Human capital, migration, and a 'vent' for surplus rural labour in 1930s China: the case of the Lower Yangzi[1]

By JAMES KAI-SING KUNG, NANSHENG BAI, and YIU-FAI LEE

A farm survey conducted in a prosperous Chinese county (Wuxi) in the Lower Yangzi region in the 1930s shows that a 'vent' existed for surplus farm workers to obtain off-farm migrant employment and that the slack in farming created by this migration process attracted those from the lower-wage districts, resulting in the creation of a hierarchy of labour markets differentiated by education and skills. Our analysis also reveals that there were crucial links between education, migration, and income, and it refutes the claim that migration was caused by land deficiency and favoured those who lived near the urban core.

An unresolved theme in contemporary Chinese history concerns whether the Chinese economy had been mired by the trappings of its own institutions and processes, which allegedly rendered it stagnant over a long period of time and spanning two regimes, or whether, on the contrary, it had in fact experienced modest but real positive growth, to the extent that a nascent but powerful modernization process had been undertaken, only to be interrupted by an unfortunate concatenation of political and economic events.[2] As with any major historical puzzle, the answer to the question of how the modern Chinese economy actually developed can only be sought from solid historical facts, which, unfortunately, are woefully lacking.

For instance, Brandt and Rawski have made the provocative claim that commercialization led to sustained increases in marketed agricultural surplus and improved agricultural terms of trade, which in turn resulted in growth in per capita incomes between the late nineteenth century and the 1930s. This claim is, according to its critics, premised upon highly questionable data.[3] Likewise, the nuanced

[2] Variants of the 'stagnation thesis' were originally propounded by Elvin, *Pattern*; Feuerwerker, *Chinese economy*; and Perkins, 'Growth and changing structure', whereas the revised view of China as having experienced positive economic growth is best represented by the works of Brandt, *Commercialization*; Faure, *Rural economy*; Li, *Agricultural development*; idem, *Jiangnan de zaoqi gongyehua*; Rawski, *Economic growth*; Myers, 'Agrarian system'; and idem, 'How did the modern Chinese economy develop'. See also idem, *Chinese peasant economy*.

[3] Brandt, *Commercialization*; Rawski, *Economic growth*. For instance, the heavy reliance on wage data surveyed by Buck, *Land utilization*, to derive productivity and income estimates, is faulted for its bias of reflecting productivity on only the largest farms that actually hired labour. For a comprehensive review of the works of Brandt, *Commercialization*; Huang, *Peasant family*; and Rawski, *Economic growth*, see Gottschang, 'Incomes'; Little, 'New perspectives'; and Wiens, 'Trends', among others, in a special issue of *Republican China* (1992); Feuerwerker, 'Old question revisited'; Sicular, 'Review of *Commercialization*'.

'stagnation thesis' that sees the Chinese rural economy as having experienced a long period of 'growth without development' (or 'involutionary growth'), as population pressure compelled the peasant households to respond to new commercial opportunities by 'self-exploiting' their own family members with little alternative market value (especially women),[4] is subject to the allegation of over-generalization.[5] Provocative as these new ideas surely are, acute data problems on the modern Chinese economy, however, continue to pose a formidable hurdle in furthering our understanding of the economic trends of the late Qing and Republican periods in terms of overall growth (or the lack of it) and its distributional consequences.[6]

A useful analytical lens through which to assess the effects of commercialization would be to examine the extent to which 'surplus' farm labour in the 'subsistence' sector was absorbed into the 'modern' sector—one which promises higher returns to its participants due to higher productivity.[7] According to standard development models, migration plays a uniquely important role in the development process of large agrarian economies by usefully serving as a 'vent' for members of a heavily populated farm community who otherwise could only work on undersized farms. Whether positive growth occurred thus depends on the extent to which commercialization went beyond the mere hiring of farm wage labour to include rural–urban migration as well in at least the highly commercialized regions such as the Lower Yangzi Delta.[8]

By drawing on a unique farm survey conducted in a prosperous county (Wuxi) in the most developed region of China in the 1930s, the Lower Yangzi, we observe a hierarchy of labour markets in which workers migrated not only across the rural–urban divide (for example, out-migrants from Wuxi who presumably left for Shanghai), but importantly also from low- to higher-wage districts within the rural economy (from Jiangsu—the province in which Wuxi is located), which as a result helped those unable to achieve upward social mobility via migration. In unveiling these economic processes using household-level data, we identify empirically the

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[4] Huang, *Peasant economy*; idem, *Peasant family*. The full implications for peasant women of the gendered division of labour generated through this kind of labour market segmentation are discussed in Bell, *One industry*, and empirically tested in Kung and Lee, 'Women's contributions'. Critics of the 'involution' thesis have pointed out that this peasant-household dynamic is actually typical of many pre-modern agrarian economies and that Huang has over-ascribed China's development difficulties to this internal family-farming dynamic (see, for example, Pomeranz, 'Women's work', p. 133; Wong, 'Development', p. 17).

[5] It is over-generalized because the argument—based on only a few data points and a disproportionate reliance on a single region (the Lower Yangzi and North China Plains, for instance)—is applied to a country with a population larger than the US, but one which was 'spread over a wider range of latitudes and was much less integrated by transportation, communications, and markets' (Gottschang, 'Incomes', p. 47).

[6] The title of Feuerwerker's 'Presidential address' keynote speech delivered at the Association of Asian Studies, namely 'Questions about China's early modern economic history that I wish I could answer', aptly summarizes the acute data problem faced by historians of the Chinese economy. See also Feuerwerker, 'Old question revisited', pp. 212–15.

[7] The term 'surplus labour' is used here merely in the tradition of the development economics literature based on Lewis, 'Economic development'; Fei and Ranis, *Development*; and Harris and Todaro, 'Migration'. Empirically, our evidence suggests that labour movements within the Lower Yangzi region were sufficiently mobile to the extent that labour was likely to be largely if not fully utilized.

[8] According to Pomeranz, *Great divergence*, the Lower Yangzi around the early twentieth century was comparable to England on the eve of its industrial revolution in a number of important socioeconomic respects. Like Brandt, *Commercialization*; Huang, *Peasant family*; and Rawski, *Economic growth*, Pomeranz has similarly spawned a new series of debates in a symposium issue of the *Journal of Asian Studies* (2002), and, more recently, Broadberry and Gupta, 'Early modern great divergence', pp. 18–21.

crucial links between education, migration, and income. Specifically, empirical evidence shows that migration favoured households with better education, and that the per capita income of migrant households was substantially above the mean. In other words, this evidence suggests that there were positive returns to education via migration. Moreover, the lack of a significant, inverse relationship between a household's landholding—a proxy for 'pushed' migration—and the propensity to migrate further refutes the notion that migration in the Lower Yangzi in the 1930s was 'pushed' by poverty.[9]

Our analytical findings are important in that they help to recast the entire 'involution' debate in a new light; namely, that commercialization-cum-industrialization helped to lift a region out of the 'involution' trap, rather than 'involution' blocking China's path to economic growth—in a manner strikingly similar to the rural–urban migration process that has taken place on a much larger scale from the early 1990s onwards.[10] While this new evidence tends to suggest that it is unlikely for any embedded institutions within the Chinese economy to hold back China's economic growth, we remain cautious in observing that the kind of migrant income opportunities being identified here were likely confined to only those pockets of the Chinese economy in which the effects of commercialization were distinctly more pronounced, such as in the Lower Yangzi region, and to only households better endowed in human capital.[11] Nonetheless, our study proves, importantly, that deficiency in land is not a sufficient condition for poverty, insofar as returns to labour moderate rather than exacerbate land inequality—a possibility not unlikely in a context of rapid economic expansion.

The remainder of this article is organized as follows. In the next section, we provide a detailed introduction of the survey data on which the analysis undertaken in this article is based, including a discussion of the survey background and questionnaire, and of how key variables used in the regressions were constructed. By examining the structure of the Wuxi village economy in section II, we show how migration offered the highest returns among a variety of 'labour-using' activities enumerated in the survey. In section III, we put migration in the Lower Yangzi in historical context by highlighting the important role played by Shanghai-based industrialization in this development process. Against that historical context we examine, in section IV, the determinants of a wide array of economic activities in general and migration in particular. Section V provides a brief conclusion.

I

In this article, we rely exclusively on a unique household dataset that has not previously been analysed in a systematic manner.[12] This dataset is based on a two-part farm survey of 11 villages in Wuxi County conducted by China's Social

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[9] For example, Bell, *One industry*, p. 128.

[10] In fact, this is the period that Huang, *Peasant family*, pp. 317–19 regards as representing China's departure for the first time in its long history from the 'involution' trap.

[11] In assessing the state of the Chinese economy from the Opium Wars to the establishment of the People's Republic of China, Feuerwerker, 'Old question revisited', pp. 214–15, rightly cautions that one should be careful in generalizing the possibly more robust economy in the more advanced Central and East China to other backward regions, and that extreme rural poverty also likely existed in these more advanced provinces.

