
Women's Contributions to the Household Economy in Pre-1949 China: Evidence from the Lower Yangzi Region

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James Kai-sing Kung¹ and Daniel Yiu-fai Lee¹

Abstract

The economic role of women in pre-1949 China has been the subject of an ongoing debate. Farm surveys conducted in the highly commercialized region of the Lower Yangzi in the early to mid-twentieth century show that the value of women's overall economic contribution was very similar to men's. In particular, while a gendered division of labor existed, it was likely more notable within sericulture rather than between sericulture (in which women were supposed to specialize) and farming (predominantly a man's job). Moreover, although men were overrepresented in local wage employment both on and off the farm, the comparatively low economic returns to these activities suggest that economic considerations rather than cultural preferences were the primary reason behind this gendered specialization. Equally important, although outnumbered by men, women were able to migrate and, conditional on employment in this better remunerated sector, they contributed equally to remittance income.

Keywords

gendered division of labor, women's economic contribution, remittance income, Lower Yangzi

¹Hong Kong University of Science and Technology, Kowloon, Hong Kong

Corresponding Author:

James Kai-sing Kung, Division of Social Science, Hong Kong University of Science and Technology, Clear Water Bay, Kowloon, Hong Kong
Email: sojk@ust.hk

The gender issue has long occupied an important yet controversial place in the study of China's social and economic history. The extent to which women contributed to household economic welfare, the manner in which they contributed, and, as a corollary, the consequences of their economic role on their social status are among some of the key questions that have been much debated but for which a consensus remains lacking (see Hershatter, 2004, for a summary). For instance, although women were found to have been substantially involved in a wide gamut of productive activities ranging from skilled embroidery to unskilled farm work (see, e.g., Bray, 1997; Mann, 1997), there remains a dearth of quantitative evidence to bear on the actual extent of their economic contribution. The most comprehensive country-wide data come from John Lossing Buck's (1937) monumental farm survey, conducted among tens of thousands of farm households in 17 provinces between 1929 and 1933. The Buck survey found that women supplied only 20% of total farm labor input, mostly as unpaid labor during agricultural peak seasons (Buck, 1937), although the survey also showed that the actual magnitude of women's contribution tended to vary across space and depended on such crucial factors as the intensity of cropping, types of crops, levels of income, the degree of commercialization, and so on (Johnson, Parish, and Lin, 1987).¹ Whether this apparent lack of input in farming was adequately offset by their contribution to household production is less clear.²

An equally, if not more, important issue concerns the extent to which women worked outside the home—especially in nonagricultural wage employment based on the marginal product rule—an issue that bears greatly on the (differing) economic returns, and hence the (differing) welfare, of the sexes (Bell, 1999), as well as on the question of labor productivity in China's overall economic development (Huang, 1985, 1990, 2002; Pomeranz, 2000, 2003).³

Using unique household data available for the highly commercialized county of Wuxi in the Lower Yangzi region for 1929, Bell (1999) shows that, with their (silkworm raising) work confined basically to inside the household, women's labor productivity, as measured in terms of income per day, was substantially lower than men's.⁴ While this was undoubtedly a rational strategy employed by those farm households eager to supplement their meager farm income (Bell, 1992), women's disproportionate engagement in sericulture was seen as primarily the result of their low opportunity costs, as they were unable to find more profitable employment in the male-dominated wage labor market, or other household sideline activities such as cotton weaving (see also Huang, 1990).⁵ In other words, the observed division of labor within farm household was arguably premised less on the comparative advantage between men and women ("men farm, women weave") than it was

a patterned outcome of a cultural constraint that systematically discouraged women from working outside their homes (Huang, 1990).⁶

Utilizing the same unique survey of Wuxi,⁷ this article constructs a more comprehensive data set in order to refine and specify precisely the contribution of women's work to farm household incomes in this highly commercialized region of China before 1949. This involves not merely ascertaining women's overall contributions to household income but also specifying the exact economic activities through which they contributed. In doing so, we hope to specify the precise ways in which the older values and assumptions embedded in Chinese society about the meanings of women's work were breaking down in the face of China's integration into the world economy.

Our present study has resulted in four major findings. First, women's contributions to total household income were not significantly different from men's. More specifically, women also worked the farms and contributed to this primary income source even in this highly commercialized region of China in the 1930s. Second, while a gendered division of labor existed, it was likely more notable *within* sericulture rather than between sericulture and farming ("men farm, women weave"), in that the men were likely responsible for mulberry cultivation and women for silkworm raising. Third, while men were overrepresented in the wage labor market, the returns to these activities were not, suggesting that economic considerations rather than cultural preferences were the primary reason behind this gendered specialization in Wuxi during this time period. Finally, but not least, we also find that women were, like men, engaged in migration-related employment, which remunerated better than the male-dominated local wage work. Since the propensity to migrate was correlated positively with education, the gender issue was in fact largely a "human capital" issue. Together, these findings suggest that the reality concerning women's role in economic development in China before 1949 was a complex, variegated one. Before more concrete evidence becomes available, however, we treat our findings as preliminary and as a modest claim toward understanding the economic organization of farm families and more specifically the economic role of women in China's advanced region prior to 1949.

This article is organized as follows. We begin with a brief description of the Wuxi data set, followed by empirical analysis in the next section, in which the contributions of both men and women to total household income are estimated. The economic role of women in agriculture—specifically the cultivation of rice, wheat, and mulberry—is the subject of the third section, whereas the fourth examines women's specific role in sericulture. In the penultimate section, we look into women's possible contributions to household income in the form of remittance earnings against the relatively high economic

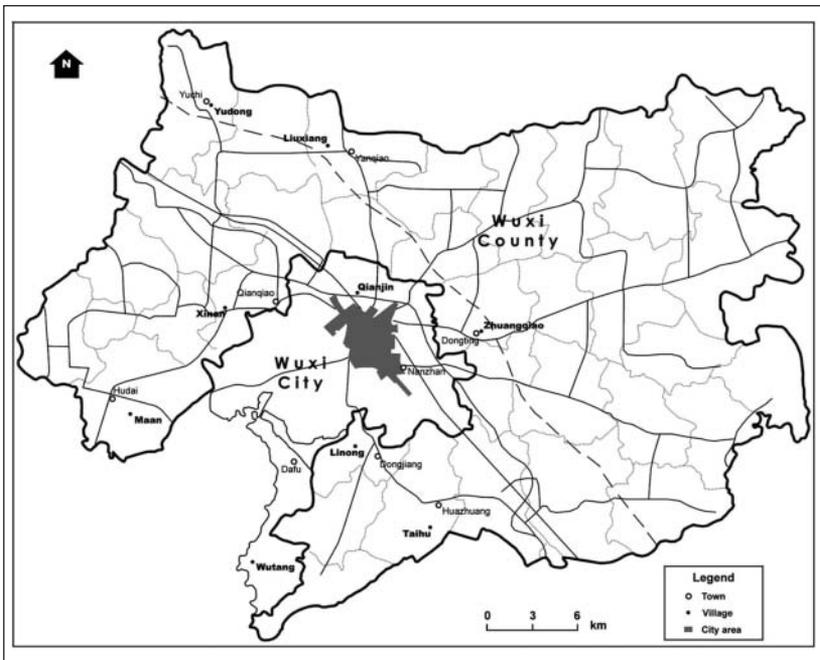


Figure 1. Wuxi villages surveyed by the Social Science Research Institute

returns to migration in the 1930s. A short summary in the final section concludes the study.

