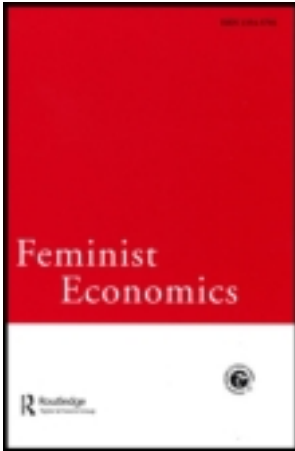


This article was downloaded by: [Institute of Geographic Sciences & Natural Resources Research]

On: 11 January 2014, At: 21:58

Publisher: Routledge

Informa Ltd Registered in England and Wales Registered Number: 1072954
Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH,
UK



Feminist Economics

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/rfec20>

Impact of the Global Financial Crisis in Rural China: Gender, Off-farm Employment, and Wages

Huayong Zhi^a, Zhurong Huang^a, Jikun Huang^a,
Scott D. Rozelle^b & Andrew D. Mason^c

^a Institute for Geographical Sciences and Natural Resources Research, Chinese Academy of Sciences, Beijing, China

^b Food Security and the Environment Program, Stanford University, 402 East Encina Hall, Stanford, California, 94305, USA

^c Poverty Reduction and Economic Management Network, World Bank, 1818 H Street, NW, Washington, DC, 20433, USA

Published online: 16 Aug 2013.

To cite this article: Huayong Zhi, Zhurong Huang, Jikun Huang, Scott D. Rozelle & Andrew D. Mason (2013) Impact of the Global Financial Crisis in Rural China: Gender, Off-farm Employment, and Wages, *Feminist Economics*, 19:3, 238-266, DOI: [10.1080/13545701.2013.809137](https://doi.org/10.1080/13545701.2013.809137)

To link to this article: <http://dx.doi.org/10.1080/13545701.2013.809137>

PLEASE SCROLL DOWN FOR ARTICLE

Taylor & Francis makes every effort to ensure the accuracy of all the information (the "Content") contained in the publications on our platform. However, Taylor & Francis, our agents, and our licensors make no representations or warranties whatsoever as to the accuracy, completeness, or suitability for any purpose of the Content. Any opinions and views expressed

in this publication are the opinions and views of the authors, and are not the views of or endorsed by Taylor & Francis. The accuracy of the Content should not be relied upon and should be independently verified with primary sources of information. Taylor and Francis shall not be liable for any losses, actions, claims, proceedings, demands, costs, expenses, damages, and other liabilities whatsoever or howsoever caused arising directly or indirectly in connection with, in relation to or arising out of the use of the Content.

This article may be used for research, teaching, and private study purposes. Any substantial or systematic reproduction, redistribution, reselling, loan, sub-licensing, systematic supply, or distribution in any form to anyone is expressly forbidden. Terms & Conditions of access and use can be found at <http://www.tandfonline.com/page/terms-and-conditions>

IMPACT OF THE GLOBAL FINANCIAL CRISIS IN RURAL CHINA: GENDER, OFF-FARM EMPLOYMENT, AND WAGES

*Huayong Zhi, Zhurong Huang, Jikun Huang, Scott D. Rozelle, and
Andrew D. Mason*

ABSTRACT

This contribution documents the effect of the global financial crisis on women's off-farm employment in China's rural labor force. It begins by comparing the difference between the actual off-farm employment rate and the off-farm employment rate under the assumption of "business as usual" (BAU – a counterfactual of what off-farm employment would have been in the absence of the crisis). The study also examines how the impact of the financial crisis hit different segments of the rural off-farm labor market. Using a primary dataset, the study found that the global financial crisis affected women workers. By April 2009, there was a 5.3 percentage point difference between off-farm employment under BAU and actual off-farm employment for women, and the monthly wages of women declined. Most of this impact affected migrant wage earners; however, the impact did not fall disproportionately on women. The recovery of women's employment was as fast as that of men's employment.

KEYWORDS

Financial crisis, off-farm employment, gender, China

JEL Codes: O53, J63, J71

INTRODUCTION

Off-farm employment has grown rapidly since China launched its economic reforms in the late 1970s and working off the farm has played an increasingly important role in China's rural economy. Earnings from the average rural worker's off-farm employment now account for 39 percent of the net income of rural households (Ministry of Agriculture of the People's Republic of China [MOA] 2009). The expansion of off-farm employment also has helped transition China's economy from one dominated by agriculture to one

focused on industry and services (Alan de Brauw, Jikun Huang, Scott Rozelle, Linxiu Zhang, and Yigang Zhang 2002).