[12] Guoli zhongyang yanjiuyuan, *Jiangsu Wuxi nongmin dizhu jingji diaocha*. For instance, Bell, *One industry*, p. 10, only randomly chooses 10 households from each of the 13 villages in the 1929 survey for her analysis but none from the retrospective survey of 1936 and 1948.
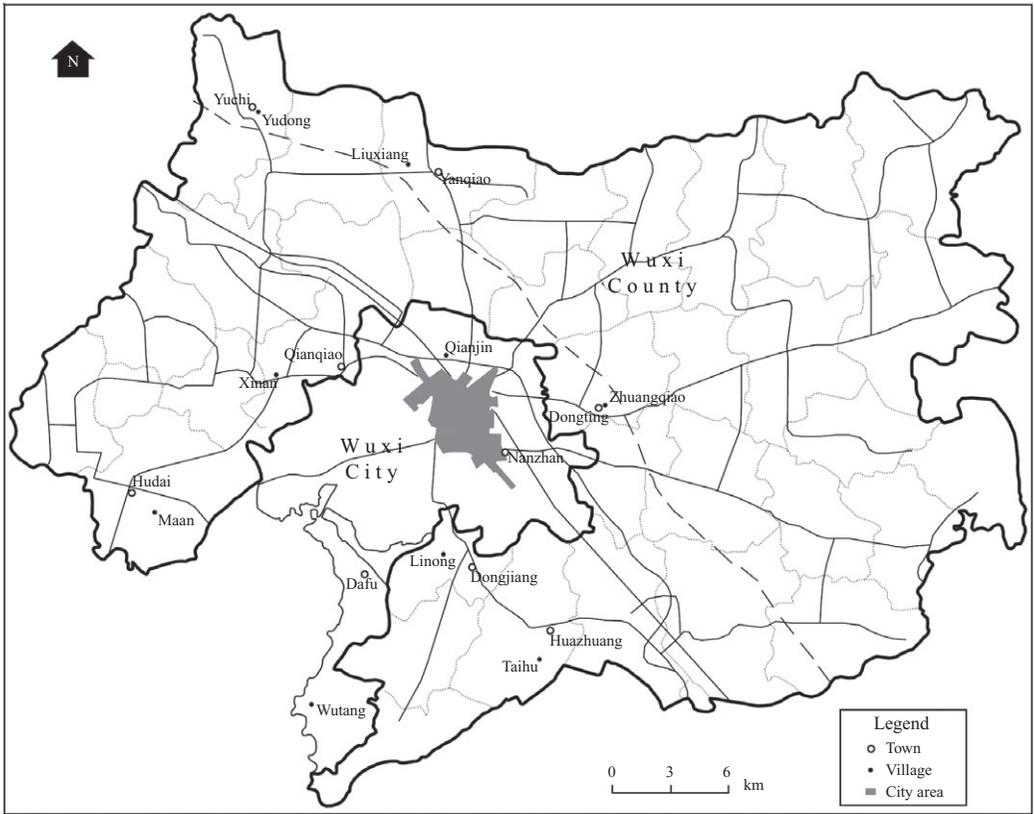
Figure 1. *Wuxi villages surveyed by SSRI*
Source: SSRI survey (see n. 12).

Science Research Institute (SSRI) (figure 1).[13] The first survey was organized by a delegation of enumerators led by Chen Hansheng, deputy director of the SSRI, under the auspices of Academia Sinica.[14] The delegation surveyed a total of 22 villages in 1929 and covered all 1,207 farm households that lived there. While the survey was motivated by the political concern that China was suffering from both feudalism and imperialism and hence would require land reform to address the

[13] Known alternatively as Liangxi, Wuxi is largely a plateau located in the north-west of Suzhou, about 128 kilometres from Shanghai. It faces Lake Tai (*hu*) to the south and the Yangzi River to the north, with Changzhou lying to its west. In terms of resources, Wuxi has both abundant sunshine and rainfall (annually over 2,000 hours of sunshine and 1,000 millimetres of rain) and a proportionately long frost-free period (of roughly 220 days). It also has rich alluvial soil suitable for growing a variety of crops. Despite these favourable conditions, the rise of Wuxi in the Yangzi region was only a recent phenomenon. Until the early Qing (the Qianlong period), Wuxi had yet to develop cotton weaving as some counties in the same region such as Songjiang and Taichong had. It was not until the eighteenth century that cotton weaving began to develop in Wuxi, but even then cotton was not planted locally; Wuxi farmers basically still followed the time-honoured practice of cultivating one crop each of summer rice and winter wheat. The massive development of sericulture in Wuxi took place only after the 1860s, when it replaced cotton weaving as the household's main 'sideline' activity (see, among others, Wu, *Zhongguo jingji fazhan*, p. 4).

[14] Academia Sinica was originally founded in mainland China in 1928 by the educator Cai Yuanpei—who is best remembered for his public service as Chancellor of Peking University in 1917. After the Chinese Civil War, Academia Sinica was re-established in Taipei following the relocation of the Republic of China government from Nanjing to Taipei.

needs of the poor, the variables collected (see below) are immensely useful for understanding the economic behaviour of China's farm households.

The second survey was organized in 1958 by Sun Yefang, director of the Institute of Economic Research (Jingji yanjiu suo), and Xue Muqiao, director of the State Statistical Bureau, who had assisted Chen in the first survey. In addition to organizing a team of researchers to work on the data collected from the first survey, which the original survey team was unable to finish, the two organizers decided to conduct a retrospective survey via the survey arm of the Jiangsu Provincial Statistical Bureau.[15] In view of the fact that records on 11 of the 22 Wuxi villages were completely lost during the Cultural Revolution, Sun and Xue returned to the other 11 villages for which survey materials from the 1929 study—which still consisted of 761 farm households—were well preserved. Like the first survey, the retrospective survey covered all farm households (around 800) in the villages, and used virtually the same questionnaire to ask the respondents to provide the pertinent answers for both 1936 and 1948. The year 1936 was chosen because it was the last 'normal' year prior to the Japanese invasion of the region, whereas 1948 represented the year prior to the Communist victory. The dataset that we employ for analysis here consists of nine villages across all aforementioned time points, which provide enough observations with sufficient variations both within and across villages to allow a meaningful quantitative analysis to be conducted.

Although the survey was conducted in only one county, it was a very prosperous county at the time, located in China's most advanced region, the Lower Yangzi, and is thus highly relevant for studying the effect of commercialization on the local economy. The extraordinary socioeconomic status of Wuxi and of the larger (Lower Yangzi) area in which it is located is well documented in many respects. First, it is well known that young scholars from Wuxi and the core Lower Yangzi region had traditionally excelled in the civil service examination.[16] It is also no small wonder that it was famously home to some of the biggest industrial entrepreneurs in Shanghai in the early twentieth century.[17] Secondly, a number of modern industries—ranging from textile and food processing to silk reeling—had developed in Wuxi such that, by the 1920s, it was already a medium-sized city whose importance was secondary only to Shanghai.[18] Finally, that the core Lower Yangzi region was so much ahead of other areas in China is borne out by the fact that a farm family classified as 'poor peasants' in the Lower Yangzi enjoyed nearly three times the earnings of 'rich peasants' on the North China plains at the time of China's revolutionary land reform.[19]

To be sure, the SSRI study was by no means the only farm survey to have been conducted in the Lower Yangzi region. Shortly after the Japanese occupied this part of China, an investigative corps under Japanese military intelligence organized a two-wave survey of 339 households in 11 villages from across six counties in the

Lower Yangzi region, including Wuxi County.[20] Primarily conducted by economic anthropologists, this study covered a number of key socioeconomic aspects of the surveyed farm households in meticulous detail. For instance, in addition to a general table that included detailed information on households' engagement in land and labour markets, one can find in the Japanese reports 14 specific tables that report in even greater detail the hiring of labourers (both in and out),[21] the extent of land rental and pawning, the distribution of a variety of farm implements and draft animals, farm and sericulture output, consumption and expenditures, and even cash balances—all at the household level.

Our preliminary assessment of this particular survey, based on examination of these tables, suggests that it would likely provide another useful database for analysing the economy of the Lower Yangzi in the 1930s, if we were able to construct a dataset similar to the one that we employ in this study (the SSRI survey). An additional advantage of the Japanese study over the SSRI survey is their wider coverage (of six counties). However, unlike the latter, which covered virtually all farm households (which ranged from 484 to 596 households in 11 villages, depending on the survey year), the Japanese study enumerated somewhat fewer households (339) and, more importantly, because little is known about how their subjects were selected, it is probably more susceptible to the problem of sample selection bias.[22] In any case, until the Japanese survey is constructed into a database and becomes available for statistical analysis,[23] the SSRI survey represents a useful source of systematic information that allows us robustly to examine the role of migration in the development process in this period, as well as to supplement our existing knowledge of the pre-1949 rural Chinese economy more generally. Moreover, although the SSRI survey did not cover a geographical area as wide and diverse and did not sample tens of thousands of households as in the survey conducted by John Lossing Buck and his Chinese associates at Nanking University,[24] it did not suffer from the problems of uneven sampling[25] and under-enumeration of small farms[26] as Buck's survey allegedly did.