The Data and Nature of the Wuxi Economy

In this article, we rely on a high-quality household data set based on a two-part farm survey of nine representative villages in Wuxi county (Figure 1) conducted by China’s Social Science Research Institute (SSRI) in 1929 and 1958—the latter a retrospective survey that basically asked the same questions as in 1929 but for the years 1936 and 1948 (Guoli zhongyang yanjiuyuan, 1929 and 1958).⁸ These two time points were chosen presumably because the former represents the last year prior to the Japanese invasion, whereas the latter marks the recovery in Wuxi county from decade-long warfare, including China’s own civil war. A distinctive feature of this two-part survey is that all households in these villages were surveyed, for a total of 1,207 households for 1929 and 800 for the other two years.⁹ While this data set covers

only one subregion of China, that shortcoming is offset by Wuxi's highly commercialized nature during the late nineteenth and early twentieth centuries. It thus represents an extremely useful social laboratory that allows us to test the various hypotheses on the economic role of women in China during this tumultuous period. In addition, to our knowledge, this particular survey (and a similar one conducted in north China by the same investigators) is the only one that tracks and documents changes in the structure of a village economy for a period as long as two decades. The key indicators and details of the Wuxi survey are presented in Table 1.

Of the various indicators in Table 1, we want to point out some salient features that distinguished Wuxi county from the less commercially developed parts of China. The first was its small farm size. In 1929, a representative household in Wuxi owned an average of only 5.5 *mu*, or less than one acre, of arable land (1 Chinese *mu* = 1/6 acre). With an average household size of roughly 4.5 persons, per capita arable land was only a little more than one *mu* (1.2). This compares unfavorably with the nation's average of approximately 3.5 *mu* per capita (Buck, 1937: 268 and 278), not to mention the atypically abundant endowment in China's northeast frontier (of 8.67 *mu*, Benjamin and Brandt, 1995: 78). To make up for this land deficiency, many households resorted to renting in land, thereby incurring rental payments of up to nearly 10% of total household income.

Second, the miniscule farm size in the Lower Yangzi region has important implications for economic behavior in that farm households in Wuxi could not count on farming alone for their livelihood. Indeed, net crop income accounted for only a little more than half of overall household income there (e.g., 58% in 1929), compared with 86% nation-wide (Buck, 1937: 297) and 68% in the northeast (Benjamin and Brandt, 1995: 73 and 78). Two other sources of income figured prominently for the Wuxi households. One was household sideline production, in particular sericulture, which made up more than 16% of total household income in 1929, although it declined significantly thereafter in response to the decline in world prices for silk. The other was income obtained from nonfarm work or specifically local wage employment, which made up nearly 13% in 1929, and remittance income from off-farm migrant work, which accounted for almost 10% in the same year. In fact, if we combine the income obtained from sericulture, petty trade, and both types of off-farm employment, collectively they made up close to 45% of the total household income in the initial survey year of 1929. Moreover, the highly commercialized nature of the Wuxi economy can similarly be gauged from the fact that up to 41% of the rice output in 1929 in our surveyed villages was marketed—a level much higher than the national average of

Table 1. Summary Information of Wuxi's Surveyed Households 1929, 1936, and 1948

	1929		1936		1948	
	Mean	SD	Mean	SD	Mean	SD
Demographic						
Male	2.26	1.29	2.16	1.21	2.00	1.24
Female	2.35	1.42	2.24	1.33	2.17	1.32
Household size	4.61	2.15	4.40	2.01	4.17	2.02
Male laborers	1.26	0.85	1.17	0.77	1.05	0.77
Male dependents ^a	1.00	1.01	0.99	0.96	0.95	1.01
Female laborers	1.44	0.87	1.36	0.82	1.30	0.76
Female dependents ^a	0.91	0.97	0.87	0.98	0.88	0.98
Land endowments						
Owned land (<i>mu</i>)	5.5	9.6	4.5	6.9	5.6	8.1
Per capita owned land (<i>mu</i>)	1.2	1.9	1.2	3.2	1.5	3.1
Cultivated land (<i>mu</i>)	7.1	7.1	5.9	4.7	6.1	5.1
Per capita cultivated land (<i>mu</i>)	1.6	1.5	1.4	1.1	1.5	1.1
Income (catties of husked rice)						
Net crop income (%)	2,035 (58.3)	2,266	2,828 (58)	2,694	2,775 (62)	2,605
Gross crop income	2,375 (68)	2,257	3,091 (63)	2,649	2,919 (65)	2,457
Rental payment/income ^b	-340 (-9.7)	810	-263 (-5)	662	-144 (-3)	640
Household sideline (%)						
Sericulture	572 (16.4)	611	497 (10.1)	750	251 (5.6)	330
Livestock	18.7 (0.5)	28.5	17.4 (0.4)	30.1	357 (7.9)	504
Farm labor (%)						
Farm labor income	-169 (-4.8)	822	-87 (-1.8)	880	-88 (-2)	645
Farm labor expenditure	110 (3.2)	310	170 (3.5)	449	118 (2.6)	276
Teacher or medical practitioner (%)	279 (8)	746	257 (5.3)	709	206 (4.6)	545
Teacher or medical practitioner (%)	25 (0.72)	234	71 (1.5)	695	5 (0.1)	82
Family business (%)	22 (0.63)	481	49 (1)	771	45 (1)	710
Petty trade (%)	199 (5.7)	1,260	149 (3)	548	89 (2)	347
Wage employment (%)	448 (12.8)	904	848 (17)	2,205	599 (13)	1,983
Remittance (%)	342 (9.8)	1,187	535 (11)	1,700	477 (11)	1,172

(continued)

Table 1. (continued)

	1929		1936		1948	
	Mean	SD	Mean	SD	Mean	SD
Total income ^c	3,493	3,079	4,906	3,863	4,509	3,609
Per capita income ^c	844	780	1,256	1,253	1,182	996
Percentage of rice output marketed	41.1	0.25	38	0.2	29	0.2
Number of households	490		588		596	

^aDependents are defined as those family members not regarded by the survey enumerators as full laborers, principally children between the age of 7 and 13 years and the elderly.

^bNet crop income here is obtained by deducting rental payment from gross crop income.

Negative sign refers to payment.

^cIncome is expressed in terms of husked rice (in catties).