Because of the importance of off-farm employment, it is not surprising that when the global financial crisis threatened to affect production in factories and, in turn, the number of jobs available to rural workers across China, the nation's leaders were quick to recognize that this might lead to a social, as well as an economic, crisis. Of China's more than 500 million-strong rural labor force, 265 million people are estimated to have held paid off-farm jobs in the mid 2000s (Linxiu Zhang, Xiaofei Li, Scott Rozelle, and Jikun Huang 2009). Of these, more than half left their homes to engage in paid work in the factories and in the service sector in large municipalities and along China's eastern coast (Sherry Tao Kong, Xin Meng, and Dandan Zhang 2009). What would happen if too many of China's rural laborers lost their jobs?

Many authors have begun to examine the impact of the financial crisis on workers in China. For example, Fang Cai and Kam Wing Chan (2009) analyze the impacts of the global economic crisis of 2008–09 on the job security of migrant workers. The authors estimate that 23 million workers became unemployed within the rural migrant labor force by March 2009. They also point out that there was quick recovery, suggesting it was due, in part, to the strong response from the government. Xuebin Chen and Mingdong Xu (2010) examine the direct impact of the financial crisis on international trade and show that the crisis had a substantial negative impact on China's imports and exports. Since a large share of the migrant labor force works for earnings in export-oriented factories, the crisis affected workers in this sector.

In one of the only papers that uses primary data, Jikun Huang, Huayong Zhi, Zhurong Huang, Scott Rozelle, and John Giles (2010) find that the global financial crisis had a large impact on rural off-farm employment in China. According to their estimates, by April 2009 there was a 6.8 percentage point difference between off-farm employment under a "business as usual" (BAU) scenario and actual off-farm employment. Monthly wages were also found to have declined. While 49 million people were laid off between October 2008 and April 2009 (more than 17 percent of those that had an off-farm job in September 2008), nearly half of those were re-hired in off-farm jobs by April 2009. Furthermore, among those who were laid off and did not find a new job by April 2009, most of them went back to the village and found paid work on the farm or unpaid work at home. The flexibility of China's rural economy, an economy in which almost all households have access to contracted land, made possible some form of employment for those laid off from their off-farm jobs. This helped avoid the instability that could have occurred if high unemployment rates had persisted.

While the story of what happened in China during the global financial crisis is becoming clearer, as yet, no one has examined the gender

dimensions of the crisis, despite more general concerns among scholars regarding women's employment in China. Evidence from China's recent economic transition suggests that women may have been more vulnerable than men to the types of employment shocks induced by the global crisis. Indeed, an extensive empirical literature shows that women were disproportionately affected by the dismantling of the planned economy in China during the 1980s and 1990s.

Several studies, including those by Simon Appleton, John Knight, Lina Song, and Qingjie Xia (2002), John Giles, Albert Park, and Fang Cai (2006a, 2006b), Xiao-yuan Dong, Jianchun Yang, Fenglian Du, and Sai Ding (2006), and Günseli Berik, Xiao-yuan Dong, and Gale Summerfield (2007), find that women disproportionately bore the brunt of job losses and layoffs during the period of economic restructuring, especially following large-scale labor retrenchment that took place during 1997. Older women were particularly affected (Margaret Maurer-Fazio 2006), as women were more likely than men to be subject to forced early retirement (Giles, Park, and Cai 2006a). Once out of the labor force, women exhibited longer unemployment durations and lower reemployment probabilities, due in part to weaker social networks and unequal entitlements to re-employment services (Jie-yu Liu 2007; Fenglian Du and Xiao-yuan Dong 2009).¹ And, when they did reenter the labor market, women were less likely than men to recover jobs of the same quality as before – for instance, those with benefits such as health insurance (Giles, Park, and Cai 2006a). Lastly, this economic restructuring increased gender wage gaps.

Much has changed in China's economy since the start of the economic transition and the period of economic restructuring of the late 1990s. Along with historic rates of economic growth and poverty reduction, China's economy has diversified dramatically, and so have off-farm employment opportunities for women. In fact, the recent rapid expansion of off-farm employment has brought with it a considerable narrowing in gender gaps in access to off-farm employment, particularly among younger cohorts of women (Linxiu Zhang, Alan de Brauw, and Scott Rozelle 2004; Zhang et al. 2009). In this context, we might expect women to have been disproportionately affected by the crisis in the same way that the evidence indicates they were during economic restructuring.

