

## Chapter 6

### **Chinese Farmer Rationality and the Agrarian Economy of Lower Yangzi in the 1930s**

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A prominent theme in the economic history of contemporary China revolves around the contentious issue of why China failed to experience a qualitative breakthrough or “transformative growth” during at least the two centuries before the Communist revolution (Huang 1985, 1990; Pomeranz 2000; Wong 1997).

One theory has it that China’s inability to experience rapid economic growth was because of irrational social constraints on women in the formal labor market (Huang 1990). Not only had social norms perpetuated high wages for men and blocked the formation of capitalist “managerial farms,” the low opportunity costs for women and their struggle for subsistence combined to push them into household production for cash crops—cotton in the north and sericulture in the south--both demanded by the world economy. While income-augmenting activities may have raised total household income, the greater labor intensity they entailed allegedly brought diminishing returns to the marginal product of the women’s labor. Total output growth only kept pace with population growth, a process described by a historian as “growth without development”, or “involution” (Huang 1990), which is against the rationality of market.

Another view, the “modernization policies” approach, does not agree that rural institutions and socioeconomic class relations were barriers to economic development. Citing the development experiences of Taiwan and the Liaodong Peninsula of China in the early to mid-twentieth century as evidence, this school of thought argued the importance of effective state policies in transforming traditional agriculture (Myers and Ching 1964; Myers and Ulie 1972). Applying new technological inputs to increase yields and specializing in production for the market could have raised land and labor productivity and increased income, if two policy conditions were met. First, the land survey, and with its completion, the land tax reform, could clarify ownership and provide

added security to property rights in land, thereby facilitating land market transactions. Second, the state put in place an effective package, including research and development in agriculture—essentially a seed-fertilizer revolution—and established agricultural experimental stations to disseminate the new farming technology, promoting, as did Meiji Japan, a “Green Revolution.” These public goods were essential for modernizing Chinese farming.<sup>1</sup> China’s failure to transform its small family farms, must be understood by the Republican government’s failure to adopt appropriate policies as in Taiwan and in the Liaodong Peninsula under the Japanese colonial regime.

There is then a third—essentially “Smithian”—“commercialization” approach, one that sees “commercialization,” or specialization and exchange with increasing returns to scale and the development of markets, as central to agricultural modernization. According to this view, agricultural transformation depends not so much on raising farm yields as how, through the development of markets, specialization and exchange help to augment farm incomes (including income from cash crops) directly with the provision of off-farm income and indirectly with rising returns to scale as primary economic decision-making units become more specialized in response to the forces of commercialization. The highly competitive nature of both factor and product markets in China in the early twentieth century, according to Myers (1970), provides evidence of just how a moderate rise in farm household income before the Japanese invasion can be interpreted as a result of this increased specialization, though far from being a breakthrough in the economy.

In short, there are three approaches to look into the Chinese agricultural economy in the early 20<sup>th</sup> century: Involution and underdevelopment theory, institutions and policies theory, and commercialization theory. The first two are competing theories accounting for the barriers to breakthrough; while the last one explores the improvement without a breakthrough to show that it was not a matter of lack of rationality of the market or the people who made choices but rather a lack of institutions and policies.

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<sup>1</sup> The Green Revolution is a shorthand referral to the large increase in mainly grain (rice and wheat) productivity in the 1960s because of the availability of high-yield variety (HYV) seeds and of chemical fertilizers in a context of improved irrigation and mechanization (Farmer 1986; Wade 1974).

Although the involution theory has inspired a good literature on China's economic development and it is imperative to compute the marginal product of labor of each economically active household member in order to directly test the hypothesis, there has been little success in this undertaking due to the paucity of good-quality data. On the other hand, the other two approaches mentioned above also generate an interest in the economic behaviors of farm households. The institutions and policy theory needed to find out if farm households allocated their land and labor consistently with the patterns that could be postulated by economic rationality (Dittrich and Myers 1971);<sup>2</sup> whereas the commercialization approach tried to document the active and competitive operations of factor and product markets before the late 1930s as indirect proof that, because farm households had alternative outlets for their surplus labor, the kind of "irrational" behavior alluded to by Huang could not have possibly existed (Brandt 1987; Myers 1970).

This study has systematically used, for the first time, a unique farm survey conducted in the late 1920s in the Lower Yangzi. With this set of data, we can address several important related issues similar to that of the third approach outlined above, using a method broadly consistent with the endeavor of Dittrich and Myers (1971). First, we designate the economic context in which farm households operated so as to understand the employment and income opportunities actually available to farm households. Second, we explore two questions: Did economic exchange—either transacted through the market or organized within the family (such as female labor in sericulture)—enable farm households to allocate land, labor, and capital (including human capital) according to comparative advantage? And, what were the welfare effects from household decisions regarding the resources allocated to both income and basic consumption?