15% (Buck, 1937: 236). Against this background we turn to examine women's economic contributions to household income.

Economic Contributions to Household Income: Men and Women Compared

Empirical Strategy

In the following sections, we will examine a set of questions related to women's contributions to household income by means of a reduced form equation as in Equation (1):

$$y_{ijt} = \Gamma D_{ijt} + \Psi H_{ijt} + T_{36} + T_{48} + \varepsilon_{ijt} \quad (1)$$

In Equation (1), y_{ijt} is the dependent variable of total household income and its components (both farm and nonfarm) of household i in village j at time t , where $t = 1929, 1936,$ and 1948 .¹⁰ The first set of explanatory variables, D_{ijt} , denotes a household's demographic composition, specifically the total number of male and female members. D_{ijt} thus approximates the economic contributions of each family member to household income. In order to ascertain more precisely the specific contributions of the male and female labor force (as to be distinguished from "dependent" family members), we further decompose D_{ijt} into the number of laborers and dependent members in our computations.¹¹ To control for the effect of household endowments, we include H_{ijt} in Equation (1), which consists of variables

such as the number of both year- and day-laborers that a household hired to assist with its production, the total amount of land that it owned, and, importantly, a household's education index, used here as an indicator of a household's human capital.¹² Finally, the terms T_{36} and T_{48} are included to control for the effect on the dependent variable caused by variations in the time trend (of 1936 and 1948), and ε_{ijt} is the stochastically distributed error term.¹³ With respect to model choice, we use a village level fixed-effect model to control for any differences in the dependent variable caused by variations arising from differences in the locations of the surveyed villages.¹⁴

Regression Results

Our benchmark estimation is to measure the total contributions of men and women to household income using the number of male and female laborers in a household as key explanatory variables.¹⁵ Did women contribute directly to household income, and if so how did their contributions compare with those of men in terms of both magnitude and choice of economic activity? Was there a distinct pattern of gendered division of labor within the farm household? Results of the estimation are reported in Table 2. The primary finding is that one additional female laborer would bring about an equal amount of income as would an additional male laborer, which suggests that women's total contributions to household income were just as significant as men's (column 1). While the size of the men's coefficient is somewhat larger (582 vs. 429 catties of husked rice for women, 1 catty= 0.5 kilograms), the difference is not significant statistically (see the results of *F*-tests for equality in the bottom row of Table 2); thus we cannot reject the "null hypothesis" of men and women contributing equally to overall household income.

An equally important question is how the two sexes contributed. Did the men farm while the women wove, as the age-old adage would suggest? Specifically, were women's contributions to farm work confined mainly if not exclusively to the agricultural peak seasons, as Buck's survey suggested? Conversely, were men completely excluded from sericulture? Our estimation results show that both male and female—laborers and dependents alike—made statistically significant contributions to *both* farming and sericulture. To be sure, the coefficients for male and female laborers show men making larger contributions to farm income (480 catties for men vs. 241 catties for women) and women making larger contributions to sericulture income (73 vs. 65). But we use a statistical technique (*F*-test) to ascertain if the observed differences in these two contributions are statistically significant and find that only the difference in farm income is significant (last row of

Table 2. A Comparison of the Direct Contributions to Household Income—Both Men and Women

	Dependent Variable									
	Agricultural Sources					Local Nonagricultural Sources				
	Total income ^a	Farming	Sericulture	Livestock	Farm Labor	Teacher or Medical Practitioner	Family Business	Petty Trade	Wage Employment	
Number of male laborers	582.171 ^{***} (6.48)	480.593 ^{***} (11.00)	65.059 ^{***} (3.89)	33.651 ^{***} (3.37)	62.865 ^{***} (4.41)	-46.470 ^{***} (3.32)	38.319 [*] (1.69)	26.544 (1.11)	320.034 ^{***} (5.88)	
Number of male dependents	258.006 ^{***} (3.79)	167.798 ^{***} (5.07)	28.552 ^{***} (2.25)	10.788 (1.42)	6.751 (0.62)	-16.044 (1.51)	8.666 (0.50)	2.963 (0.16)	104.736 ^{***} (2.54)	
Number of female laborers	428.504 ^{***} (4.82)	241.916 ^{***} (5.60)	73.911 ^{***} (4.46)	23.621 ^{**} (2.42)	-41.594 ^{***} (2.95)	30.917 ^{***} (2.24)	-7.993 (0.36)	44.880 [*] (1.90)	-19.004 (0.35)	
Number of female dependents	340.959 ^{***} (4.94)	191.331 ^{***} (5.70)	36.226 ^{***} (2.82)	21.611 ^{***} (2.8)	-17.974 (1.64)	11.418 (1.06)	21.311 (1.22)	10.610 (0.58)	-3.161 (0.08)	
Household average education index (resident members only)	736.269 (0.92)	69.233 (0.18)	231.358 (1.56)	28.323 (0.32)	-246.779 [*] (1.95)	1092.497 ^{***} (8.81)	-94.155 (0.47)	215.737 (1.02)	-804.979 [*] (1.67)	
Owned land	177.262 ^{***} (15.31)	201.202 ^{***} (35.72)	15.038 ^{***} (6.97)	6.485 ^{***} (5.11)	-1.405 (0.76)	-0.822 (0.46)	-1.461 (0.50)	-25.966 ^{***} (8.46)	-23.352 ^{***} (3.33)	
Oxen	-423.961 [*] (1.71)	123.044 (1.02)	-27.523 (0.60)	25.712 (0.65)	25.712 (0.65)	-0.374 (0.01)	-176.610 ^{***} (2.82)	-256.692 ^{***} (3.91)	-23.077 (0.15)	
Hogs	491.987 ^{***} (8.58)	303.378 ^{***} (10.87)	99.448 ^{***} (9.30)	-8.349 (0.92)	-8.349 (0.92)	-8.138 (0.91)	44.051 ^{***} (3.03)	-17.588 (1.16)	-1.506 (0.04)	
Year laborer	465.435 ^{***} (2.01)	461.776 ^{***} (4.09)	-60.807 (1.41)	-31.271 (1.22)	-1355.213 ^{***} (36.76)	-28.359 (0.79)	373.250 ^{***} (6.35)	1078.451 ^{***} (17.51)	122.747 (0.87)	
Day laborer	15.154 ^{***} (9.40)	3.276 ^{***} (4.18)	1.800 ^{***} (5.99)	0.490 ^{***} (2.73)	-8.365 ^{***} (32.66)	-0.090 (0.36)	0.024 (0.06)	1.068 ^{***} (2.50)	18.246 ^{***} (18.67)	

(continued)

Table 2. (continued)