Analytically, there are several reasons why one would expect to see gender-differentiated impacts of the global crisis. First, to the extent that women and men workers are concentrated in different occupations and sectors – and different sectors are affected differently by a shock – one would expect to see them affected differently by the crisis. Second, employers may treat women and men differently with respect to hiring and firing. Global evidence suggests that women workers are often laid off earlier and in greater numbers than men in the wake of shocks to labor demand (World Bank 2001).² Third, the way that households adjust their labor supply

during an economic downturn can also contribute to gender-differentiated impacts of crises in the labor market. Under some circumstances, such as when men disproportionately lose their jobs, women who do not engage in paid work may try to enter the labor force in an attempt to protect their families from income or employment shocks.³ In contexts where jobs are scarce – particularly where women are seen as secondary workers – women may actually exit the labor force, ceding remaining jobs to so-called male breadwinners.⁴ Finally, the nature of government crisis-response policies (for example, safety nets and economic stimuli) can affect the gendered impact of an economic crisis.

Recent evidence from other countries in East Asia suggests that these different factors can combine to produce different gender impacts in different economic and social contexts. New analysis of the gender impacts of the 1997–98 East Asia crisis in Indonesia finds, for example, that women workers often faced higher employment and wage cuts than their male colleagues within a given firm (Mary Hallward-Driemeier, Bob Rijkers, and Andrew Waxman 2011). In aggregate, however, male workers were more adversely affected by the crisis, as differential treatment effects within firms were more than offset by the fact that male workers were disproportionately employed in the firms hardest hit by the crisis. Evidence from Cambodia highlights considerable labor market churning as a result of the global financial crisis, where destruction of jobs was followed by an even larger creation of lower-quality employment in the informal and agricultural sectors (Lucilla Bruni, Andrew D. Mason, Laura Pabon, and Carrie Turk 2011). While women workers experienced the greatest share of job losses during the crisis, they also experienced the largest share of employment gains as women joined the labor force or moved from unpaid to paid activities in an attempt to protect family income.

So, were women workers more adversely affected than men workers during the recent global financial crisis? Did women suffer layoffs (from their off-farm jobs) at higher rates than men? For those who remained employed off the farm, did the wages of women fall more or less than those of men? Given the various factors at play, these questions need to be answered empirically. We try to understand whether the global financial crisis has had a greater adverse effect on women than on men in the context of China.

To meet this general goal, we have three specific objectives. First, we document the trend in off-farm employment between 2000 and 2008 by gender. This helps us establish a BAU scenario, a counterfactual of what men and women's off-farm employment would have been in the absence of the global financial crisis. Second, we estimate the gender impacts of the financial crisis on off-farm employment by comparing the differences between the actual off-farm employment rate of men and women workers and the off-farm employment rate, by gender, under the BAU scenario. Third, we examine the profiles of those who were more likely to be negatively

affected by the crisis. In particular, we analyze whether women were more likely than men to be laid off during the crisis. Through these analyses, we aim to provide policymakers inside and outside of China with an accurate, empirically based view of the gender dimensions of the global financial crisis in China's rural labor market.

DATA

The data for this study were collected as the 2008–09 wave of a panel dataset. The dataset includes information from fifty-eight randomly selected villages in six provinces of rural China selected as representative of China's major agricultural regions. Henceforth, we call this dataset the 2008 China National Rural Survey, or 2008 CNRS dataset.⁵ To reflect accurately varying income distributions within each province, one county was selected randomly from within each income quintile for the province, as measured by the gross value of industrial output. Two villages were selected randomly within each county. The survey teams used village rosters and our own counts to choose twenty households randomly, both those with their *hukou* (residency permits) in the village and those without. A total of 1,160 households were surveyed.⁶

The data in this study focus fully on China's rural labor market. We define the rural labor market in a way that may not be the same as other parts of the world due to China's unique system of classifying all residents of the country as either "rural" or "urban." The rural classification describes citizens born in rural areas (or born to parents who were born in rural areas) and registered with a rural *hukou* (identity card). In 2008, the year of the study, the rural population was 721 million. Of this total, there were 520 million able-bodied adults in the rural labor force, a category that includes able-bodied rural adults who work full time at home without pay.⁷ We are not considering the part of the population (or labor force) that has an urban *hukou* and lives and engages in paid work in the city.