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[20] For a summary discussion of this particular survey, see Cao, *Jiuzhongguo Sunan nongjia jingji*, p. 16, tab. 1-1; Huang, *Peasant family*, p. 60, tab. 4.1. See the six volumes of the survey organized by Shanhai jimusho: Minami Manshū tetsudō kabushiki kaisha, Shanhai jimusho, *Report, Jaiding*; idem, *Report, Changshu*; idem, *Report, Taicang*; idem, *Report, Songjiang*; idem, *Report, Wuxi*; idem, *Report, Nantong*.

[21] For instance, the pertinent tables record not only the quantity of labour involved but also report information on gender, the number of days, and breakdown by farm and non-farm activities.

[22] The sample selection bias problem is likely to raise concern because, as economic anthropologists, the Japanese enumerators conducted in-depth interviews instead of using a structured survey instrument in their empirical study.

[23] This may explain why, although results of this survey have been invoked frequently, the pertinent usage is confined basically to a descriptive nature for anecdotal illustrations. See Feuerwerker, 'Old question revisited', p. 208.

[24] Buck, *Chinese farm economy*, conducted his first survey during 1922–4 on 2,899 farm households in seven Chinese provinces. His second survey, *Land utilization*, covered more than 17,000 farm households in 22 provinces.

[25] For example, the number of households being surveyed ranged from two at one extreme to 102 at the other in his first survey. There is no sampling issue for the SSRI data, as the two surveys covered the entire selected villages.

[26] This may explain why farm size per capita was as large as 7.4 *mu* (1 *mu* = 0.0667 hectare) in Buck's 1930s survey, which was more than double the amount (a little over 3 *mu*) of that found in a survey of 1.8 million households conducted by the Nationalist Government in the 1930s (see Huang, *Peasant economy*, p. 38). For Huang, the problem of oversampling large farms is more severe, since 'involutionary' behaviour occurred only on small peasant farms.

The SSRI survey was designed to enumerate a number of variables broadly categorized under the following characteristics: demographic (age, gender, household size), socioeconomic (education, occupation, credit conditions), resource endowments (land, labour force, farm and non-farm assets), factor market transactions (land rental and labour), production (sown acreage and cropping patterns), output, income, and consumption. A summary report of the key survey findings, in Chinese, can be found in a volume edited by Chen, Xue, and Qin, and a detailed enumeration of these variables is provided in appendix I.[27] In the survey, respondents were asked to provide detailed information on incomes obtained from a wide variety of sources, including agriculture (primarily rice-wheat farming), sericulture (mulberries and silkworms combined), farm and off-farm wage employment, migrant remittances, and income received from land rental payments, family businesses, and petty trade.

The computation of income across different survey years is something that needs to be dealt with carefully, given that China switched from using the silver dollar (*Yinyuan*) to a fiduciary paper currency (*fabi* or *fapi*)[28] and eventually to the gold *yuan* note (*Jinyuan juan*) between 1929 and 1948.[29] Clearly, it is necessary to convert these different currencies into a standardized metric if we are to compare income over time, and *caomi*, or husked rice—the basic staple consumed in the Lower Yangzi region—appears to be a reasonable choice. It is fortunate that income for the three surveyed years was already denominated in terms of 1957 prices (in *Renminbi*) when the dataset was made available to us, and, since the local market price of *caomi* for the three surveyed years is also available, we are able to calculate per capita household income in constant price terms or specifically kilograms of rice.[30] Specifically, by dividing the nominal income (in 1957 prices) by the pertinent conversion rate (for example, 10.8 for 1929) and then multiplying it by 80 (1 *shi* = 160 catties, 1 catty = 0.5 kg) to convert the unit of measurement from *shi* to kilograms, we obtain the per capita income figures for the three surveyed years in constant price terms of kilograms of rice (last row of table 1).[31] By summing up all income sources obtained from the various economic activities enumerated by the SSRI researchers and dividing the total by family size (that is,

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[27] Chen, Xue, and Qin, eds., *Jiefang qianhou*.

[28] The term *fapi* is used in, for example, Chou, *Chinese inflation*, p. 22.

[29] The gold *yuan* note was adopted after 20 Aug. 1948, a time when China suffered from major hyperinflation amidst a civil war that lasted until 1949. In Shanghai, for instance, the price of rice in 1948 was 7.5 times that of 1946; Yu, *Minguo zhengfu*, pp. 448, 452; Zhang, *Zhongguo tonghuopengzhang shi*, p. 46.

[30] The *caomi* price of 1957 was obtained from a survey (organized by the same enumerators) conducted in 1958 in Baishuidang village, a hamlet in Dongjiang in the south central part of Wuxi County (see figure 1). The conversion rates obtained for the three time points are, respectively, 10.80 (for 1929), 7.2 (for 1936), and 15.63 (for 1948) *yuan* (*renminbi*) per *shi* (*shi* is a volume measure in Chinese). See Zhu, 'Zenyang renshi', p. 125. These prices are in remarkably close range with those provided by other contemporary sources. For instance, it was 10.5 *yuan/shi* for 1929 (Wuxi Shi Wujia Ju, ed., *Wuxi Shi wujiazhi*, p. 105) and 7 *yuan/shi* for 1936 (Bell, 'Farming', p. 220).

[31] The Chinese design of measuring rice in volume terms was intended to eliminate the bearing of (varying) humidity on weight. According to Liang, *Zhongguo lidai hukou*, p. 526, one standard *shi* equals roughly 140–50 catties or *jin* in terms of weight in some parts of south China (such as Jiangsu Province). Huang, *Peasant family*, p. vii, adopts a slightly different conversion rate of 1 *shi* = 160 catties in his Lower Yangzi study, which was also the conversion rate adopted in the SSRI survey.

Table 1. *Sources of income, income share, and per capita income of Wuxi households,
1929–48*

		1929 n = 485	1936 n = 484	1948 n = 596
Farming	(% of households)	96.94	96.31	98.15
Mean income share	(%)	68.45	63.48	65.27
Per capita income	(kg of rice)	604	902	814
Sericulture	(% of households)	81.22	72.75	60.91
Mean income share	(%)	19.45	12.57	9.09
Per capita income	(kg of rice)	616	921	875
Farm labour	(% of households)	24.69	26.64	28.86
Mean income share	(%)	19.23	17.53	15.63
Per capita income	(kg of rice)	481	736	632
Rental income	(% of households)	9.59	8.40	11.41
Mean income share	(%)	16.04	12.52	16.50
Per capita income	(kg of rice)	673	676	620
Wage employment	(% of households)	50.82	48.16	32.05
Mean income share	(%)	31.13	32.33	29.28
Per capita income	(kg of rice)	592	795	870
Family business	(% of households)	0.21	0.61	0.67
Mean income share	(%)	38.08	42.78	42.79
Per capita income	(kg of rice)	2,086	1,218	1,729
Petty trade	(% of households)	11.13	11.89	8.89
Mean income share	(%)	40.26	37.64	30.2
Per capita income	(kg of rice)	454	676	513
Remittance	(% of households)	17.55	19.26	28.36
Mean income share	(%)	43.01	46.24	36.43
Per capita income	(kg of rice)	942	1,229	935
Professional	(% of households)	1.63	1.64	0.50
Mean income share	(%)	30.41	55.31	33.56
Per capita income	(kg of rice)	1,187	1,206	673
Per capita income (kg of rice)		601	898	808

Source: SSRI survey (see n. 12).

the number of family members residing in the village), we obtain a reliable
measure of per capita income.[32]

   A major shortcoming of the SSRI survey, however, is that the pertinent data
were collected at the household level; thus, the data lack individual characteristics
such as age, gender, and education, which are likely important determinants of
migration propensity in particular and occupational specialization more generally.
Fortunately, the data do allow us to construct a weighted average of a household
education index, which is of paramount importance as it allows us to explore the
effect of education on migration propensity (see section IV for details).

II

Table 1 is constructed to provide a descriptive narrative of the Wuxi economy
based on the SSRI survey data. This narrative includes, first of all, the *participation*

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[32] Thanks to the dependence of the Japanese on food and other supplies locally produced in Wuxi, its economy
actually experienced steady growth in the flour, cotton-spinning, and silk-reeling sectors. For instance, the wages
of yarn workers in 1937 rose to 80% of the wages in Shanghai, and the number of silk filatures increased from
40 before the civil war to 60 in 1948; Fu and Tang, *Zhongguo gongshangye*, p. 125. This may help to explain why
the per capita income of Wuxi's farm households in 1948 was higher than that in 1929.

rate of surveyed households in each of the nine SSRI enumerated economic activities (represented in the 'percentage of households' row),[33] the relative importance of the income *share* of each of these sources (captured in the 'mean income share' row), and the per capita income *levels* resulting from economic participation (shown in the 'kg of rice' row).[34] Before we interpret our findings, it is necessary to make explicit the rationale behind the construction of this table, especially with regard to the relative importance of income (share) associated with each of the economic activities in question.