	Dependent Variable									
	Agricultural Sources					Local Nonagricultural Sources				
	Total income ^a	Farming	Sericulture	Livestock	Farm Labor	Teacher or Medical Practitioner	Family Business	Petty Trade	Wage Employment	
Year 1936	1694.091 ^{***} (10.14)	1144.151 ^{***} (14.08)	-42.547 (1.37)	16.696 (0.89)	-12.195 (0.46)	25.016 (0.96)	36.873 (0.87)	-43.672 (0.99)	437.399 ^{***} (4.32)	
Year 1948	-381.866 ^{**} (2.36)	-219.282 ^{***} (2.78)	-238.909 ^{***} (7.92)	333.683 ^{***} (18.42)	-11.930 (0.46)	-99.125 ^{***} (3.93)	11.995 (0.29)	-13.496 (0.31)	-73.177 (0.75)	
Constant	-168.391 (0.85)	-778.179 ^{***} (8.04)	108.114 ^{***} (2.91)	-134.104 ^{***} (6.02)	164.366 ^{***} (5.20)	5.656 (0.18)	-88.980 ^{**} (1.77)	130.049 ^{***} (2.46)	-215.445 [*] (1.79)	
Observations	1,565	1,565	1,565	1,565	1,565	1,565	1,565	1,565	1,565	
R ²	.48	.74	.30	.36	.72	.06	.05	.17	.21	
F-tests for equality between male and female laborers	1.23	12.49	0.12	0.42	22.45	12.83	1.74	0.25	16.24	
Significance level	.269	.0004	.733	.519	.0001	.0004	.188	.619	.001	

Note. Absolute value of t-statistics are given in parentheses.
^aTotal income is expressed in terms of husked rice in catties.
^{*}significant at 10%; ^{**}significant at 5%; ^{***}significant at 1%.

Table 2). In other words, there is no significant difference in contributions to sericulture income between women and men. The same is found to be the case with livestock income.

Although women's contribution to farm income was less than men's in magnitude, they did work the farm. Our third major finding is that there existed a discernable division of labor between men and women in other respects. Men, but not women, contributed to household income through local wage employment (such as brick and tile makers and boat tenders, for instance, as opposed to factory workers and sales clerks in department stores in Shanghai, as was the case for migrant, nonlocal wage employment) and farm wage labor (both at the 1% level of statistical significance), as well as through family business (10%). Conversely, women contributed more than men to household income through the teaching and medical professions (at the 5% level of statistical significance).¹⁶

Whether or not this pattern of gendered division of labor possibly reflected a culturally embedded bias against employing women in the marketplace or perhaps a cultural and economic preference for women to work at home so that they can simultaneously perform housework and care for the children and the elderly is not easy to ascertain. What is revealing, though, is the negative (and significant) relationship between the two types of local wage employment in which men appeared to have a comparative advantage over women, on the one hand, and education, a proxy of human capital and accordingly earnings ability, on the other. This finding suggests that there was likely an economic rationale behind women's underrepresentation in local wage employment. For instance, while it is certainly the case that residential requirements for long-term farm laborers screened out women from this kind of employment, but with average per capita income 20% lower than the mean, it could attract only those who lacked better employment and income alternatives (Kung, Bai, and Lee, forthcoming).¹⁷

We now turn to discuss briefly the contributions of the other pertinent variables—especially landholdings and the hiring of labor—to household incomes. As expected, total owned land correlates positively with total household income, but also with income from farming and household sideline activities, most notably sericulture, and negatively with virtually all nonfarm activities such as petty trade and wage employment. The negative correlation between the latter and land endowment suggests that the lack of land was most likely the primary reason for households to engage in these two low-paying activities.

Turning to the hiring of labor, although the effect of both year and casual farm labor on income is both positive and significant, the results suggest that each may actually have served rather different purposes. For instance, while farm income increases with the hiring of year labor, it is casual labor that

contributes positively to sericulture income—presumably because it helps release the male household members from performing the time-critical tasks of sericulture during the agricultural peak seasons. The fact that year labor also contributes to incomes associated with family business operations and petty trade suggests that this type of labor was probably hired to help not just with farm work (which is highly seasonal in nature), but also with myriad other nonfarm economic activities. In any case, what seems clear is that the farm labor market served an important allocation function by providing those households with a comparative advantage in off-farm economic activities so that they may specialize away from agriculture.

As a digression, it is interesting to note that farm households in the surveyed villages hired in more laborers than they hired out (Table 1), which, if true, suggests that these households were providing employment opportunities to those from presumably even poorer villages such as those in the northern part of Jiangsu province or Subei, as it is commonly known (Kung, Bai, and Lee, forthcoming). Another interesting point is that while total household income in 1936 increased over 1929, the increase was statistically significant only for farming and local wage employment. As the economy suffered a near decade-long disruption after 1937, across-the-board income fell, as revealed by the negative coefficient of the 1948 year variable.

Women's Role in Agriculture

Although women contributed as much as men did to overall income, it would be interesting to find out how exactly they contributed. Did they contribute as much as the men in rice and wheat cultivation, and did they cultivate mulberry fields? In short, what was the gendered division of labor in agriculture in the Wuxi farm families? Based on the local practice of intercropping one crop each of rice and (winter) wheat (which accounted for more than 80% of the sown acreage) with mulberry (which occupied about 20% of the sown acreage, see the appendix), we can estimate the respective contributions of men and women laborers and other family members to total output of these three crops using a reduced form equation similar to that of Equation (1).

Table 3 presents the pertinent results. First, both male and female laborers contributed to the production of rice and wheat, although contributions of the male laborers were far more substantial than those of their female counterparts—77% larger in the case of rice and 69% larger in the case of wheat, and the difference is statistically significant.¹⁸ Li Bozhong (1998: 143) has argued, in his historical survey of the Jiangnan economy, that in the sericulture area at least, women began to shift almost completely out of farming as early as the late Ming to the mid-Qing. The SSRI survey results suggest

Table 3. A Comparison of Men's and Women's Contributions to Agricultural (Rice, Wheat, and Mulberry) Production

Dependent Variable	Output ^a		
	Rice	Wheat	Mulberry
Number of male laborers	466.612*** (12.31)	119.301*** (8.85)	53.189** (2.12)
Number of male dependents	124.431*** (4.33)	21.778** (2.13)	56.016*** (2.94)
Number of female laborers	263.452*** (7.03)	70.445*** (5.28)	85.977*** (3.46)
Number of female dependents	168.947*** (5.80)	54.966*** (5.31)	45.386** (2.35)
Household average education index (resident members only)	78.280 (0.23)	69.612 (0.58)	502.611** (2.25)
Owned land	74.034*** (15.15)	12.157*** (7.00)	39.086*** (12.06)
Oxen	606.029*** (5.80)	-22.802 (0.61)	-171.096** (2.47)
Hogs	201.876*** (8.34)	72.885*** (8.47)	229.676*** (14.30)
Year laborer	671.402*** (6.85)	115.432*** (3.31)	-142.413** (2.19)
Day laborer	2.995*** (4.40)	0.937*** (3.87)	2.403*** (5.32)
Year 1936	178.846** (2.54)	36.623 (1.46)	-176.724*** (3.78)
Year 1948	-54.902 (0.80)	10.216 (0.42)	-257.263*** (5.68)
Constant	-206.896** (2.46)	-61.126** (2.05)	308.250*** (5.53)
Observations	1,565	1,565	1,565
R ²	.56	.32	.40
F-tests for equality between male and female laborers	12.02	5.5	0.71
Significance level	.0005	.0192	.399

Note. Absolute value of t-statistics are given in parentheses.