While our empirical results should not be taken as an outright rejection of the involution thesis (which we do not think we have formally done), they do suggest, and this is consistent with the analysis of Dittrich and Myers (1971), that farm households in

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<sup>2</sup> Using a farm survey conducted in five villages in Manchuria, Dittrich and Myers (1971) compared actual household income with what would have been obtained had these households behaved in a maximizing way, but failed to find any significant difference between the two. This leads them to conclude that farm households had been allocating their resource endowments efficiently.

the commercialized areas of China were increasing welfare in a way consistent with economic rationality. Specifically, specialization and exchange expanded within this regional economy, with factor and product markets behaving competitively and family farms, as the primary economic organizations, adjusting to “changing relative prices” by reallocating household resources. One may even attribute the sharp increase in per capita income of the surveyed households—by almost 50 percent from 1929 to 1936 (before it declined by 10 percent from its peak at the end of the civil war in 1948)—to this broad economic rationality and to the market development that we see in the region (Kung, Lee, and Bai 2005). Although the survey data that we use for analysis is confined to only one county or region (and also to one with few, if any, managerial farms—the principal employers of farm labor), the distinctly higher economic development there implies that chances for farm households to “involute” would be less—at least when compared with the north. It is from this vantage point that Wuxi provides a better case for testing the involution hypothesis.

Market development and rational economic behavior affect not just per capita income, but also have equity implications. Although the ownership distribution of land and probably other assets might have been very unequal in this highly commercialized region of China, operated holdings were significantly less unequal than was land ownership. This implies that the intrinsically unequal distribution of land was moderated because of the active operations of the land rental market. Moreover, with alternative income sources, except provided by land, total income inequality would be distinctly lower than land inequality.

Though we paint a generally positive picture of the Jiangnan economy in early twentieth-century China, it is important to bear in mind that rational economic behavior at the microeconomic level is not enough to modernize traditional agriculture. Because technological and organizational innovations entail “public goods,” they only can be supplied by government actions—an insight inspiringly demonstrated by the modernization breakthrough approach. Why the Republican government of China failed to bring about this innovation is an important research topic, but is beyond the scope of this chapter.

In the next section we briefly describe the data used for our analysis. A descriptive analysis of the land rental and pawning market follows. The labor market, which includes not only the farm labor market, but more important the off-farm ones—the migrant labor market and the family production of sericulture—is the subject of next section. We then analyze the factors determining the choices of farm households in allocating family resources among the various economic activities enumerated in the survey. Finally, we look at the effect of economic participation on income and basic staple consumption, or in short, economic welfare, followed by a short summary and conclusion.

### **1. Data**

Our data is based on a two-part farm survey of nine representative villages (i.e., economic development and standard of living) in Wuxi County (figure 6.1).<sup>3</sup> This survey was conducted by China's Social Science Research Institute (SSRI) and covers three time-points—1929, 1936, and 1948. A distinctive feature of this survey is that all 1,207 households in these villages were studied. A second survey was conducted in 1958. Investigators for this survey went back to eleven originally surveyed villages with basically the same questionnaire and asked the respondents to provide them with answers to the same questions for the years 1936 and 1948. Once again they surveyed the entire villages and enumerated around 800 households. Although others have made use of this survey information, they did not analyze this data as we do below (e.g., Bell 1999; Zhang 2002).<sup>4</sup>

### **Figure 6.1. Wuxi Villages Surveyed by SSRI**

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<sup>3</sup> The Wuxi survey actually covered eleven villages, but our dataset contains only nine.

<sup>4</sup> For instance, although Bell (1999) randomly chooses 10 households from each of the 11 in the 1929 survey for her analysis, Zhang (2002) uses the data on only four of them.



Source: Author's map.

There are three distinct advantages in using this survey information. First, we can construct a panel data set by merging the information of various years and thus can track changes in a village's economic structure and in peasant welfare over two decades. Second, the survey was conducted in a prosperous county in China's most advanced region—the Lower Yangzi—at the time, and it is relevant for testing the effect of commercialization on peasant economic behavior. Third, although the SSRI survey did not cover a geographical area as wide or diverse, or sample as many households as the surveys conducted by John Lossing Buck and his Chinese associates at Nanking

University,<sup>5</sup> it did not suffer from uneven sampling<sup>6</sup> and under-enumeration of small farms.<sup>7</sup>

The SSRI survey was designed to enumerate variables categorized by the following characteristics: demographic (age, gender, household size), socioeconomic (education, occupation, credit conditions), resource endowments (land, labor force, agricultural and nonfarm assets), factor market transactions (land rental and labor), production (sown acreage and cropping patterns), output, income, and consumption. We examine the factor markets as they were described in the surveyed villages.

## **2. Land Markets in Wuxi**

### ***2.1 Size distribution and land rental***

The land rental market must be examined in the context of how much arable land was available in the Jiangnan region and its distribution. Historians have noted that average farm size in this region by the turn of the twentieth century was exceedingly small—about one *mu* per person (Cao 1996; Huang 1990). Moreover, the farms were unevenly distributed. Both of these “stylized facts” are confirmed by the SSRI survey, which found that average per capita arable land in this highly commercialized area was 1.2 *mu* in both 1929 and 1937. Specifically, up to 60 percent of households had a per capita average of less than one *mu*, whereas about 19 percent owned from one to two *mu*

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<sup>5</sup> Buck conducted his first survey from 1922 to 1924 on 2,899 farm households in 7 Chinese provinces, the results of which are summarized in *Chinese Farm Economy* (1930). His second survey, conducted during 1929 to 1933 covered 16786 farm households in 22 provinces, and was later published in *Land Utilization in China*.

<sup>6</sup> For example, in his first survey of nine villages, only two households in a village were surveyed at one extreme, whereas 102 households in a village were interviewed at the other extreme. In his second survey only one household was interviewed in 21 out of the 101 villages, whereas in two other villages 100 households each were surveyed. There is no sampling issue for the SSRI data, since the surveys covered the entire selected villages.