Take rental income, for example. What we are trying to show is that this particular income source provided a modest 12–16 per cent of income for those who received rents as income (slightly less than 10 per cent of the surveyed households had this income source), and that the income level of these households (at 673 kg of rice in 1929, for instance), while above the mean (601 kg), only amounted to roughly half that of the 'professionals' (1,187 kg).[35]

Several salient observations emanate from this descriptive narrative. First, figures on labour market participation show that, while the majority of Wuxi's farm populace—between 96.94 per cent in 1929 and 98.15 per cent in 1948—were engaged in agriculture, many diversified into a variety of occupations, farm and non-farm alike, to augment their income. For instance, while farming provided a substantial 68.5 per cent of household income in 1929 for those who farmed, it was substantially lower than the national average of 86 per cent as reported by Buck.[36] This suggests that, compared with the rest of the nation, Wuxi farm households had a more diverse source of income. We analyse this unique difference in the income structure of the farm households in Wuxi by observing household income from sericulture—a near universal economic activity in the 1920s.

The disproportionate engagement of Wuxi farm households in sericulture from the 1860s and its consequences for peasant incomes and consumption have been subjects of intense debate among economic historians. One view connects the rise in the international silk trade and inflated silk prices between the 1860s and 1920s with the rising prosperity of the peasants, as the profits of sericulture were estimated to be 50–100 per cent higher than those of rice-wheat cultivation, or even more than double when computed in terms of net income per workday.[37] These exceptionally high profits resulted in peasants allocating more acreage to mulberry cultivation.[38] In 1913, for instance, nearly all farm households in Wuxi were engaged in sericulture; some allocated as much as 30 per cent of their arable land to mulberry cultivation, the leaves of which provided food for the silkworms.[39] Our

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[33] We include a household in an enumerated activity only if it received income from this activity.

[34] The computations in tab. 1 are based on the count of residential members only. Migrant members are excluded simply because data on their incomes are not available (we only know how much they remitted), and also because they did not reside in their home villages for at least a substantial part of the year.

[35] What we do not purport to show is from where the remaining 84–5 percent of the income of these households came. The reason is simply that, were we to do so, our sample size for this particular income source would have been drastically reduced to only 10 percent of the households-the magnitude with this particular source of income. This explains why the respective shares do not add up to one—a feature that needs to be borne in mind in interpreting the findings.

[36] Buck, *Land utilization*, p. 299.

[37] Faure, *Rural economy*, pp. 152–6; Wu, *Wuxi jingji fazhan*, pp. 22–3; Zhang, 'Peasant household economy', pp. 134–5.

[38] Wu, *Wuxi jingji fazhan*, p. 22.

[39] Zhang, 'Peasant household economy', pp. 32–3.

own data show that even by the late 1920s substantial proportions of the house-holds (81 per cent in Wuxi) continued to pursue sericulture, which provided up to 20 per cent of household income.[40]

Table 1 also casts some doubt on the claim that sericulture represented a forced choice imposed upon the small peasant households with no better alternative sources of income.[41] The income figures clearly show that households engaged in sericulture did not fare the worst—not only were the per capita incomes of these households higher than the mean, they were also higher than those who depended on wage income (farm and non-farm alike) and on petty trade.

A second notable finding is that by the late 1920s, local wage employment in Wuxi had become an important income source, accounting for a little less than one-third of overall household income for more than 50 per cent of the surveyed households. Although valued at 592 kg of husked rice per capita, non-farm wage work was not particularly well remunerated. Nonetheless, it provided a useful supplement to household income, especially where the market for farm wage labour was severely constrained by the predominance of undersized farms. Indeed, while table 1 shows that between 18 and 19 per cent of the households received income from working on other people's farms, when broken down by employment duration only about 7.6 per cent of the households (37 out of 485) in 1929 actually hired long-term agricultural labourers (table 2). The majority, 48.16 per cent, only hired short-term or casual labourers during the peak agricultural seasons to help with farm tasks that needed to be performed close on the heels of one another within a short time span.[42] That far fewer households hired out (23.1 per cent) suggests that many of these casual labourers came from other—presumably even poorer—villages. This contrasts sharply with the situation in north China, where the market for farm labourers—both long- and short-term—was evidently far more active.[43]

Regardless of whether these farm labourers were long-term hired hands or merely peak-season helpers, it is clear that farm wage labourers belonged to one of the lowest-paid employment groups in Wuxi (second only to petty traders)—about 20 per cent below the mean. Earning between 10 and 18 per cent of what a migrant worker or craftsman could earn (16–36 *yuan* per annum), it is unsurpris-

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[40] For instance, at 45.2 *yuan* per *dan* or picul (1 *dan* = 100 catties) in 1929, one *dan* of spring cocoons was worth more than 8 *dan* of husked rice. Autumn cocoons were worth even more, valued at more than 10 *dan* (or 1,000 catties) of rice. At these prices, profits obtained from selling 100 catties of cocoons, which require only two *mu* of mulberry leaves for food, were equivalent to the profits of farming three to four *mu* of land (Liu, Zhang, and Chu, 'Jiangsu Sheng Wuxi Xian', p. 36). Profits from sericulture were arguably still much higher than from rice-wheat cultivation by the late 1920s, which explains why mulberry tree cultivation still took up 29.8% of arable land in Wuxi. It is only when cocoon prices began to decline from the 1930s onwards that peasant households in Wuxi switched back to rice-wheat cultivation—a sign reflecting their resilience.

[41] The 'involution' thesis argues that, while sericulture brought higher returns to land, returns to labour were lower than that to farming due to the much greater labour intensity that sericulture entailed—52 days of work for women in sericulture with an average daily income of 0.29 *yuan*—compared to only 17 days for men in farming, who obtained 0.72 *yuan* (Bell, *One industry*; Huang, *Peasant family*). Zhang, 'Peasant household economy', pp. 38–44, however, contends that calculations of economic returns are highly sensitive to the choice of year. Having chosen a year (1936) in which the price of cocoons (valued at 660 catties of husked rice) was much lower than that in, for example, 1929 (valued at 900 catties of husked rice), Zhang therefore alleges that Bell has thus underestimated the returns to labour in sericulture.

[42] According to Cao, *Jiuzhongguo Sunan nongjia jingji*, pp. 57–9, who analyses the Mantetsu survey data, even farms of a moderate size (20 *mu* or so) in the Lower Yangzi region seldom hired labourers on a long-term basis.

[43] See, for example, Brandt, 'Farm household behavior', pp. 720–1; Myers, 'Agrarian system', pp. 233–5.

Table 2. *Agricultural labour markets in Wuxi, 1929–48*

		1929	1936	1948
Year labour market				
Hire-in	(*n=*)	37	21	26
	(%)	7.63	4.34	4.36
	(mean: labourers)	1.54	1.81	1.31
Hire-out	(*n=*)	14	14	10
	(%)	2.89	2.89	1.68
	(mean: labourers)	1.07	1.43	1.00
Day labour market				
Hire-in	(*n=*)	236	186	231
	(%)	48.66	38.43	38.76
	(mean: days)	41.45	44.20	37.62
Hire-out	(*n=*)	112	122	168
	(%)	23.09	25.21	28.19
	(mean: days)	48.63	45.01	43.52

Notes: (*n=*) refers to the number of households engaged in labour hiring. (%) refers to the percentage of surveyed households engaged in agricultural labour markets. (Mean: labourers) refers to the conditional mean of the number of labourers hired per household. (Mean: days) refers to the conditional mean of the number of days hired per household.
Source: SSRI survey (see n. 12).

ing that Huang laments that this meagre income was hardly sufficient to feed one's parents or to marry and have children,[44] and that in some instances their plight was even worse than those 'landless' families who had members working in Shanghai and Wuxi either as migrant workers or independent craftsmen (*duli gongjiang*)—all of whom could afford to marry and have children.[45]

With regard to other income sources, very few had rental income (less than 10 per cent in 1929, for instance) or engaged in petty trade (about 11 per cent in 1929), and fewer still were 'professionals' (teachers and medical personnel, about 1.6 per cent at its peak) and entrepreneurs (less than 1 per cent). That only a few were recipients of land rents possibly owed to the fact that the majority, approximately three-quarters of the surveyed households, happened to be on the demand side of the rental market, thanks to land scarcity, leaving no more than 12 per cent who rented out. This shortfall on the supply side may have reflected the prevalence of 'absentee landlords' (those who resided in towns and cities) in the core Lower Yangzi region. Unlike the big, presumably 'absentee' landlords, this small propertied class did not really enjoy distinctly higher incomes. Faring worse, though, were the petty traders: with an average income that ranged between 454 and 676 kg of rice per capita, they did even worse than the farm labourers. Making matters worse for about 11 per cent of the households engaged in trade was the fact that they relied rather heavily on this particular income source (40 per cent in 1929, although it decreased somewhat over time). It appears that lack of skills was a

[44] In the words of Huang, *Peasant economy*, p. 201, these people were 'baresticks' or *guanggun*—the last of their generation.
[45] Cao, *Jiuzhongguo Sunan nongjia jingji*, pp. 165–7.