^aTotal output is expressed in catties of the actual crop.

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

that women, in fact, still contributed significantly to farm income in the 1930s, at a time when farm size had shrunk further from the ten mu norm in High Qing times to only a little more than five mu.

The finding that women continued to contribute substantially to rice–wheat cultivation has an important implication concerning women’s economic role in China’s pre-1949 village economy. In Wuxi, after 1929, farm households reallocated their resources—both land and labor—away from sericulture to rice and wheat crops in response to falling silk and cocoon prices (see, e.g., Zhang, 2002), but in the light of their contributions to farming, women’s direct contributions to the household farm economy were likely to have remained substantial.

A second interesting finding is that the contributions of men and women to mulberry output are both significant, with the contributions from women being 62% higher than the men’s. Although the female coefficient is larger in this respect (and with a higher level of significance), the difference is not statistically significant, as gauged by the results of *F*-tests (bottom row of Table 3), which suggests that the contributions of men and women were in fact equal.

Turning to the remaining explanatory variables, we find that educational level has a statistically significant effect on mulberry output but not on the other two crops. Equally intriguing is the differential effect of the labor market on the various crop outputs. Whereas the effect of hiring in labor—both year and casual—increases both rice and wheat output, it reduces that of mulberry. In light of the earlier finding that the hiring in of casual labor benefited sericulture as a whole, it is likely the casual labor here was involved in other aspects of sericulture (cocoon raising) and not mulberry cultivation.

Men’s Role in Sericulture

Thanks to the rising international demand for silk on the one hand and the complete devastation of cotton spinning on the other, sericulture had replaced cotton spinning as the most popular household sideline activity in Wuxi from the late nineteenth century onward (Wu, 1995; Zhang, 2002, among others). By the early 1920s, there prevailed in Wuxi a strong notion that sericulture was far more profitable than rice and wheat farming (Bell, 1994, 1999). Indeed, survey data reveal that up to 80% of the households were engaged in sericulture in 1929, which made sericulture almost as universal as rice and wheat (Kung, Bai, and Lee, forthcoming: Table 1). Using part of the same survey data for the year 1929, Bell has similarly shown that 93 of the 96 households for which she has data “had one or more women engaged in sericulture for at least a month-long period each year” (1999: 119).¹⁹ As sericulture

Table 4. A Comparison of Men's and Women's Contributions to Sericulture

Dependent Variable	Cocoons Output	
Number of male laborers	9.186*** (3.98)	9.189*** (3.98)
Number of male dependents	4.576*** (2.62)	4.559*** (2.60)
Number of female laborers	10.649*** (4.67)	10.889*** (4.06)
Number of female dependents	4.225** (2.39)	4.224** (2.38)
Household average education index (resident members only)	37.196* (1.82)	37.168* (1.82)
Owned land	2.060*** (6.93)	2.128*** (4.29)
Oxen	-3.971 (0.62)	-3.779 (0.59)
Hogs	14.710*** (9.99)	14.702*** (9.97)
Year laborer	-8.964 (1.50)	-8.898 (1.49)
Day laborer	0.260*** (6.28)	0.260*** (6.27)
Year 1936	-7.260* (1.69)	-7.278* (1.70)
Year 1948	-22.749*** (5.47)	-22.757*** (5.47)
Interaction between female laborers and total owned land		-0.038 (0.17)
Constant	12.737** (2.49)	12.413** (2.28)
Observations	1,565	1,565
R ²	.29	.29
F-tests for equality between male and female laborers	0.17	0.20
Significance level	.682	.657

Note. Absolute value of *t*-statistics are given in parentheses.

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

was considered primarily a woman's job,²⁰ one can expect women's contributions in this regard to have been substantial and men's negligible.

Our findings suggest otherwise. Table 4 summarizes the results of the estimation of men's contributions in sericulture measured in terms of cocoon output. We present the pertinent estimates in columns 1 and 2, where 2 includes an interaction term between female laborers and land owned by a household,

the purpose of which is to control for the possible effect of wealth (of which owned land is arguably a sound proxy) on female labor supply and accordingly contributions.²¹ In light of the conventional view that silkworm raising was the province of women, it is perhaps surprising to find that men's contributions to cocoon output were in fact significant. Moreover, although the coefficient for female laborers is slightly larger than that of male laborers, the results of the *F*-tests suggest that there is no significant difference in contributions between men and women in this particular regard. Given that it was women who were responsible for silkworm care and feeding, how did men contribute in cocoon production? One conceivable possibility was that the men helped with stripping from the trees large quantities of mulberry leaves during the intensive feeding periods, when women were busy with five or six daily feedings that went on around the clock (Bell, 1999: 119–20). Thus, even though we are unable to specify in a more precise manner the respective contributions of men and women in the production of mulberry leaves and the production of cocoons—the two complementary production processes in sericulture—there most likely was a division of labor within it with men more involved in mulberry cultivation and women in cocoon raising. At any rate, it is clear that the increase in demand for silk had resulted in both men and women becoming heavily involved in this economic activity.²²

As land is required to plant mulberry trees, it is not surprising to find that land is highly significant in the estimations (strictly positive and highly significant at the 1% level). But the interaction term between female labor supply and owned land (column 2) is not, suggesting that female labor supply did not vary across households differing in landed wealth. In other words, we do not find evidence that women of the poorer or specifically land-deficient households necessarily worked harder and accordingly attained a higher productivity in terms of cocoon output.

Table 4 also reveals that sericulture production as a whole involved a family's ancillary laborers (i.e., its male and female dependents) and that as a sideline economic activity it declined over time as households responded to unfavorable price changes. Other notable findings include the positive and significant coefficient of education, but that is significant at only the 10% level. That education made some difference, however small, is perhaps attributable to the need to use more complicated techniques of refrigeration to delay incubation of eggs and the application of new forms of chemical disinfectant to kill bacteria, techniques that required some minimal understanding and skills if failures were to be avoided (Bell, 1999).