<sup>7</sup> This may explain why farm size per capita was as large as 7.4 *mu* in the 1930s in Buck’s survey, which is more than double the amount (a little over three *mu*) found in a survey of 1.8 million households conducted by the Nationalist government in the 1930s (see Huang 1990). For Huang, the under-enumeration problem is more severe, given that involuntarily behavior occurred only on the small peasant farms.

in both 1929 and 1936. To better understand landownership concentration we computed the Gini-coefficients for land distribution. At 0.6 in both 1929 and 1936, it was high enough to lend credence to the conventional view that landownership distribution was very unequal.

The combined effects of small farm size and unequal distribution meant that as much as half of the cultivated land—42 percent according to a Nationalist government’s survey and 66 percent according to Japanese researchers—was *rented* (Cao 1996; Huang 1990). The SSRI finding lies somewhere in between but is closer to that of the former survey; nearly half, 62.6 percent in 1929, of the land cultivated by Wuxi households was found to be rented (table 6.1). Of the number of households engaged in land rental transactions a staggering 78.6 percent in 1929 participated in the rental market as buyers, compared with a mere 11–13 percent of the owner-suppliers in this market. The vast discrepancy between the two sides of the market—whether measured by the quantity of land rented or by the number of households participating—is consistent with an earlier view that many landlords were absentees. Although land rental transactions had declined slightly, substantial proportions of households continued to adjust their operated holdings through the rental market in the ensuing decades—75.41 percent in 1936 and 68.96 percent in 1948.

**Table 6.1. Land Rental and Pawning Markets in Wuxi County**

	1929	1936	1948
The percentage of households participating in			
(a) land rental market			
in*	78.6	77.7	70.1
out	13.2	11.8	13.9

(b) pawning market				
	in	1.2	0.8	2.3
	out	17.1	13.2	3.5
The percentage of				
(a) land rented				
	in	62.6	61.2	38.9
	out	15.2	15.1	15.5
(b) land pawned				
	in	0.20	0.24	0.60
	out	11.22	7.75	1.42
The amount of land owned ( <i>mu</i> )				
		5.53	4.51	5.63
(a) rented ( <i>mu</i> )				
	in	3.46	2.76	2.19
	out	0.84	0.68	0.87
(b) pawned ( <i>mu</i> )				
	in	0.01	0.01	0.03
	out	0.62	0.35	0.08

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Source: Wuxi Household Survey 1929, 1936, and 1948, Social Science Research Institute (SSRI), China.

Note: \* “Rent-in” refers to the demand for rental land, whereas “rent-out” refers to the supply of rental land.

While some may regard a highly active land rental market in Wuxi as a sign that land-deficient households were being exploited by those with surplus land, it could also mean that households with surplus laborers could adjust their “factor intensities” through land renting. The Gini-coefficient calculated on the basis of “operated” landholdings—which include rented land—is only 0.4, which is substantially smaller than that based on ownership (0.6). This suggests that the land rental market did have an equalizing effect on operated land inequality, which also implies that factor endowments—in particular

land and labor—were better matched across households with differing land endowments.<sup>8</sup> This opportunity for land-deficient households to rent in land is especially crucial where surplus farm workers have few outside wage-earning opportunities, since that opportunity allows them to expand farm operations and more fully use family surplus labor, thereby preventing the marginal product of their overall household labor from suffering the alleged diminishing returns—an important “symptom” of involution.

## ***2.2 Land pawning***

Compared with the land rental market, the one for pawning was smaller. For example, though nearly half the land cultivated in Wuxi in 1929 was rented, only 11 percent was pawned out in the same year (table 6.1). Similarly, compared with 78.6 percent of households having reported to have rented in land, only 17.1 percent of households had pawned out land.<sup>9</sup> Unlike the land rental market, where most participated on the demand side of the market, land pawning was more active on the supply side. Once again, the discrepancy between demand and supply reflects both the involvement of an “absentee landlord” class and the fact that pawning was an important means of informal credit to which capital-constrained farm households often resorted for loans with their land pledged as collaterals. When land was pawned to a fellow villager, the party who pawned out the land could lose its cultivation right to the family advancing the loan to it, whereas an absentee landlord would allow a debtor household to continue to

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<sup>8</sup> This is consistent with the finding of Brandt and Sands (1992). Using the survey conducted by the National Land Commission (of the Republican government) in sixteen Chinese provinces, these authors similarly find that “the distribution of operational holdings. . . [was] more equal than the distribution of land ownership” (189–190).

<sup>9</sup> Both its incidence and magnitude had however waned over time. Compared with 1929 only a little over 13 percent of the households participated in this market as suppliers in 1936, a decrease of more than 25 percent, and by 1948 the incidence was further reduced to a negligible 3.5 percent. The decline in pawning activity from the 1930s onward may be attributed to the waning interest of absentee landlords in accumulating land at a time when the development of the off-farm economy in the region provided alternative, arguably better, returns to their capital than that accrued from land acquisition (Cao 1996). One might add that the disruptions caused in the village economy after 1937 by a decade-long warfare was probably another factor that discouraged absentee landlords from further accumulating land.

farm the land on which the collateral had been pledged (Fang 2003). In any case, the possibility that pawning could eventually lead to an outright land sale differentiates it from pure renting.