The 2008 CNRS project team gathered detailed information on a wide number of variables covering many household activities. In particular, there were several blocks of the survey that focused on recording information on off-farm employment, wages, and activities of respondents who did not have off-farm employment. Because we wanted to be able to estimate a BAU scenario, a nine-year employment history form was completed for each household member and each child of the household head. For each year between 2000 and 2008, the questionnaire tracks individuals' participation in off-farm employment, the main type of off-farm work performed, their residential location while working (within or outside the village), the location of off-farm employment, and whether the individual was self-employed or earning a wage.⁸

We divide those that are in the rural labor force into one of three employment groups: working full time on the farm for earnings; working full time in the home without pay; and working off the farm for earnings. Those working off the farm can further be broken down into three subtypes: those who work off the farm earning a wage and live at home (local wage earners); those who work off the farm earning a wage and do not live at home (migrant wage earners); and those who work in a nonfarm, self-employed firm (henceforth, the self-employed, or those who earn profits – called earnings – and are not paid a wage). It is possible that local wage earners are working part time on farm and part time off farm. In our analysis they are counted as working off farm. Most migrant wage earners do not work on farm, though some take short leaves of absence during the busy season and come home to work on farm. These individuals are counted as migrant wage earners. Although it is possible to distinguish between the local self-employed and the migrant self-employed, we do not distinguish between these two types of individuals in the study as a vast majority of the self-employed live at home. If an individual works more than ten days off farm (either as a local wage earner, migrant wage earner, or self-employed), then that individual is counted as working off farm. If an individual had more than one type of off-farm job during the year, we compare the total annual earnings from each job and categorize the individual in the group from which most earnings (wages or profits) were derived.

We also collected detailed monthly labor histories for a 24-month period. We did so for three reasons: (1) the timing of the financial crisis (which started in September 2008, that is, in the middle of the calendar year); (2) the nature of labor flows in China (which often are fluid and involve substantial job switching within any given year); and (3) the timing of the survey (which was held in May 2009, also in the middle of the calendar year). Had we only collected data on a rural individual's annual employment status, it is possible that we would have missed important employment/unemployment dynamics that occurred after the financial crisis. Therefore, enumerators also asked respondents to report their employment status month-by-month from May 2007 to April 2009. When used in conjunction with nine years of annual employment history data, these data enabled us to examine three types of trends: (1) within-year employment trends, including the trend between the onset of the financial crisis (September 2008) and the last month of our data (April 2009); (2) month-on-month changes in off-farm employment; and (3) predictions of the BAU scenario on a monthly basis for the months immediately before and immediately after the onset of the global financial crisis.

The dataset also included two other sets of variables that allow us to meet our other research objectives. For each respondent who was employed off farm in both 2008 and 2009, he/she was asked about their average monthly wages for 2008 and for 2009 (between January and April). Monthly wages

Table 1 Off-farm employment of the rural labor force in China, 2008

	Men						Women					
	Rural labor force with off-farm employment			Off-farm employment, of which:			Rural labor force with off-farm employment			Off-farm employment, of which:		
	Sample size	Estimated share	National estimate (millions) ^a	Migrant wage earners	Local wage earners	Self-employed	Sample size	Estimated share of	National estimate (millions) ^a	Migrant wage earners	Local wage earners	Self-employed
Off-farm employment	1,555	0.74	207	0.34	0.19	0.21	1,248	0.46	112	0.20	0.13	0.14
By age												
16–25	261	0.89	45	0.66	0.13	0.10	215	0.83	37	0.64	0.12	0.06
26–35	335	0.89	54	0.49	0.17	0.23	161	0.61	19	0.22	0.22	0.17
36–45	322	0.83	49	0.30	0.24	0.28	300	0.47	28	0.12	0.13	0.22
46–55	354	0.66	40	0.17	0.24	0.25	357	0.32	21	0.07	0.11	0.13
56–65	283	0.41	19	0.09	0.18	0.14	215	0.17	7	0.02	0.07	0.07
By education												
Elementary school or lower	517	0.62	58	0.22	0.18	0.21	653	0.32	42	0.10	0.09	0.12
Middle school	824	0.80	116	0.39	0.20	0.21	478	0.60	52	0.30	0.14	0.17
High school or higher	214	0.83	33	0.47	0.18	0.18	115	0.73	18	0.37	0.27	0.09

Notes:^a National level statistics for men and women in the rural labor force are from “Statistical Materials on 60 Years of China’s Agriculture.” The number is 278 million for men and 242 million for women. The total rural labor force is 520 million (men+women). The numbers in the columns are this number times the estimate of the share of the cohort members that have jobs off the farm.

Source: Authors’ own data (CNRS dataset).

included earnings from wages, bonuses, and any in-kind compensation, but excluded housing and meals. We also asked each individual about the average number of days worked for earnings each month and the average number of hours worked for earnings per day. Hence, these data allow us to track individuals' monthly wages over time.