Table 5. Descriptive Statistics of Wuxi's Migrant Labor Force

	Year		
	1929	1936	1948
Total number of			
Local male laborers	611	569	626
Local female laborers	699	662	773
Migrant male laborers	133	152	281
Migrant female laborers	46	60	84
Male laborers (local male laborers + migrant male laborers)	744	721	907
Female laborers (local female laborers + migrant female laborers)	745	722	857
Percentage of male migrants in total male labor force	17.88	21.08	30.98
Percentage of female migrants in total female labor force	6.17	8.31	9.80
Percentage of female migrants in total migrant labor force	25.70	28.30	23.01
Households with no migrant laborers (%)	5.1	5	3.5
Households with male migrant laborers (%)	64.5	62.7	67.1
Households with female migrant laborers (%)	17.4	16.8	10.2
Households with both male and female migrant laborers (%)	13	15.5	19.2
Total (number of households)	138	161	255

Women's Economic Contributions Off the Farm

We have seen that women's economic contributions were not merely confined to sericulture but extended to agricultural production more generally. Despite their greater than expected economic contributions, however, women did not seem to have played as substantial an economic role off-farm, since only men took part in local wage labor employment. Was the dearth of women's participation in the local wage labor market a consequence of a deeply embedded cultural ethos that biased against the employment of women? To answer this question, it is necessary to place women's economic role in a broader context by examining not just off-farm wage employment in the nearby locales but also long-distance migration—an income alternative that

Table 6. A Comparison of Men's and Women's Contributions to Remittance Income

Dependent Variable	Remittance Income ^a		
Number of male migrants	587.601*** (12.46)	585.719*** (12.42)	587.747*** (12.45)
Number of female migrants	471.604*** (6.33)	466.044*** (6.25)	471.548*** (6.33)
Household average education index (whole sample)	1287.081*** (3.76)	1368.304*** (3.95)	1296.131*** (3.65)
Year 1936	116.898 (1.49)	109.641 (1.40)	116.636 (1.49)
Year 1948	-191.864** (2.52)	-198.985*** (2.61)	-192.198** (2.52)
Operated holdings		-8.704 (1.44)	
Owned land			-0.397 (0.09)
Constant	20.588 (0.34)	77.576 (1.08)	22.081 (0.35)
Observations	1,559	1,559	1,559
R ²	.17	.17	.17
F-tests for equality between male and female migrants	1.38	1.47	1.39
Significance level	.24	.225	.239

Note. Absolute value of *t*-statistics are given in parentheses.

^aRemittance income is expressed in catties of husked rice.

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

was made possible by, especially, the rise of Shanghai as China's largest metropolis in the early 1920s—a process that drew many in search of better job and income opportunities (Ma, 2008; Perry, 1993, among others). The massive migration to Shanghai in this period is illustrated by the fact that the population of Shanghai grew from less than half a million to over three million in the century between roughly the 1840s and 1940s.²³ The growing importance of migration to the Wuxi households is demonstrated by the fact that, while remitted earnings accounted for only 10% of overall household income (unconditional mean), households with this particular income source enjoyed an income level 50% higher than the mean per capita income—a lucrative income source that only 18% of the households in Wuxi in 1929 were able to enjoy (Kung, Bai, and Lee, forthcoming).

To ascertain whether women's economic activities were confined only to family production in the 1930s, we examine, first of all, the incidence of their participation in migration as compared with men's (Table 5), followed by an estimation of their contribution in the form of remitted earnings, which was, of course, conditional on participation (Table 6). The total number of male and

female migrant laborers and their percentage shares in the total labor force are summarized in Table 5. We find that both men and women were involved in migration,²⁴ although male participation clearly outnumbered female participation by roughly three times—34.5% in 1929 and 39.4% in 1936.²⁵ That women had a lower incidence of migration is not at all surprising in the light of China's recent migration experiences, which similarly find more men than women to have engaged in this modernization process with broadly similar male–female ratios as in Wuxi in the past, although such a “gender gap” appears to be closing from the late 1990s onward (de Brauw et al., 2002).

While women did not migrate to the same extent as men, an equally important question is whether those who did made remittance contributions to their families in amounts equal to that of male migrants. Table 6 summarizes our estimates on the determinants of remittance income. Column 1 presents the baseline estimates, whereas column 2 presents estimates that include operated holdings, and column 3 owned land, to control for the possible effect of the relative importance of farming and land pressure on the propensity to migrate. The results clearly show that women's contributions in this regard were just as significant as men's—the variables of male and female migrants in all the regression models in Table 6 are all highly significant at the 1% level. Although the magnitude for men was somewhat larger, the difference is not statistically significant according to the results of the *F*-tests.

What, then, enabled some women to land these preferred employment and income opportunities? Education provides the clue. As expected, the coefficient of education is highly significant and positive, which clearly suggests that education facilitated access to migrant work opportunities. This analytical result calls into question the underlying nature of the so-called “gender bias.” The fact that the more educated women were able to participate in, and benefit from, migration suggests that women's economic welfare cannot be considered independently of education. How do we make sense of this finding? Historically, the gender bias against young girls and women leaving home and going to school was, by the 1920s in the Lower Yangzi region, on the decline—which was the first breach in the wall of seclusion that ordained that respectable women did not leave the home. Our finding is thus consistent with changing historical reality and casts doubt on Bell's (1999) conclusion that women lacked opportunities for off-farm work in the gendered labor process.²⁶

As peasants made decisions about how to allocate their labor time, total returns to the family work effort were of primary importance, especially for farms that were very small and needed to push their nonfarm income-earning activities to the maximum. As these processes unfolded

. . . the best-paying nonfarm jobs were the domain of male peasants, while women were primarily engaged in silkworm raising and a variety of much lower-paying forms of homework. [p. 125]

Finally, but not the least, the manner in which nonfarm, distant migration occurred may help to shed further light on women's contribution to the household economy in particular and the sexual division of labor more generally in the context of early-twentieth century Wuxi. Building on her earlier argument, Bell (1999: 129) further hints at the possibility that the gendered labor process—wherein “men . . . who had left were a relatively privileged group as far as migrants went . . . , (while) many women . . . had become more responsible for farm management as their men left”—was an outcome of men being “severely unemployed” because of small family holdings. Such a notion does not coalesce well with our findings, however. If male migration was indeed “pushed” by poverty or land shortage, the variable “owned land” or “operated holdings” would have been statistically significant (and exhibiting a negative relationship). But as Table 6 shows, although the coefficient of both the owned land and operated holdings variables is negative, which suggests that migration might have been the result of a “pushed” decision, the relationship is not significant statistically. This lack of the effect of “pushed” migration on the part of the Wuxi villagers implies that the men did not leave because they had too little land to farm, thereby leaving the women to take up the slack in agriculture—an image powerfully evoked in Bell's understanding of the gendered labor process. Although outnumbered by their male counterparts, we have seen that some females did leave the farms. In fact, our finding resembles closely the anthropological observation of Fei Hsiao-tung (1943: 233), who, in his classic work *Peasant Life in China*, noted how migrant workers were the envy of their village-bound peers, and how a woman's social status was elevated by having a factory job.