To the extent that pawning represented an important source of credit for capital-constrained families, its popularity is often tied to the rapid expansion of sericulture in those land pockets where soil characteristics were especially well-suited for mulberry tree cultivation. The availability of credit was important, since it helped families who wanted to develop a sideline in sericulture but were unable to purchase mulberry leaves for feeding silkworms (if they did not grow this crop themselves), and perhaps also helped them purchase charcoal for maintaining warmer room temperature during winter. This cash availability is crucial in a context where a formal credit market is largely absent, argues Pan (1996), who describes the development of sericulture and related handicrafts production in the Lower Yangzi as dependent mainly on loans that pledge land as collateral—a practice found as early as the Ming Dynasty.

### **3. Labor Markets in Wuxi**

#### ***3.1 Farm labor***

Economic historians view the farm labor market in the Lower Yangzi as highly inactive in sharp contrast to the land rental market in Wuxi. The agricultural year labor market is considered exceedingly thin because most farms were small and fragmented, as managerial farms simply did not exist in this region (Huang 1990).<sup>10</sup> The Mantetsu data that Cao (1996) examines leads him to the observation that most farm families, including those with land exceeding 20 *mu*, relied mainly on their own family labor power. Only exceptionally large farms—those with more than 10 *mu* per capita—were found to have hired any year laborers. The bulk of farm labor hiring thus took the form of casual or day labor during peak agricultural seasons. But the number of days hired was just as limited;

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<sup>10</sup> Managerial farms probably existed for two centuries from late Ming to late Qing in the Lower Yangzi but disappeared towards the early twentieth century for many reasons, among which prohibitive supervision cost, high wage cost, and higher relative returns to industrial and commercial profits were primary (Cao 1996; Huang 1990).

according to the Mantetsu survey of eleven villages, the average number of days hired out per worker was only seventeen for the entire year for this kind of labor, obviously too few to be relied on as a major income source.

The SSRI survey does confirm the low incidence in the market of long-term agricultural laborers (Table 6.2). For example, even during its peak in 1929, only 7.4 percent of households hired in this kind of labor. For those that did, the number of laborer(s) hired was small—less than 0.12 person per household in all surveyed years. This market was even thinner on the supplying end: for instance, in 1929 only 2.9 percent (a mere fourteen households) hired out, amongst whom each supplied roughly one laborer on average.<sup>11</sup> This imbalance between the two sides of the long-term farm labor market, with those on the hiring side significantly outnumbering the supplying households, has two important implications.<sup>12</sup> The first is that the local labor market was providing employment opportunities for peasants from outside the villages—from villages that might even be poorer (Chen 1935, 31). Second, few households from the same village participated in this labor market, indicating that alternative employment opportunities existed with presumably better returns— opportunities that lay outside the farm sector.

**Table 6.2. Farm Labor Markets in Wuxi County**

		1929	1936	1948
The percentage of households participating in				
day labor market	hired in	47.6	37.7	38.8
	hired out	23.1	25.2	28.2
year labor market	hired in	7.4	3.7	4.4
	hired out	2.9	2.9	1.7

<sup>11</sup>Of the 485 households in 1929, fourteen (2.9 percent) had hired out as year laborer, which amounted to roughly 0.03 person per household (14 divided by 485).

<sup>12</sup> The gap between the number of year laborers hired in and hired out reflects the obvious fact that those who hired in had larger farms.

The average number of persons hired in the year labor market:

hired in	0.12	0.06	0.06
hired out	0.03	0.04	0.02

The average number of persons hired in the day labor market:

hired in	19.4	16.3	14.6
hired out	11.2	11.3	12.3

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Source: Wuxi Household Survey 1929, 1936, and 1948, Social Science Research Institute (SSRI), China.

In sharp contrast, the day labor market was far more active. In 1929, the most active year, nearly half surveyed households, 47.6 percent, hired day laborers. Depending on how we count the number of days for which this kind of labor was hired, the unconditional mean is about nineteen days, which is strikingly similar to the Mantetsu finding. But if we count only those households that had hired short-term farm laborers, the mean number of days hired soars to a substantial forty-one days, which was more than double the magnitude of that found by the Japanese researchers. Similar to what we found with the year labor market, proportionately more households hired in (48 percent) than hired out (23 percent), suggesting that the surveyed villages provided this kind of employment opportunity to villagers from outside (table 6.2).

### ***3.2 Off-farm labor, sericulture, and migration***

The finding that farm labor was confined to largely seasonal labor during peak agricultural periods is consistent with the observation concerning the dearth of managerial farms in the Lower Yangzi. Moreover, the fact that more than 80 percent of surveyed households were engaged in sericulture in 1929 is also seemingly consistent with Huang's involution argument (table 6.3). Since it was mainly women who engaged in sericulture, the overall lack of demand for year farm labor and the undersized farms in Wuxi together suggest that even male workers would be severely underemployed should alternative income opportunities be seriously lacking.