Table 3. *Income structure by migration status*

Year	1929		1936		1948	
	Any migrant members?		Any migrant members?		Any migrant members?	
	No	Yes	No	Yes	No	Yes
Income sources (mean, kg of rice)						
Farming	1,494	1,193	2,114	1,586	1,981	1,514
Sericulture	355	310	337	268	158	160
Livestock raising	12	9	12	9	241	187
Farm labour	69	54	120	69	90	36
Wage employment	278	245	632	221	400	325
Professionals	17	5	58	0	4	1
Remittance	0	1,169	0	1,796	0	1,064
Sale of assets	13	19	99	6	42	6
Other income	273	216	335	200	188	227
Family business	16	0	40	0	40	0
Wage expenditure	181	116	169	160	136	118
Petty trade	133	64	115	23	71	20
Rental payment (rice)	−216	−112	−182	−88	−94	−75
Rental payment (wheat)	−10	−5	−8	−9	−2	−3
Total household income	2,616	3,282	3,840	4,241	3,255	3,582
Per capita income	550.70	835.03	847.60	1,107.20	753.47	947.69
Per capita arable land (*mu*)	1.619	1.486	1.409	1.400	1.583	1.409
Average education index	0.062	0.094	0.074	0.103	0.115	0.153

Source: SSRI survey (see n. 12).

primary reason for the exceptionally poor earnings of these households.[46] In contrast, families with income sources obtained from 'professional' activities and family businesses were indeed in a privileged class of their own, although they were very few in number—less than 2 per cent in the case of 'professionals' before 1937, and no more than three rich peasant households in 1936 ran cottage industries and retail shops such as flour mills, brick kilns, and wineries.[47]

The third and most important observation concerns the disproportionate importance of migration both in terms of the share of rural households engaged in it and the exceptionally high incomes that these households enjoyed. Although migration was not nearly as pervasive as locally available wage work, nevertheless nearly 20 per cent of the farm families had remittance income. Moreover, remittance earnings provided the lion's share of overall income for these households—43 per cent in 1929 and 46 per cent in 1936. What is most striking is that the payoff was incredibly handsome for those able to seize this opportunity. With per capita income valued at 1,229 kg of rice in 1936, households with remittance earnings received the highest per capita income, replacing 'professionals' and those engaged in family businesses. Table 3 provides additional information for comparing the welfare of households with and without remittance income. What it essentially shows is that if some household members migrated outside the

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[46] The Mantetsu survey similarly revealed that unskilled workers, such as petty traders, brick-and tile-makers, and boat tenders, were earning less than 100 *yinyuan* per annum, which was substantially less than what the craftsmen were making (ibid., p. 165).

[47] Liu, Zhang, and Chu, 'Jiangsu Sheng Wuxi Xian', p. 28. In 1929, only one household had a family business and earned an income that exceeded three times the mean.

village and remitted some of their income, the per capita income of the remaining household residents was higher than the per capita income of households with no migrants. For instance, accounting for 35.6 per cent (1,169 out of 3,282) of the total household income in 1929, the number of families with remittance earnings was 25.5 per cent higher than the number of families without this income source (3,282 as compared to 2,616).[48] With remittance earnings so much higher than the rest, migration must have been a preferred choice of economic activity over farming and other 'labour-using' activities such as local wage employment and petty trade. This fresh evidence coalesces well with Fei's observation, in his classic work *Peasant life in China*, of just how migrant workers were the envy of their peers who were village bound, and on how a woman's social status was elevated by having a factory job.[49] While clearly not everyone was able to benefit from this economic process (see section IV), the fact that close to one-fifth of the farm families in Wuxi in 1929 were able to take advantage of rural–urban migration provides solid evidence that the economy of the Lower Yangzi region in this period was at least several degrees removed from stagnation.[50]

III

To put the strong links between education, migration, and income in historical context, we describe briefly in this section a development process dating from the mid-1890s. This is referred to as 'Shanghai-based industrialization',[51] named after the city that emerged as China's largest metropolis by the 1930s after decades of rapid economic growth, with Wuxi being the second fastest growing city in the Lower Yangzi region.[52] Ma's recent attempt to see China's economic growth from a regional perspective neatly points to the disproportionate contributions of Shanghai and a number of cities around its nucleus to the overall economic growth of the Lower Yangzi.[53]

Rapid economic growth in this region was underpinned, among other dimensions (such as foreign direct investments), by massive migratory movements within the delta region in general and by settlements in Shanghai in particular. As several

[48] Average per capita income can be obtained by first multiplying the income of both the migrant and non-migrant households by their respective shares in total households, then summing them up before dividing the total by two. For instance, per capita income in 1929 is obtained by: [(550.70 × 0.825) + (835.03 × 0.175)]/ 2 = 601 kg of rice.

[49] Fei, *Jiangcun jingji*, p. 233. See also Mann, 'Women's work', p. 246, on the effect of factory work on women's social status in the Ningbo area in Zhejiang Province.

[50] The decline in remittance income in 1948 was likely due to downward pressure on wages caused in turn by an increase in the migrant labour supply. Chinese scholars attribute the secular rise in migration over time to a number of 'push' factors, such as small farm size, the decline of a major sideline activity (sericulture), the destruction of the village economy by the Japanese, and not least natural calamities (Liu et al., 'Report on the rural economy', p. 43; Xue, 'Nongcun fuye', pp. 58–62). While this may have been the case during the war-afflicted 1940s, we shall show, in the next section, that migration in the 1930s was basically of a 'pulled' nature.

[51] Ma, 'Economic growth', p. 360.

[52] Cao, *Jiuzhongguo Sunan nongjia Jingji*, p. 179; Li and Mao, *Wuxi jindai jingji fazhan*, p. 21.

[53] 'In the 1930s Shanghai alone produced 41 percent of national manufacturing output (48 percent if excluding Japanese-controlled Manchuria); housed 50 to 60 percent of cotton spindles throughout the 1910s and 1930s; and generated about 50 percent of the national electricity in the 1920s, almost twice that of the major British industrial cities of Manchester and Glasgow'; Ma, 'Economic growth', p. 359.

studies have shown, its population doubled from less than half a million in the 1840s to over three million in the 1940s.[54] Second only to migration to the north-east (the largest in China),[55] migration to Shanghai was so vast that by the 1930s, more than three-quarters of its population were in fact migrants, with the majority coming from Jiangsu (55.3 per cent) and Zhejiang (25.3 per cent)—the two administrative provinces in which the Lower Yangzi region is situated.[56]

The rise of Shanghai as China's most thriving city in the 1930s became a massive draw for labour, to the extent that occupational specialization was even based upon one's geographic origin. For instance, whereas factory workers came mainly from Ningpo and Shaoxing (both in Zhejiang Province), ironsmiths were predominantly from Wuxi.[57] Likewise, Zhu also finds that textile workers were recruited overwhelmingly from the villages of Jiangsu, Zhejiang, and Anhui Provinces.[58] Presumably because of their better human capital, migrant workers from southern Jiangsu and northern Zhejiang Provinces tended to work in jobs that required some minimal skills and literacy (such as factory workers and sales clerks in department stores), whereas those from northern Jiangsu invariably ended up in unskilled and highly labour-intensive jobs such as dockyard workers, rickshaw pullers, and the like.[59] Others also flocked to this booming city and became self-employed as tailors, cobblers, and peddlers.

Thanks to the 'spillover' effect of this Shanghai-based industrialization to the immediate hinterland, the Lower Yangzi region, 'capital infusion from Wuxi-born industrial tycoons in Shanghai transformed the market town of Wuxi into China's fifth largest industrial city by the 1930s', with such modern industries as textiles, food processing, and silk reeling, that it even earned the nickname of 'Little Shanghai'.[60] As in the case of Shanghai, the development of Wuxi had generated abundant off-farm employment opportunities not only for the locals but also for the migrant workers from outside the county. According to a survey conducted in 1929 among 322 factory worker families in an industrial district in Wuxi, 87 per cent were found to have come from a number of counties in Jiangsu Province.[61]

Skilled workers were not the only beneficiaries of this regional development process. Based on the results of the Mantetsu (Japanese) survey of the Lower Yangzi region, Cao finds that economic growth in this region generated a plethora

[54] Xu et al., *Shanghai jindai shehui*; Xin, *Cong shanghai faxian*; both cited by Ma, 'Jindai jiangnan diqu laodongli', p. 22; see also Murphey, *Shanghai*, pp. 20–2.

[55] Total net people transfer between north China and Manchuria around the early twentieth century was estimated to be eight million, a magnitude comparable in size to the westward movement in the US between 1880 and 1950 and twice as large as the great nineteenth-century emigration from Ireland, according to Gottschang, 'Economic change', pp. 461–2. See also Gottschang and Lary, *Swallows and settlers*, pp. 171–3, for estimates of migration between North China and Manchuria between 1891 and 1941.

[56] Zhou, *Jiu Shanghai Renkou*, p. 112. While migrants from Anhui Province constituted the third largest source of migration, they accounted for a mere 5.8% of total migrant population in Shanghai (ibid., p. 115).