Conclusion

This article began with two questions. The first is whether Chinese women supplied any measurable labor input to the farm economy in pre-1949 China, and the second, conditional on an affirmative answer to the first, concerns the extent of their contributions and the mechanisms through which they contributed. This latter question has special significance not only because of its possible implications for our understanding of gender equality and women's

welfare, but also, as importantly, for our understanding of the development of the Chinese economy (or the lack thereof). While previous scholarship has greatly enhanced our understanding of the role of women in the pre-1949 economy, systematic evidence on their *specific* contributions remained scattered at best. By drawing on the SSRI Wuxi surveys, we attempt to provide a benchmark estimate of women's economic contributions, and we recapitulate the most salient findings here.

To begin with, our analysis finds that women's overall economic contributions in this highly commercialized region were not significantly different from men's, in which context it is also worth pointing out that women contributed directly to household income, rather than indirectly in the form of housework as Benjamin and Brandt (1995) have found to be the case in the northeast. Furthermore, detailing the mechanisms of women's economic contributions helps to dispel certain images about the gendered division of labor in pre-revolutionary China as captured in the oft-cited expression "the men farm and the women weave." Women were found to have engaged not just in sericulture but also to a significant measurable extent in farming as well. Second, and conversely, men were found to have engaged not just in farming, but in sericulture as well through both the cultivation of mulberry and the production of cocoons.

Compared with men, however, women's participation in the labor markets—be it on or off the farm—was evidently limited. The question of overriding significance, in this regard, is whether the distinct pattern of gendered division of labor we have thus far observed reflects any cultural preference for keeping the women at home. While admittedly we are unable to answer this question satisfactorily, the relatively low returns to male-dominated activities such as the locally based wage employment and farm labor suggest that women were not substantially engaged in these jobs because they could obtain higher returns elsewhere. This was especially the case with migration, given its distinctly higher economic returns and growing importance in the early twentieth century in the Lower Yangzi region. Although men clearly outnumbered women in migration, the latter were not entirely excluded from this preferred activity choice. Furthermore, for those who were able to find a migrant job, their contributions in remittance were, statistically speaking, just as significant as those of men. This analytical finding thus suggests that women's notable absence in the local wage market was more likely an outcome of a calculated, rational choice premised on a household's decision to jointly maximize income rather than the consequence of any cultural constraint deeply embedded in China's society and economy.

Appendix

Summary Statistics of the Explanatory Variables Used in the Regression Analyses

	1929		1936		1948	
	Mean	SD	Mean	SD	Mean	SD
Household endowment						
Average education ^a	0.052	0.074	0.064	0.081	0.094	0.102
Oxen	0.121	0.468	0.054	0.222	0.063	0.225
Hogs	0.904	1.576	0.765	1.231	0.872	1.163
Total operated holdings (<i>mu</i>)	7.134	7.086	5.873	4.688	6.134	5.129
Labor hired						
Year labor	0.115	0.467	0.058	0.341	0.057	0.296
Day labor	9.358	42.946	16.301	46.438	14.582	44.106
Sown acreage (<i>mu</i>)						
Mulberry (%)	19.9	0.252	16.3	0.226	11.7	0.187
Rice (%)	45.6	0.167	46.8	0.152	49.9	0.139
Wheat (%)	34.5	0.135	36.9	0.127	38.4	0.111
Sericulture						
Total output (catties)	78.80	80.68	67.36	101.46	43.11	57.13
Spring (%)	62.63 (79.4)	63.76	50.16 (74.5)	76.12	31 (71.9)	39.65
Summer (%)	5.91 (7.5)	15.13	1.22 (1.8)	6.65	0.12 (0.3)	2.14
Fall (%)	10.26 (13.1)	24.67	15.98 (23.7)	28.58	11.99 (27.8)	19.92
Total value of output (yuan)	571.80	610.86	497.14	749.68	250.78	329.91
Spring (%)	420.65 (73.6)	427.72	384.70 (77.4)	583.63	193.25 (77.1)	247.12
Summer (%)	40.65 (7.1)	103.06	8.96 (1.8)	49.70	0.76 (0.3)	13.55
Fall (%)	110.50 (19.3)	266.09	103.49 (20.8)	192.85	56.77 (22.6)	94.18
Average price of cocoons (total value of output/total output)	7.26		7.38		5.82	

^aSee Note 12 for a description of our education index.

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Notes

1. Buck's survey would thus seem to suggest that women's traditional economic role was extremely limited. Insofar as farm work was concerned, harvesting was the only activity that women were expected to do in the field. Only in double-cropped rice areas were women expected also to transplant the seedlings (Mann, 1992; see also Fei and Chang, 1945). Thus, even where women did provide non-negligible labor to farming, they were expected to work also inside the home (the so-called "inner realm"), whereas the men worked in the "outer world" (Johnson, 1983; Jacka, 1997; Rofel, 1999). A useful discussion of the relevant literature is contained in Pomeranz (2003). Schran (1969) is of the view that women had to wait until the post-1949 Communist state collectivized agriculture before their work contributions became distinctly more substantial, though such a view is questioned by Judd (1990) and Wolf (1985).
2. Using farm survey data from the northeast in the 1930s, Benjamin and Brandt (1995) argue that women's contributions were roughly the same as men's if unpaid housework was counted.
3. Unlike Bray (1997) and Mann (1997), Huang (1990) and Bell (1999), and Huang especially, emphasize the ever-increasing importance of women's participation in the peasant farm family economy in late imperial and modern times in the context of shrinking farm size during the process of *commercialization*—a term we use in this article as a catch-all characterization of such economic processes as the development of active markets (factor as well as product), an efficient transportation infrastructure (most notably railway development), and proximity to cities and ports.
4. Despite the slightly higher returns to land in sericulture, income per day for farming—presumably a man's job—was 0.72 yuan, whereas that for sericulture was a mere 0.29 yuan (Bell, 1999: 116; see also Huang, 1990: 79).
5. Referring to a different historical context, Bray (1997) sees the development of a "putting-out" system in cotton in the late Qing as having mainly the effect of forcing women to become "auxiliary workers, reelers and spinners . . . within the

context of family production; [where] [p]oor women toiled day and night to earn their bread” (p. 235).