A typical behavioral trait of small peasant farms is their reliance on a combination of economic activities both for risk diversification and for income maximization. Chinese farmers in the Republican Period in the Lower Yangzi at least—were no exception. To increase income subject to available household resources (land, labor, and capital), a good proportion of the surveyed villages allocated their members among a variety of income-generating activities, besides farming their undersized farms and engaging in the household sideline of sericulture. While long-term farm labor work may not have been easy to come by, there were abundant employment opportunities in the off-farm sector. Table 6.3 shows, for example, that roughly half the households had a nonfarm job in the local economy. Stated differently, about one in two households had a member engaged in this kind of work, suggesting just how widely available such work opportunities had already become around the late 1920s. However, though there were plenty of employment opportunities, only a few households had their own family businesses or possessed the knowledge and skills needed to become school teachers or medical practitioners (dubbed “professionals”). Moreover, if we consider that as much as 28 percent of households had reported at least one family member working outside the village as a migrant worker, a substantial proportion of the farm households in Wuxi in the 1930s had a wide array of income opportunities besides rice-wheat cultivation and sericulture. This example is confirmed by the decline in household sericulture-- probably in response to a secular decline in the prices of silk and cocoon--and more people migrating elsewhere.<sup>13</sup> Taken together, the evidence of farm households reallocating their

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<sup>13</sup> The heyday of sericulture appears to be around the 1910s. For example, in 1913 nearly all farm households in Wuxi engaged in sericulture, with some allocating 30 percent of their arable land to the cultivation of mulberry trees, whose leaves provided feed for the silkworms (Wu 1995; Zhang 2002, chap. 2). In 1929 the county still had 29.8 percent of its arable land sown with mulberry trees (Liu, Zhang, and Chu 1988, 33). After that, the handsome profits brought about by sericulture peaked and began to decline on a secular basis, and by the early 1930s net income from sericulture allegedly fell to levels similar to those of rice-wheat farming. And as cocoon prices continued to decline in the 1930s and 1940s (save for a few good years), Wuxi peasants began in earnest converting the mulberry land into rice paddy, and reduced their labor and fertilizer inputs accordingly (Liu et al. 1988, 35–36; Zhang 2002, chap. 2).

family resources in accord with relative price changes suggests that they were behaving in a way consistent with economic rationality.

**Table 6.3. The Structure of Wuxi’s Non-farm Economy  
(including Household Production)**

	1929	1936	1948
The percentage of farm households with members engaged in			
local wage employment (nonfarm)	51.3	48.2	32.0
teaching and medical professionals	1.6	1.6	0.5
family business	0.2	0.6	0.7
petty trade	11.1	11.3	8.9
sericulture	81.0	72.6	60.9
The average number of family members engaged in			
local wage employment	0.58	0.54	0.36
teaching and medical professionals	0.02	0.02	0.01
family business	0.00	0.01	0.01
petty trade	0.12	0.12	0.09
sericulture	na	na	na

Source: Wuxi Household Survey 1929, 1936, and 1948, Social Science Research Institute (SSRI), China.

The concomitant participation of Wuxi villagers in both local and nonfarm work can be attributed to a large extent to the rise of Shanghai as China’s largest metropolis and to the emergence of Wuxi as another growing city in the Lower Yangzi region, second only to Shanghai (Cao 1996; Faure 1989; Gao and Yan 1987; Zhang 2002). Shanghai’s rise as China’s most thriving city in the 1930s and the plethora of jobs that it generated attracted an immense number of people from within the (Jiangsu) province

seeking work opportunities.<sup>14</sup> Many from the southern part of the province (Sunan), for example, took jobs in factories or worked as sales clerks in department stores or as servers at hotels, whereas their northern counterparts found employment in dockyards or worked as rickshaw-pullers and housekeepers (Zhang 2002, chap. 5).<sup>15</sup> Others who flocked to this booming city were self-employed as tailors, cobblers, peddlers, and the like.

A similar process was at work in Wuxi. While wages in Wuxi were not as high as those in Shanghai, its development in the 1920s from a market town into a medium-sized city with modern textile, food-processing, and silk-reeling industries had a similar effect on off-farm employment (Wu 1995). In addition, this urbanization in Yangzi had generated many self-employment opportunities for carpenters, cooks, tailors, and barbers (Mantetsu survey, cited in Cao 1996).

In summary, both the land and labor markets in the Wuxi economy appear to have operated actively in the 1920s and 1930s, before the Japanese military invasion and the resulting economic disruptions suffered by the Chinese people. While land and other endowments were unequally distributed across farm households, the active operations of land and nonfarm labor in particular helped farm households to allocate resources efficiently consistent with their endowment characteristics, thereby reducing the incentive to behave as they would under “involution.”

#### **4. Why Households Participated in Land and Labor Markets?**

No economic units are so self-sufficient that they cannot enhance their welfare through trade. For example, no matter how wealthy the farm household, it gains by hiring workers if it does not have enough family laborers to cultivate all the land. In the same way, no matter how little land a farm household has, members can still benefit by seeking work on other people’s farms. The two households—characterized by differing

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<sup>14</sup> Because of in-migration, the population of Shanghai grew from less than half a million to over three million in the century between roughly the 1840s and 1940s.

<sup>15</sup> Liu, Zhang, and Chu (1988, 32), for example, lament at the inability of the Wuxi people to compete with their counterparts from the north (*Subei*) in rickshaw pulling.

endowments of land and labor—can presumably benefit from participating in the market for labor exchange. In principle, a household, like any economic unit, faces a menu of choices for obtaining income. A land-deficient household, for example, may rent in land to meet the consumption requirements of its “surplus” members, or hire out in the labor market; either choice helps to increase income. This economic principle does not fundamentally change even in a complex economy including jobs other than farm work, except that more choices are available. Instead of choosing between (1) working more land by renting and (2) working on other people’s farms, one can choose to work outside of farming.