[57] Goodman, *Native place*, p. 30. Before the Japanese came and took away their boats, ironsmiths in Wuxi used to make a living by patrolling along the Wuxi (Liangxi) River repairing simple farm tools for the farmers during the slack agricultural seasons (Liu, Zhang, and Chu, 'Jiangsu Sheng Wuxi Xian', p. 29). This may be why some of them ended up working in Shanghai.

[58] Cited in Ma, 'Segments', p. 23.

[59] Without invoking human capital differences, Liu et al., 'Jiangsu Sheng Wuxi Xian', p. 32, lament the inability of the Wuxi people to compete with their counterparts from the north (*Subei*) in rickshaw pulling. See also Perry, *Shanghai on strike*, p. 27, on what she calls the 'bifurcated working world' in Shanghai.

[60] Ma, 'Economic growth', pp. 361–2; see also Wu, *Wuxi jingji fazhan*, pp. 46–73.

[61] Dong, 'Wuxi gongren jiating', p. 24, cited in Ma, 'Segments', p. 23.

of self-employment opportunities, ranging from carpentry and cooking to tailoring and barbering.[62] Moreover, evidence suggests that the Shanghai-based industrialization and its positive 'trickle-down' effects likely resulted in a hierarchy of labour markets in which workers migrated from low- to higher-wage areas within the rural economy as well as across the rural–urban divide. In those Wuxi villages where out-migration was pervasive, villagers from the northern part of the province came and took up the slack in farming and other low-paid jobs, according to a farm survey conducted in 1926 by the Nationalists' government.[63] Evidence is thus in favour of the notion that economic development in the core Lower Yangzi region spread beyond those with better-than-average human capital in the form of non-farm work to those with lesser human capital, such as tenant farmers.[64]

IV

In light of the substantially higher remittance earnings and lower participation rate relative to its close substitute—local wage employment—migration became a preferred choice of economic activity in which many were eager to engage. The relevant question is thus how the excess supply of labour was rationed among the limited jobs that were available. One view sees migration in the Lower Yangzi as being 'pushed' by land shortages and favouring those households located near the urban core or market towns.[65] An alternative view, one which we espouse here, attributes the primary driving force of migration to the higher earnings expected from migrant employment. Regardless of its cause, contemporary evidence suggests that migration tends to favour some groups—the better educated, the younger, the unmarried, and the male—over others.[66]

To answer this important question about the rationing of excess supply of labour among a limited number of jobs, we set up an econometric model to test empirically the two competing hypotheses, as shown in equation (1):

$$NF_{ijt} = \alpha + \beta' H_{ijt} + \varphi' V_{jt} + \gamma_1 T_{36} + \gamma_2 T_{48} + \varepsilon_{ijt} \qquad (1)$$

In equation (1), NF_{ijt} represents a household's propensity to engage in either migration or other off-farm activities;[67] the subscripts i, j, and t stand for household i in village j at time t. H_{ijt} represents a vector of household variables ranging from land and education attainment—proxies for our two key hypotheses—to other

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[62] Depending on their skills and demand for their services, many independent craftsmen were reportedly earning between 120 and 250 *yuan* per annum—a level similar to farming seven to eight *mu* of land on which they could feed a family of three to five, provided the family had other sources of supplemental income; Cao, *Jiuzhongguo Sunan nongjia Jingji*, p. 163.

[63] Land Reform Commissions, *Jiangsu nongcun diaocha*, pp. 360–1; Rong, 'Gedi nongmin zhuangkuang', cited in Ma, 'Segments', p. 24. A detailed analysis of the rental contracts similarly confirms that 'many tenant farmers in the 1930s were of northern origin, who massively replaced their southern counterparts'; Muramatsu, 'Documentary study', p. 581.

[64] Due perhaps to the even harsher conditions in their own villages, these newly arrived 'migrants' were found to be contented with the new environment and were willing to start from the bottom as tenant farmers, according to Muramatsu, 'Documentary study', p. 581.

[65] Bell, *One industry*, p. 126.

[66] de Brauw, Huang, Rozelle, Zhang, and Zhang, 'Evolution', p. 350; Kung and Lee, 'So what if there is income inequality?', pp. 40–1, among others.

[67] We include sericulture, which is an important household 'sideline' activity.

control variables, such as credit condition, farm assets, and childcare responsibilities (a proxy for 'participation constraint'). V_{jt} stands for the two village-level variables, 'distance to the nearest market town'—a variable employed to test Bell's idea that proximity to an urban core conferred a unique advantage in migration, and the possible effect of market development at the village level using the size of rice transactions in a village as a pertinent proxy.[68] Lastly, we control for the time trend by including the year variables 1936 (T_{36}) and 1948 (T_{48}) in our estimation, and ε_{ijt} is the error term. We test equation (1) using both the random-effect and Tobit models.[69]

In equation (1), we also control for a number of factors that might bear upon a household's migration decision. They include household size, labour endowments, farm capital (using oxen as a proxy), year-end cash/credit balance (which could be negative for an indebted household), and the participation constraint imposed upon a household by day-to-day childcare and other familial responsibilities.[70]

Before proceeding to the empirical tests, a prefatory remark on the construction of variables is in order. Although the survey enumerated the number of members in a household and their educational attainment (in categorical terms such as 'zero', 'three', and 'six' years of primary education; see appendix I), education is essentially a household-level variable, as we do not know who received how many years of education. In order to employ education as a proxy for human capital and accordingly as a predictor of the propensity of a household to migrate, it is necessary to construct an index that reflects a weighted sum of the (varying) levels of education of the different individual members in a household. We explain the construction of this index in greater detail in appendix II.

To test the alternative hypothesis that the propensity to migrate increases with the shortage of arable land, we employ two proxy measures. The first is the amount of land owned by a household; intuitively, the relationship between landholding and migration is strictly negative. However, land endowment is not necessarily the only determinant of migration propensity. As long as a land rental market exists, land-deficient households can expand their farm operations instead of leaving their farms for long-distance non-farm employment. Where that occurs, we expect the relationship between operated holdings, which takes into account the effect of a land rental market, and migration to be more tenuous than would be the case for owned land. While the returns to these two alternatives are unlikely to be the same, both represent a 'vent' for the 'surplus' farm workers on the undersized farms, as they help mitigate the potential problem of diminishing returns caused by over-intensive cultivation of land. The relevant question, in this context, is therefore how active the land rental market in Wuxi really was. With a substantial 78.6 per cent of the households renting (in) 62.6 per cent of the total arable land in 1929, the

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[68] Bell, *One industry*, p. 129, suggests that those living near the urban core were 'a relatively privileged group', as they were better placed 'to find desirable jobs in Shanghai [and] sent relatively large amounts of money home'.

[69] The random-effect model is preferred to the fixed-effect model here simply because the number of fixed points (n=3 years) is too low to obtain reliable estimates. Moreover, some of the explanatory variables are unlikely to change substantially between the three surveyed time points. The Tobit model is chosen because of the censored nature of migration and local wage employment, which means that not all surveyed households participated in these economic activities.

[70] To measure more precisely the effect of this constraint, we divided household 'dependents' into two separate age groups—those under the age of seven, and those aged between seven and 13—in our analysis.

answer is evidently positive. We will thus employ the variable 'operated holdings' to test the effect of a land rental market on the propensity to migrate.

In addition to the propensity to migrate, equation (1) also tells us, more generally, how households with varying endowments (land, labour, and other productive assets) allocated their labour resources among the various economic activities enumerated in the SSRI survey. The variable to be explained, thus, is household participation in each of these enumerated sectors, although our emphasis is clearly on migration. The regression results are presented in table 4.[71] The explanatory variables, divided according to household and village characteristics, are listed in the left column, whereas the various economic activities in which households engaged—the dependent variable—are presented across the top. Panel B separately reports the findings using operated farm holdings as the explanatory variable. Given that our competing hypotheses concern the role of education and land (operated as well as owned), in order to save space we report only the coefficients of education and operated holdings in the estimation that replaces owned land with operated holdings.

The most significant economic finding of table 4 (panel A) is that education or human capital was crucial for migration.[72] This finding is consistent with earlier observations that households with remittance earnings enjoyed an overall income that was higher than did those without this income source, and that far fewer households were able to gain from remittance earnings than was the case for local wage employment—its close substitute. Simply stated, the higher incomes that migrants enjoyed may be regarded as returns to education.[73] Further bolstering this 'human capital' story is the negative return of farm labour,[74] which suggests that those with fewer years of education were indeed forced into this second lowest paying job.[75] The lack of a significant effect of education on local wage employment, sericulture, and petty trade (columns 3–6) suggests that the skill requirements of these occupations were probably similar, in that education failed to provide a 'sorting' function.

Might the inclusion of a rental market for land alter our results? Replacing owned land with operated holdings (panel B, bottom of table 4), a variable that takes into account the effect of a land rental market, yielded broadly similar results both in the case of propensity to migrate (which remains positive and highly significant), and in the case of farm labour (which remains negative and significant).