6. This preference (of women working at home so that they could take care of domestic responsibilities and work simultaneously) was deeply embedded in traditional Chinese values and was consciously promoted by the Qing officials for tax and other purposes (see, e.g., Mann, 1997). It also, of course, was bound up with the ethos of female seclusion (no respectable women should be seen outside the home) and foot-binding.
7. Known alternatively as Liangxi, Wuxi is largely a plateau located to the north-west of Suzhou, about 128 kilometers 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 more than 2,000 hours of sunshine and 1,000 millimeters of rain) and a proportionately long no-frost period (of roughly 220 days). It also has rich alluvial soil suitable for growing a variety of crops. Despite these favorable conditions, the rise of Wuxi in the Yangzi region was only a recent phenomenon. Until the mid-Qing (the Qianlong period), Wuxi had yet to participate in cotton weaving like other counties in the same region, such as Songjiang and Taicang, did. It was only in the eighteenth century that cotton weaving began to develop in Wuxi, but even then cotton was not planted; farmers there basically still cultivated one crop of summer rice, followed by a crop of winter wheat. The massive development of sericulture in Wuxi occurred only after the 1860s and replaced cotton weaving as the main sideline production among the peasant households (see, among others, Wu, 1995: chap. 1).
8. Thus, both our data set and Bell’s (1999) are based on the SSRI survey. But there are significant differences in how we use the survey that lead us to different conclusions on certain points. First, Bell uses only data for the survey year of 1929, whereas we also use survey data from 1936 and 1948 and merge them into a panel for longitudinal analysis. Second, instead of using the entire surviving sample of questionnaires from 800 households, Bell selected only 128 households (1999: 10, 111).
9. After dropping those cases with incomplete information, the actual number of observations used in our analysis is 342 for each time-point in our panel.
10. Income was originally denominated in money terms using 1958 prices as the baseline for both 1929 and 1936 but in terms of husked rice (*caomi*) value for 1948. To allow for inter-temporal comparisons, and to avoid complications and/or inconsistencies caused by price fluctuations, we convert all money values into husked rice based on the price data of 1929 and 1936, which, respectively, were 10.80 and 7.2 dollars (yuan) per *shi*. We then sum up all the income sources obtained from the variety of economic activities enumerated in the survey, and divide the total by the family size (i.e., the number of family members residing in

the village) to obtain a reliable measure of per capita income. The aforementioned price data were collected by the survey team in 1958 from Baishuidang village, a hamlet in Dongjiang in the south-central part of Wuxi county (see Figure 1), and are now kept at the Institute of Economics of the Chinese Academy of Social Science (Zhongguo shehui kexueyuan, 1958).

11. This breakdown is feasible since each individual family member was asked whether they belonged to the “laborer” category (*laodong renkou*).
12. This index is a weighted average of educational attainments of an individual household member based on the specific category of education—ranging from illiterate to university education—that he or she received. In its construction, we assign a value of zero to those who had not received any education (i.e., illiterate), a value of 1 to those who had received three years of primary education, 2 to six years of primary education, 3 to three years of secondary education, 4 to six years of secondary education, and 5 to 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. For example, a household of four with two members having received three years of secondary education and the other two illiterate would be assigned a score of 1.5 ($[3 \times 2 + 0 \times 2] \div 4$).
13. A summary statistics of the explanatory and control variables used in the regression analyses is provided in the appendix.
14. We have also conducted estimations using a household level random-effects model and the results are broadly similar with those obtained from the village level fixed-effect estimations. We thus do not report them separately here.
15. The ideal measure of individual labor contributions is labor supply input, such as hours of days or days of week, and so forth. Unfortunately, this crucial piece of information is not available. As a compromise we use the number of laborers as proxy. While this is admittedly a crude measure, it is not an unreasonable choice. At low standards of living it is not uncommon for adult laborers to work to their fullest capacity in order to jointly maximize household income. Women’s pursuit of sericulture despite its markedly lower returns to labor represents a good case in support of this claim.
16. As there were only twelve households with members belonging to this occupational category, their importance should thus not be overblown (only two households appeared in all three surveyed years, three households appeared in two surveyed years, and seven households appeared in one surveyed year, respectively). With the exception of one household, which had a member with tertiary education, the average educational attainment of these households was basically low, suggesting that the teachers in this context were most likely providers of

- primary education. What is clear enough, though, is that most of the teachers and medical practitioners were women.
17. The traditional characterization of long-term farm laborers as “baresticks” (*guanggun*)—that is, those who could not afford to take a wife and have children—graphically reflects the low social status of this kind of wage employment (Huang, 1985: 201).
 18. Although the contributions of female labor were smaller than those of male labor, they were distinctly larger than those of the dependents, regardless of whether it was male or female. The order of these magnitudes suggests that our proxies of labor input are, though not perfect, reasonably robust.
 19. The tedious and time-consuming nature of raising silkworms is graphically described in Bell (1999: 119–120).
 20. There are myriad reasons why women were particularly well suited to perform this household sideline activity. For one, women had few if any employment opportunities in the labor market; this left them with hardly any income generating activities from which to supplement the much needed household income. Second, given that sericulture took place almost exclusively in the peasants’ homes (save for the large silk filatures), women are considered best suited to this endeavor as they could jointly raise silkworms in a place where they were required to fulfill their day-to-day familial responsibilities (Bell, 1999: 119).
 21. By doing so, we reduce the strong correlation between the amount of land owned by a household and the number of laborers (and accordingly their measured contributions to income) in that household.
 22. That both men and women contributed substantially to sericulture was likely because of the fact that the addition of sericulture to the rice-wheat cropping regime required a commensurate increase in the participation of family labor. For instance, mulberry cultivation alone raised the farm labor requirement to 32.3 days per *mu*, while adding in the spring silkworms required another 28 days for the feeding period (Huang, 1990: 54).
 23. According to Gottschang and Lary (2000), the magnitude of migration in the larger Lower Yangzi was second only to the massive migration into northeastern China.
 24. People from southern Jiangsu tended to work in jobs that required some minimal skills and literacy, such as factory workers and sales clerks in department stores in Shanghai, whereas those from northern Jiangsu more likely ended up in unskilled labor-intensive jobs such as dockyard workers, rickshaw pullers, and the like. See Goodman (1995), Liu et al. (1988), and Perry (1993).
 25. These figures are obtained by dividing the percentage of female migrants in the total female labor force by the percentage of male migrants in the total male labor force (column 1 for 1929 and column 2 for 1936).

26. Although we use essentially the same data set (constructed from the SSRI surveys), our findings and conclusion on women's off-farm economic opportunities differ radically from those of Bell (1999) for a couple of reasons. The first is that Bell analyzes only a subsample of the data set (of 128 observations) for the year 1929 (and omitted the years 1936 and 1948 altogether). Second, and more important, is that Bell performs primarily a two-dimensional cross-tabulation, whereas we use multivariate analysis—a technique that allows us to control for the effect of a host of other factors that may bear on the dependent variable or the variable to be explained. In other words, our sort of analysis is more likely to yield finer-grained results than that produced by simple cross-tabulations.

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Biographies

James Kai-sing Kung is a professor of social science at the Hong Kong University of Science and Technology. With a strong interest in the economic development and history of China, he has published in journals such as *Economic Development and Cultural Change*, *Journal of Comparative Economics*, *World Development*, *The China Journal*, *China Quarterly*, and *Modern China*, among others.

Daniel Yiu-fai Lee teaches at the Hong Kong University of Science and Technology. His research on household behavior in rural China focuses on income distribution, female labor supply, and family-planning policy. He has published in *Economic Development and Cultural Change* and *China Economic Review*.