By the late 1920s the Wuxi and Shanghai economies already offered a vast menu of employment choices to Lower Yangzi villagers. As mentioned in the previous section, many nonfarm occupations were already available; in fact, they were even more readily available than long-term farm employment. The issue that we will take up here concerns the bases of farm household economic decision-making, that is, what determined the choices (and constraints) of economic participation—the dependent variable of this analytical exercise. According to conventional economic reasoning, a farm household will premise its choices by both its land and labor endowments—the latter including labor quality. Furthermore, to distinguish the effect of different categories of labor, we disaggregate labor endowments by *gender* (male and female primary labor) and *age* (“young” for dependents below a certain working age and “old” for those who have reached the age of retirement).<sup>16</sup>

Economic returns are determined not only by the quantity of labor but also by the “quality,” which economists usually measure by educational attainment. Although the SSRI survey did not measure educational attainment of individual household members, there is enough information to compute an average household education index for measuring variations in the level of education attained by farm households in general, and

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<sup>16</sup> We treat those family members not in the working population as “dependents” largely because chances are greater that they are consumers rather than breadwinners in a family. As is often the case in a peasant economy, however, these “dependent” members may also contribute to household income by way of choices households make on how best to use them.

can be used to estimate if there are economic returns to education (the details of which are in Kung, Lee, and Bai 2005). Finally, we include in our list of explanatory variables the possible effect of farm capital, using oxen as proxy, while also controlling for the effect of market development and geographic location on household economic decisions. The results of this multivariate regression exercise are summarized in table 6.4 (for land and farm labor markets) and 3.5 (for nonfarm labor markets and household production).

Table 6.4 about here (Table at end of file, horizontal)

An important conclusion from this analytical exercise is that both household demographics and capital endowment (now referred to as “human capital”, or education) were determinants of households’ economic decisions in Wuxi in the 1930s. Of the four demographic variables the quantity of male labor played an important role in household decisions. For instance, not only did it affect land rental decisions in the predicted positive direction, that is, the more male laborers in a household, the higher its proclivity to rent in land, but was also a predictor of pawning activity— an economic activity in which female labor had no significant statistical effect. The finding that male labor is a significant predictor of the pawning decision suggests that households made this decision in order to engage the “surplus” male labor in agricultural production—a finding that lends support to an earlier conjecture that one of the two purposes of pawning lay in the expansion of farm operations (for those who pawn in land). Also expected is the finding that households with greater male labor power were less likely to hire in day laborers to help with the time-critical farm tasks during the busy peak agricultural seasons; instead, these households were more likely to hire out to work on other people’s farms.<sup>17</sup> Finally, the quantity of male labor also determined nearly all nonfarm labor market participation in the same positive direction, except in the medical and education professions. This is a

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<sup>17</sup> The converse finding that households with proportionately more female labor power tend to hire in labor gives further support to the idea that labor hiring decisions are predicated mainly for households’ varying labor endowments, particularly those of healthy male laborers.

reasonable result considering that both medicine and teaching are occupations that require above-average human capital.

Female labor, though not to the same extent as its male counterpart, also explained a household's economic decisions for sericulture and local wage employment, and, unexpectedly, migration. The positive correlation between female labor and household participation in both local wage employment and migrant nonfarm work provides strong evidence in support of women's economic participation beyond that of familial production of sericulture. In particular, women's involvement in migration in 1930s Wuxi offers fresh evidence that needs to be taken seriously since this kind of employment paid much better than most other kinds of work enumerated in the SSRI survey (see Kung, Lee, and Bai 2005). Our finding also suggests that while men may have had an advantage over women in running family businesses, women were better represented among the human capital-intensive "professionals." It should be stressed, however, that both these sectors were very small—only one household in the former and eight in the latter; thus, advantages from gender differences should not be overblown. Although the economic behaviors of the female labor differed from that of the male labor, showing a pattern of gendered labor choices, it is due to the socially constructed economic opportunities opened to the different sexes. Both thus were reacting to these opportunities, albeit differentiated, in the same manner of rationality and together made it possible for measurable increase in household income, even though falling short of creating an economic breakthrough.

Table 6.5 about here (Table at end of file, horizontal)

What is rather unexpected is the role played by "young dependents." An important reason why some households rented in land and hired in labor was that they had more young family members to feed. Moreover, these families also seemed to be active in the pawning market, a finding difficult to explain. More research on land

pawning is clearly needed to enhance our understanding of this economic activity in rural China before the Communist revolution suppressed markets and abolished private land ownership.

Fourth, as with labor, the amount of land that a household owned also affected land rental decisions, farm labor hiring, and many nonfarm economic decisions. As expected, land and labor are positively correlated—families with more land tended to hire in more farm labor but were less likely to rent in land. More interesting are the findings that families with more land are positively correlated with running a business and also more likely to engage in sericulture—the latter a finding that contradicts the notion that only small peasant farms were pushed into this unprofitable economic activity because of the discriminatory practices that women in the formal labor market faced. Instead, the lack of land appears to have pushed families into local wage employment and petty trade, both of which did not pay favorably in comparison with migrant work especially but also with sericulture.<sup>18</sup> A most interesting finding concerns the relationship between landownership and pawning. Though families with surplus land to farm were more likely to rent out part of their land in return for rental income, they were most unlikely to pawn out their land—a finding that reinforces the view that pawning is an important way of obtaining informal credit but that it may also have longer-term adverse effects.