In contrast, when owned land is used as a pertinent proxy, household wealth has only a marginally (negative) significant effect on migration (at the 10 per cent level), and in the random-effect model only (column 1, row 2), which does not

[71] We use a simple logistic model to analyse the determinants of household participation in economic activities other than migration and local wage employment because, unlike these two sectors, we do not have the precise number of family members engaged in these economic activities.

[72] It is significant at the 1% level and has a positive coefficient (cols. 1 and 2, row 1).

[73] The fact that young scholars in Wuxi and the core Lower Yangzi region had traditionally excelled in the civil service examination provides an interesting historical context for appreciating the importance of 'human capital' as a crucial determinant of migration propensity (see Ho, *Ladder*, pp. 226–8).

[74] The pertinent coefficient is negative and significant at the 5% level (col. 7).

[75] The finding of education providing an allocation function among occupations at both ends of the income spectrum provides partial support for the claim that Chinese farm households did behave in a manner consistent with economic rationality; Dittrich and Myers, 'Resource allocation'. Following their analytical framework, Kung, Lee, and Bai, 'Chinese farmer rationality', examine empirically how the Wuxi households allocated their land and labour resources among the various labour and land markets.

Table 4. Determinants of migration and various other economic activities in Wuxi

Dependent variable	1 As migrant labourer (Random effect)	2 As migrant labourer (Tobit)	3 Non-farm employment (Random effect)	4 Non-farm employment (Tobit)	5 Sericulture (Logit)	6 Petty trade (Logit)	7 Farm labour (Logit)
			Household participation[a]				
Panel A: Owned land							
Household characteristics							
Average education	1.423***	3.640***	-0.099	-1.066	1.108	0.987	-3.658**
	(6.59)	(6.36)	(0.69)	(0.85)	(0.77)	(0.32)	(2.13)
Owned land (*mu*)	-0.005*	-0.008	-0.001	-0.037*	0.086***	-0.366***	-0.233***
	(1.83)	(0.99)	(0.80)	(1.71)	(3.51)	(3.68)	(5.18)
Male labour ratio[b]	0.287***	1.079***	0.066	1.321**	1.430**	3.040***	5.263***
	(2.40)	(3.30)	(1.01)	(2.49)	(2.14)	(2.39)	(6.36)
Whether female labour[b]	0.193*	0.724***	0.015	0.642	3.161***	2.958***	2.175***
	(1.92)	(2.70)	(0.26)	(1.50)	(4.98)	(2.63)	(3.54)
Male migrant labourer			-0.050**	-0.386***	0.296	0.178	-0.350
			(2.52)	(2.31)	(1.42)	(0.45)	(1.58)
Female migrant labourer			-0.035	-0.232	0.300	0.057	-0.946**
			(1.12)	(0.92)	(0.97)	(0.09)	(2.41)
Household size[b]	0.180***	0.370***	0.052***	0.253***	0.533***	0.172	0.144
	(15.40)	(12.14)	(6.23)	(3.95)	(5.40)	(1.09)	(1.59)
Net credit (debit)[c]	0.203**	0.540**	0.080	0.862	0.260	1.034	-1.131**
	(2.35)	(2.17)	(1.50)	(1.40)	(0.56)	(0.84)	(1.96)
Oxen	-0.147**	-0.667**	-0.039	-0.347	0.477	-4.569**	0.118
	(2.31)	(2.47)	(0.98)	(0.61)	(0.76)	(2.45)	(0.19)
Child(ren) aged under 7	-0.400***	-0.832***	-0.134***	-0.807***	-0.116	0.014	-0.213
	(10.51)	(8.22)	(5.45)	(4.37)	(0.46)	(0.03)	(0.80)
Child(ren) aged 7–13	-0.356***	-0.734***	-0.104***	-0.606***	-0.139	0.319	-0.046
	(9.34)	(7.29)	(4.23)	(3.33)	(0.54)	(0.73)	(0.18)
Village characteristics							
Rice transacted in market	0.492***	1.533***	0.189***	2.279***	4.767***	-10.691***	0.695
	(4.99)	(5.48)	(2.85)	(4.12)	(6.56)	(6.26)	(0.99)
Distance to nearest town	0.009	0.029	0.000	0.002	0.064	-0.078	0.143**
	(1.09)	(1.29)	(0.04)	(0.05)	(1.08)	(0.47)	(2.06)
Constant	-0.713***	-3.967***	-0.003	-4.593***	-5.449***	-5.564***	-6.712***
	(4.79)	(9.17)	(0.04)	(6.01)	(5.93)	(3.34)	(6.55)
Panel B: Operated holdings							
Ave education[b]	1.539***	4.294***	-0.266	-0.705*	1.693	-3.310	-5.398***
	(7.60)	(8.77)	(1.57)	(1.80)	(1.23)	(1.16)	(3.15)
Operated holdings (*mu*)	-0.032***	-0.084***	-0.011***	-0.024***	0.243***	-0.036	-0.062*
	(7.83)	(7.74)	(3.49)	(3.22)	(6.20)	(0.95)	(1.91)
No. of observations	1,559	1,559	1,551	1,551	1,551	1,551	1,551

Notes: Time trends (year = 1936 and 1948) have been controlled for but not reported. For migrant labour, the dataset contains information about the number of migrant labourers in the household. Absolute value of z-statistics in parentheses.
* Significant at 10%; ** significant at 5%; *** significant at 1%.
a With the exception of migrant labourers, we infer that a family had participated in a sector if they received positive income from that sector.
b Migrant members are excluded from the analysis for all economic activities other than migration.
c Ratio of net credit (debit) to household net income.
Source: SSRI survey (see n. 12).

support the premise that migration in the Lower Yangzi region was caused by the scarcity of land. How might a market in land rental, which presumably would have the expected effect of relieving the constraint of those deficient in land, affect the propensity to migrate? To answer this question, we ran the regressions once again using operated holdings instead of owned land (panel B, bottom row of columns 1 and 2). The pertinent result suggests that the land rental market did have the effect of reducing migration propensity. The economic significance of this finding is that although migration favoured the more educated households, not all educated households opted for migration when presented with more than one alternative choice of income. Stated differently, since we have already controlled for the effect of education on migration propensity, the differences in preferences between households with similar education levels reflect other heterogeneous characteristics that we are unable to observe, and it is this heterogeneity that crucially shapes a household's choice of economic activity (between migration and expansion of farm activities through land renting). In the context of our discussion, the significance of the land rental market lies in its provision of an alternative to the land-deficient households that either did not possess the human capital required for migration, or, even if they did possess this human capital, preferred to expand their farming operations. In any case, both of these market-driven activities had the positive effect of mitigating the alleged tendencies of 'involution'.

Findings concerning the effects of owned land (wealth) and operated holdings (land rental market) on farm labour—the other occupational variable that is significant in our estimations—consistently mirror those of migration. Whereas the more wealthy households tended to be less likely to hire out their members to work as farm labourers (column 7, row 2; a relationship significant at the 1 per cent level), the relationship between operated holdings and farm labour is much weaker (bottom row of panel B), suggesting that, for some households at least, renting land and hiring out labour were not necessarily mutually exclusive.

Proximity to the urban core, using the distance of a village to the nearest market town as a proxy (under village characteristics), has, in contrast, no significant effect on migration propensity or any other activities save for farm labour. This lends further support to the 'human capital' story, in that migration was more likely a decision favouring the better educated, than an involuntary outcome of poverty.

Both the key control variables, namely, (net) credit and participation constraints ('child(ren) aged under 7' and 'child(ren) aged 7–13' are the pertinent proxies), behave according to expectations. First of all, the well-established fact that migration entails certain 'setup' costs (transportation, food, accommodation, and so on) and that the poorest are less able to finance these overheads lends further support to our 'human capital' story, in that the better educated households are unlikely to be the poorest.[76] Equally reasonable is the finding concerning the participation constraint. Both proxies of the participation constraint (the two 'children' variables) are significant and with the predicted, positive sign in the migration and local wage employment regressions (columns 1–4), suggesting that work in the off-farm sector in general—regardless of whether it involved long-distance

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[76] Rozelle et al., 'Leaving China's farms', pp. 388–9.

commuting—was largely confined to families unconstrained by childcare and/or domestic responsibilities.

<div align="center">V</div>

By drawing upon a unique farm survey conducted in a prosperous Chinese county (Wuxi) in the Lower Yangzi region in the 1930s, we show, first of all, that there was indeed a 'vent' available for farm workers in Wuxi to seek employment and income opportunities not available in the local economy. Secondly, we show that, as the more educated were drawn into long-distance off-farm employment, a slack in farming was created, and it attracted those from the lower-wage areas to take up the slack. The overall result of these migration processes was the creation of a hierarchy of labour markets and accordingly the deepening of specialization based on education and skills.

Underlying these two important economic processes were the crucial links between education, migration, and income, which cogently undermine the view that deficiency in land is a sufficient cause of poverty. Empirical evidence shows that not only could a land-deficient household (but with adequate labour) rent more land; those with more capable members might even have chosen to leave the farms behind for better earnings. Only where a household lacked both land and labour was it more likely to have been confronted with poverty.

