farms engaged in new high-value agricultural production. This paradoxical phenomenon of capitalization without proletarianization is perhaps the most distinctive characteristic of recent Chinese agricultural development.

Authors' Note

This article was drafted by Philip Huang; Gao Yuan furnished the microsocietal research on Shandong province's Liaocheng shi and Gengdian village; Yusheng Peng and Gao Yuan were separately responsible for Table 1, Figure 1, and Figure 2. For the Chinese version, Gao Yuan did the first draft translation, Philip Huang and Yusheng Peng the revisions.

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Notes

1. The data quantified by costs are included in the more widely available annual rural statistical yearbooks 中国农村统计年鉴 (under chap. 10, on cost and incomes).
2. We know that "scattered raising" accounts for 96 percent of all units engaged in beef cattle raising. But "scale-raising" (i.e., more than 10 head) appears to be making significant inroads—accounting for 40 percent of all beef production in 2008. No data exist, however, for the amount of hired labor used in scale-raising of cattle.
3. The costs-incomes surveys abandoned in 2006 the effort to count up all chicken raising, and data (rather questionable) exist only for the three years of 2004, 2005, and 2006.

4. Out of a total of 1,998 counties in 2001, including 393-county-level cities 县级市 and 116 self-governed counties 自治县.
5. A further indicator comes from the enumeration of the "leave the land and the village" peasant workers, broken down by sectors of employment. For 2006, a total 131.8 million are enumerated, of whom 3.6 million work in agriculture (the primary sector, distinguished from industry, the secondary sector, and services, the tertiary sector) (*Zhongguo di er ci quanguo nongye pucha ziliao zonghe tiyao*, 2008: table 6-2-14). That figure too may be taken as an approximation of an "agricultural proletariat," but it includes only those away from home and not those working locally in such a capacity—more below. In addition, an unknown number of those are not hired workers but rather what might be called "guest tenant cultivators" (客耕佃户) who rent and operate their own farms away from home, concentrated mainly in suburban areas.
6. (2.5 million × 300) / [(214 million × 250 days + 91 million × 100 days) + 275 million] = 1.2%.
7. The survey data show that wage employees-workers occur with higher frequency in off-farm rural pursuits, in the secondary and tertiary sectors related to agriculture, in transport, purchases and sales of farm products, family-run industrial enterprises, and food-processing. This aspect of rural change needs to be addressed in a separate study.
8. Researchers rely mainly on the decennial National Sample Survey Organization's survey. But the surveys do not distinguish between homestead land and farmed land, which results in a figure of only 11 percent of the rural population being landless. Dev's and Rawal's figures come from adjustments to the survey data, by considering only land actually farmed.
9. However, we resist the temptation here to use the costs-incomes survey data to construct a table to attempt to show the precise degree of capitalization of these farm products, because of the skewed nature of the surveys. Wang Meiyan, 2011, has used those data to show a surprising, and we believe unrealistic, degree of capitalization of grain farming.
10. This conception of paradox is similar to what Philip Huang had observed earlier about agricultural history in the Yangzi delta between 1350 and 1950, where commercialization had occurred without development, and growth (in absolute output) had occurred without development (in labor productivity). Paradox is intended here to refer to the counter-intuitive coexistence of a pair of empirical phenomena which are assumed by conventional theoretical expectations to be incompatible, but are in fact very real (Huang, 1991).
11. Enumerated in the second decennial survey under the category 60–99.9 mu, followed by >100 mu.
12. Second-generation nongmingong, however, are a different matter. Many of these post-1990 children of nongmingong have never farmed, and for them, living in

the home village is no longer a serious option. They are urbanites in almost all senses of the word except, crucially, in registration status.

13. The use of land rights as security for loans raises of course the question of whether, in the event of default of the loans and the takeover of the properties by the banks, the government would in effect be promoting the "proletarianization" of the countryside. Under current Chinese property law, however, only the use rights over the land would be affected; final ownership would, in theory, belong still to the collective (village). The Chongqing government has taken the bold step of attributing to the peasant household's use rights 85 percent of the total value of the land, and the collective's theoretical ownership rights just 15 percent (Liu Kang, Huang Huo, Tang Yaoguo, 2011). Thus, default by a borrower would presumably result in the takeover by the bank of 85 percent of the value of the land, with 15 percent still belonging to the collective/village. As this article goes to press, report comes that the Chongqing government has instituted an insurance program for capitalized peasant assets at a cost of 3 billion yuan. Evidently, up to August 8, 2011, defaults on peasant loans have occurred at a rate of just 2 percent of loans; the appropriation of 3 billion yuan by the municipal government, plus supplementary funding from lower-level governments of 1 billion, means that the government will be able to insure 40 billion yuan in capitalized peasant assets. In case of loan default, the plan is for the municipal government to bear one-third of the risk, the banks another third, and the peasant borrower another third. That way, the program should be able to cushion the shock of business failure for many and not result in too many peasants' losing their land (Huang Qifan, 2011: 48).

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