Fifth, the significant and negative relationship found between education and renting in land suggests that returns to farming were most likely lower than those associated with at least some nonfarm activities, particularly migration and professionals occupations—the two activities that correlate positively (and significantly) with the education variable. As mentioned earlier, per capita income of households with members engaged in migrant activities was much higher than for most activities, a finding that is consistent with the related finding that migration required higher educational attainment (Kung, Lee, and Bai, 2005).

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<sup>18</sup> The per capita income of families with members engaged in sericulture and migration were, respectively, 1,027 and 1,570 catties of husked rice, whereas those of local wage employment and petty trade were merely 986 and 756 catties, respectively. The mean per capita income was 1000 catties. One catty equals 500 grams.

Finally, farm capital, or specifically, draft animals, is found to correlate positively both with participation in land rental markets and concomitantly with the hiring of long-term farm labor, but negatively with local wage employment and petty trade. This pattern of findings underlies the economic process of households' "selecting" between farm and nonfarm work in the resource allocation process. Only households with the intention to specialize in farming would invest in farm capital by acquiring more draft resources, whereas those choosing to work off the farm did the opposite.

Our analysis lends strong empirical support to the hypothesis that farm households in Wuxi did allocate their resources—especially labor resources—in a way consistent with economic rationality. Whether that produced the best results is the question we will look at next.

## **5. Effects of Economic Participation on Income and Consumption**

It is one thing to suggest that farm households in Wuxi were allocating resources in a way that reflected the comparative advantage of their endowment characteristics, and quite another thing to ascertain the welfare effects of their allocation decisions. After all, it is arguably the effect of resource allocation on income and consumption that is of greater direct relevance for economies at the lower levels of economic development. What we want to find out is whether income and consumption per capita can be explained by household economic choices. To ensure that income comparisons are consistent over time we have converted all income denominated in money into husked rice or *caomi* equivalents (by weight, in Chinese catties), using comparable price indices for the survey years in question.<sup>19</sup> Data on household consumption, while available, is more restricted, since the surveys enumerated only staple consumption, rice and wheat, with almost no information on the consumption of meat and dairy products such as eggs—an omission that most likely will bias downward the consumption of the richer households. This limitation aside, nonetheless, the pertinent data still allow us to measure and compare the caloric intake of households as associated with their choice of economic

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<sup>19</sup> A detailed explanation of how we perform this exercise can be found in Kung, Lee, and Bai (2005).

participation. Caloric comparisons are made by converting rice and wheat consumption figures into a common unit of energy equivalence on a per capita basis.<sup>20</sup>

Besides correlating economic participation with income and consumption standards, we have also controlled for the possible effects of those variables that may affect the estimated outcomes from diverse economic factors. These factors include farm capital (e.g., water pumps), capital assets used in household sideline production (e.g., silkworm feeding trays, weaving machines), the size of operated farm holdings, and not least, the year variables (i.e., 1936 and 1948) as proxy for the effect of the time trend. Our results are summarized in table 6.6.

Table 6.6 about here (Table at end of file, vertical but 2 pages)

The most important finding is that, compared with rice-wheat cultivation (the benchmark used for this comparison), a significant number of income sources—rental, local wage employment, family business, migration, and not the least, sericulture—all have a positive effect on per capita income. The positive income effect resulting from households renting out surplus land and running a business (a proxy of surplus capital) is obvious and needs no further elaboration. The same analysis applies also to the few families with members working as professionals. What is less obvious perhaps is the strong positive effect of local wage employment, migrant work, and sericulture on per capita income. Although we are unable to measure with precision the marginal product of labor in these economic activities, there is now solid empirical evidence to suggest that households with members engaged in these labor-intensive activities enjoyed higher per capita incomes than families that did not or could not take advantage of these employment opportunities.

Pawning (out) represents an important exception to the above findings. While the negative relationship between pawning and income may appear anomalous at first sight, it too can be accounted for by economic reasoning. To the extent that pawning out land

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<sup>20</sup> The conversion rates are based on those provided by the Nutrient Data Laboratory of the United States Department of Agriculture. For rice the rate is 360 kcal. per 100 gram and for wheat 340.

represented a desperate attempt by households to get much-needed credit, and when repayment terms were structured by usurious interest, pawning adversely influenced the debtor's options. Alternatively, pawning might have resulted in some households' cultivating smaller farms in which land was pawned to their fellow villagers (who acquired the cultivation right as a result). In either case, the negative relationship between income and pawning appears to lend support to the view that pawning was the first step toward "distress land sales" (Huang 1990).

As to the effect of economic participation on consumption, it is not always the case for activities having a significant effect on income as well as upon consumption; only migration and sericulture—and to a much lesser extent, a family business—have a significant effect on both. In particular, we want to stress the singularly important welfare effect of sericulture, because of its negative role as described in the literature (Bell 1999; Huang 1990). Based on the specific criteria of evaluating the importance of an economic activity for income and consumption, we conclude that migration and sericulture offered better economic welfare activities for Wuxi villagers than for households relying on either rental or local wage income, since these latter two activities have no significant effect on staple consumption. Finally, there are those activities which, while conferring no distinct economic advantage to their participants in income, nonetheless help raise the consumption standards of poorer households. For example, where the per capita income of households with members engaged in petty trade was very low—25 percent below the mean (Kung, Lee, and Bai 2005)—the caloric intake for these people was at least improving.