Our analysis also refutes the view that sees migration in 1930s China as the result of a reluctant decision forced upon families by land scarcity. Not only do we find that education fulfilled the useful function of 'allocating' villagers among a variety of employment and income opportunities, there is no evidence to support the alleged relationship between the scarcity of land and (forced) migration.

Regardless of why people moved, the existence of not just off-farm migrant employment but also of land rental opportunities for the farm workers in Wuxi provides compelling evidence of the benign effect of commercialization on the surrounding rural economies, where the employment effects of this distinct economic process were felt most strongly. It is well documented that the industrialization process spearheaded in Shanghai provided off-farm employment opportunities to rural people on a scale unprecedented in the history of China. Indeed, the massive migration that has taken place in China since the mid-1980s hints at the possibility that this strikingly similar historical process in 1930s China, if uninterrupted by wars and political upheavals, might have continued unabated and accordingly sustained China's development process. However, this is not the same as to suggest that there was nothing peculiar about, or inherent in, China's embedded institutions or economic processes—peculiarities with the potential effect of preventing this ancient civilization from real economic growth. Whether or not China would have fundamentally 'transformed' itself to the extent of experiencing an industrial revolution similar to that of its western European counterparts is a much bigger question, which we cannot answer here. Moreover, our rather upbeat assessment of the Chinese farm economy notwithstanding, we remain cautious on the grounds that the kind of processes that we have witnessed in the Lower Yangzi region may well be an exception rather than the rule in terms of China as a whole. Much more remains to be done to further our understanding of the economic and social processes and conditions of China in the critical period

from the time of the Opium Wars to the establishment of the People's Republic; in the spirit of Feuerwerker's suggestion,[77] this work merely marks a step forward in making conscious use of previously untapped survey data towards achieving that important goal.

The Hong Kong University of Science and Technology
People's University of China

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[77] Feuerwerker, 'Old question revisited', pp. 213, 215–16.

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APPENDIX I: VARIABLES IN THE SSRI SURVEY

Population (in residence)		Pawn-in land, of which:	*Mu*	Silkworm (autumn)	Sheet
Male	Person	Arable land	*Mu*	Silkworm output (autumn)	Catty
Female	Person	Pawn-out land: of which	*Mu*	Silkworm output value	Catty
Male labour force	Person	farmland	*Mu*	(autumn, in husked rice)	
Female labour force	Person	*Rent-in land*		Sales of hog (in husked rice)	Catty
Productive labour force	Person	Rent (mu) paid in grain	*Mu*	Sales of sheep (in husked	Catty
Annual births	Person	Rent paid in husked rice	Catty	rice)	
Annual deaths	Person	Rent paid in wheat	Catty	Sales of other animals (in	Catty
Occupation: full-time		Rent (mu) paid in cash	*Mu*	husked rice)	
Peasant	Person	Cash rent (in terms of	Catty	Income received from hiring	Catty
Handicraftsman	Person	husked rice)		out labour (in husked rice)	
Factory worker	Person	*Rent-out land*		*Other subsidiary incomes*	
Teacher	Person	Rent (mu) paid in grain	*Mu*	Commercial handicrafts (in	Catty
Medical doctor	Person	Rent paid in husked rice	Catty	husked rice)	
Freelance worker	Person	Rent paid in wheat	Catty	Independent artisan (in	Catty
Petty trader	Person	Rent (mu) paid in cash	*Mu*	husked rice)	
Owner of industrial and	Person	Cash rent (in terms of	Catty	Teaching and medical	Catty
commercial concerns		husked rice)		practitioner (in husked	
'Revolutionary' cadre	Person	*Operated holdings, of which:*		rice)	
Others	Person	Rice paddy	*Mu*	Commerce/trading (in	Catty
Occupation: part-time		Total output (husked rice)	Catty	husked rice)	
Handicraftsman	Person	Wheatfield	*Mu*	Transport (in husked rice)	Catty
Petty trader	Person	Total output	Catty	Other (in husked rice)	Catty
Other	Person	Mulberry, of which:	*Mu*	Remittances (in husked rice)	Catty
Education		Harvested area	*Mu*	Proceeds from sales of	Catty
Children aged between 7 and	Person	Total output (mulberry leaves)	Catty	personal properties (in	
13: those receiving		Orchards	*Mu*	husked rice)	
schooling	Person	Total output (fruits)	Catty	Other income sources (in	Catty
Resident member aged 14	Person	Soybeans	*Mu*	husked rice), of which:	
and above, of which:		Total output	Catty	Income from 'exploitation'	Catty
Illiterate	Person	Others	*Mu*	(in husked rice)	
Junior primary	Person	Total output	Catty	Total income (in husked	Catty
Senior primary	Person	*Hire-in agricultural labour: of*		rice)	
Junior secondary	Person	*which*		Total (husked) rice output	Catty
Senior secondary	Person	Long-term labour	Person	Total wheat output	Catty
University level	Person	Wages (husked rice)	Catty	Total rents received (in	Catty
Population (not in residence)		Casual (day) labour	Days	husked rice)	
Male	Person	Casual labour wage (husked	Catty	Total rents received (in	Catty
Female	Person	rice)		wheat)	
Male labour force	Person	*Hire-in agricultural labour: of*		Purchase of husked rice	Catty
Female labour force	Person	*which*		Purchase of wheat	Catty
Occupation		Long-term labour	Person	Sales of husked rice	Catty
Peasant	Person	Wages (husked rice)	Catty	Sales of wheat	Catty
Handicraftsman	Person	Casual (day) labour	Person	Tax remittance (in husked	Catty
Factory worker	Person	Casual labour wage (husked	Catty	rice)	
Teacher	Person	rice)		Tax remittance (in wheat)	Catty
Medical doctor	Person	Houses (Number of rooms)	Number	Rental payment (in husked	Catty
Freelance worker	Person	Ox, horse, and mule	Number	rice)	
Petty trader	Person	Hog	Number	Rental payment (in wheat)	Catty
Owner of industrial and	Person	Sheep	Number	(Husked) rice consumption	Catty
commercial concerns		Rabbit	Number	Wheat consumption	Catty
Shop attendant/sales clerk	Person	Water pump	Number	Year-end accumulated	Catty
Military and political	Person	Watermill	Number	lending (in husked rice), of	
Personnel		Traditional plough	Number	which:	
Domestic helper	Person	Thresher	Number	Cash loans (in husked rice)	Catty
Others	Person	Boat	Number	*Source of loan from:*	
Education		Silkworm feeding tray	Number	Landlord (in husked rice)	Catty
Children aged between 7 and	Person	Silkworm terrace	Number	Bank (in husked rice)	Catty
13: those receiving		Traditional harrow	Number	Pawn shop (in husked rice)	Catty
schooling	Person	Weaving machine	Number	Underground lenders (in	Catty
Resident member aged 14	Person	Fish net	Number	husked rice)	
and above, of which:		Others	Number	Owner of commercial and	Catty
Illiterate	Person	Crop income (husked rice)	Catty	industrial concern (in	
Junior primary	Person	Silkworm (spring)	Sheet	husked rice)	
Senior primary	Person	Silkworm output (spring)	Catty	Informal credit cooperatives	Catty
Junior secondary	Person	Silkworm output value	Catty	(in husked rice)	
Senior secondary	Person	(spring, in husked rice)		Others (in husked rice)	Catty
University	Person	Silkworm (summer)	Sheet	Total interest payment (in	Catty
Amount of land owned, of		Silkworm output (summer)	Catty	husked rice)	
which:		Silkworm output value	Catty		
Arable land	*Mu*	(summer, in husked rice)			

Source: SSRI survey data (see n. 12).

APPENDIX II: HOUSEHOLD EDUCATION INDICES

Average household education index (AHEI): This index is a weighted average of educational attainments of individual household members based on the specific category of education—ranging from illiterate to university education—that the member received. In its construction, we assign a value of zero to those who had not received any education (that is, who were illiterate), a value of 1 to those who had received three years of primary education, 2 to whose with six years of primary education, 3 to those with three years of secondary education, 4 to those with six years of secondary education, and 5 to those with a university education. For each household, we multiply the number of members by the sum of the assigned value to obtain an 'index' of educational attainment. To 'normalize' the effect of (varying) household size on (household) educational attainment, we then divide this total index by household size to obtain a 'weighted' sum. AHEI can be summarized using the following expression:

$$\text{AHEI} = \frac{\sum_{i=0}^{5} i \times n_i}{\sum_{i=0}^{5} n_i}. \tag{1}$$

For example, a household of four members, two of whom had received three years of secondary education and two of whom were illiterate, would be assigned a score of 1.5 ($[3 \times 2 + 0 \times 2] \div 4$).

Total average household education index (TAHEI): The construction of this index follows basically the same procedure as described for AHEI, except that here we are using total household size, including the migrant members. We employ this index in the migration regression as it also includes those members who did not reside in the village because of their occupational status.