## **6. Conclusion**

The macro issue of why China's economy, in particular that its agricultural sector, failed to achieve a breakthrough in the past few centuries continues to attract scholarly attention and any consensus among historians is as remote as ever. However, when examined closely at the micro level, the performance of a local economy can be rather prosperous with observable rational behaviors in the labor market. We made use of panel data that covers an important period of almost twenty years in a local economy where the

effect of commercialization was pronounced—the Jiangnan economy of the Lower Yangzi. We found that farm households were allocating their resources in a way consistent with economic rationality and, equally important, that factor markets were active, and they operated competitively. We will post further below two principal observations concerning farm household economic behavior and markets.

First, this local economy had not just an active land rental market, but an active labor market in a variety of off-farm contexts, including migrant employment. The existence of many off-farm income opportunities helped households with surplus labor to better use their labor and by doing so, to increase household income. Our survey evidence, reported elsewhere, shows that per capita net income increased from the late 1920s to 1936 by as much as 50 percent, before it declined by roughly 10 percent from its high point because of military and political disturbances. Although our findings should be treated with caution, we see a connection between the expansion of specialization and exchange and per capita income growth. This finding is important because the Jiangnan economy was still prospering despite the unequal distribution of land ownership. The rapid expansion of the off-farm sector in this region played a very crucial role in contributing to this income growth process.

Second, a household's choice of economic participation appears to be conditioned by the comparative advantage of such endowments as land, labor, and capital. For instance, the quantity of male labor significantly determines a household's decisions about land rental, pawning, and a range of nonfarm work opportunities (except for those that required distinctly greater human capital). Likewise, female labor not only predictably explains a family's decision to participate in sericulture but also local wage employment and migrant off-farm work. Their engagement in migration shows that many women were not confined only to household economic production but engaged in highly paid work like that of their male counterparts.

Just like labor, land is a good predictor of household allocation decisions. The positive association it had with family business and sericulture suggests that a broad spectrum of society, including the rich, participated in sericulture. Conversely, the negative association between land on the one hand, and local wage employment and petty

trade on the other, suggests that land-deficient households engaged in lower-paid activities.

As for the welfare effects of economic participation, most economic activities, including local wage employment and sericulture, were found to have significantly enhanced household income. The only exception is pawning; the negative effect of this activity on income suggests that households entering into the pawning relationship might have been forced to do so by adverse circumstances, a possibility consistent with the conventional view that pawning represents the first step toward “distress land sales,” but more empirical research is needed to confirm this claim.

Then there is the important role played by petty trade—not a popular household choice if other alternatives existed. While petty trade had no significant effect on income, it had a positive effect on consumption. This suggests that households could be better off by participating in this low-income activity. Also important is the finding that only two activities have a positive effect on both income and consumption, namely, sericulture and migration. There is solid empirical evidence to refute the alleged irrationality of household participation in sericulture. Meanwhile, labor migration offers fresh evidence for a “vent” absorbing surplus rural laborers in the Jiangnan. This absorption of labor was even greater in the Lower Yangzi region where markets flourished.

The issue of economic underdevelopment for most parts of the past century therefore requires qualification that even without favorable institutional and policy environment, the Chinese market and economic behavior could perform very well, just short of a fundamental transformation or breakthrough. More important, this performance can still be accounted for in terms of rationality.



Absolute value of  $z$  statistics in parentheses.

\* Significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

# Young dependency ratio: the number of household members age 14 or younger, divided by household size.

## Old dependency ratio: the number of household members age 14 or older but who do not belong to the labor force, divided by household size.

In the estimations we have controlled for the effect of the farm size, time trend, number of oxen, distance to the nearest township, and percentage of rice transacted in the market.



Absolute value of  $z$  statistics in parentheses.

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**Table 6.6. The Effects of Market (and Nonfarm) Participation on Income and Consumption**

Dependent variable		Log per capita income	Log per capita energy consumed
<b>Land and credit markets</b>			
renting	in	-0.102*** (2.95)	0.020 (1.16)
	out	0.288*** (6.36)	0.009 (0.43)
pawning	in	-0.006 (0.06)	0.065 (1.39)
	out	-0.128*** (2.85)	-0.002 (0.11)
<b>Farm labor markets</b>			
day labor	in	0.017 (0.55)	-0.017 (1.12)
	out	0.042 (1.28)	0.003 (0.19)
year labor	in	0.024 (0.32)	0.049 (1.35)
	out	0.070 (0.88)	0.199*** (4.94)
<b>Off-farm labor markets</b>			
wage employment		0.165*** (5.56)	-0.000 (0.00)
professionals		0.162 (1.27)	0.049 (0.79)
family business		0.455** (2.37)	0.157* (1.68)
petty trade		0.068 (1.36)	0.090*** (3.63)

Migrant work	0.213*** (7.70)	0.056*** (4.17)
Sericulture	0.152*** (4.69)	0.061*** (3.86)
<b>Number of observations</b>	1565	1562

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Absolute value of  $z$  statistics in parentheses.

\* Significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

In the estimations, we have controlled for the effect of household size, household sideline technology (quantity of silkworm feeding tray and weaving machine), farm technology (water pump), farm size, and time trend in the estimations.