We also collected information that would allow us to characterize the respondent's activities in the months after he/she left his/her off-farm job. During each month (between September 2008 and April 2009), the status of the respondent was recorded: working on the farm (paid or unpaid); doing work full time inside the home (though not working in agriculture and not getting paid a wage); not working but searching for a job; or not working and not searching.

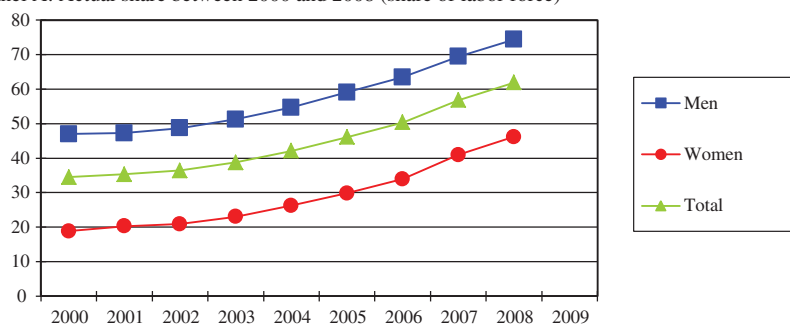
Finally, there was a section of the survey form that collected data on each family member's basic characteristics. Data were collected on characteristics such as each family member's gender, age, and educational attainment. Because we collected information on an individual basis, we are able to conduct our analysis for the labor force as a whole or disaggregated by men and women workers. Statistics for the employment rates by gender, age, and education level are included in Table 1, rows 1 to 9.

EXPANSION OF OFF-FARM EMPLOYMENT IN RURAL CHINA

Despite the rapid growth of off-farm employment between 2000 and 2008, employment trends were different for men and women, resulting in a large gender gap in participation in 2008. The share of rural men working for earnings off the farm rose 27 percentage points (from 47 to 74 percent) between 2000 and 2008 (Figure 1, Panel A). The share of women also rose 27 percentage points, albeit from a lower base (from 19 to 46 percent). In absolute number of workers (paid and unpaid), this means that there were 87 million more men and 69 million more women working for earnings off the farm in 2000 than in 2008. Thus, while the growth of women's off-farm employment was robust prior to the crisis, it still lags behind that of men.⁹

Disaggregation of off-farm employment by age cohort can help identify the differences in the off-farm employment rates of men and women. In 2008, the off-farm employment rate for young women ages 16–25 was 83 percent, only 6 percentage points lower than that of their male counterparts (89 percent – see Table 1, row 2, columns 2 and 8). As one tracks the differences between men and women in off-farm employment across age cohorts, it is clear that gender differences are due largely to the fact that off-farm employment rates are much lower for older women than for older men (rows 3–6). For example, 89 percent of men ages 26–35 worked for earnings off farm in 2008, but only 61 percent of women of this cohort worked for earnings off farm in 2008. That is, the 6 percentage point gap in off-farm employment rates between 16- to 25-year-old men and women

Panel A: Actual share between 2000 and 2008 (share of labor force)



Panel B: Actual share (solid line) and BAU share (dotted line) through April 2009 (share of labor force)

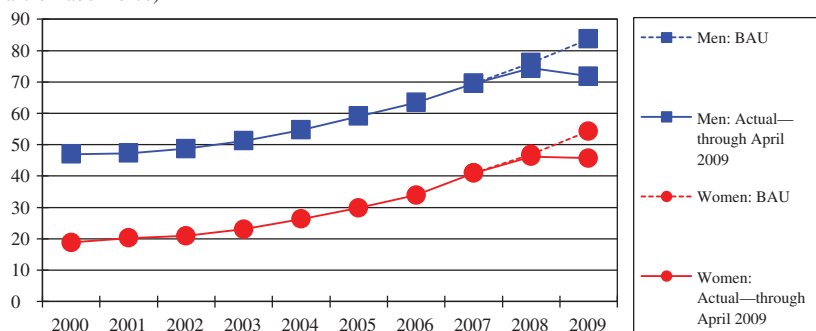


Figure 1 Shares (percentage) of rural labor force with off-farm employment in China by gender, actual and under the Business as Usual (BAU) scenario, 2000–09. Source: Authors' own data (CNRS dataset).

grows to 28 percentage points for 26- to 35-year-olds (columns 2 and 8). The gap continues to rise for older cohorts, reaching 34 percentage points (66 minus 32) for 46- to 55-year-olds (row 5).

Similar patterns of differences – between men and women – appear when looking at participation in the migrant wage-earning segment of the labor force (Table 1, columns 4 and 10). Overall, 34 percent of men and 20 percent of women live and work away from home and earn a wage. The 14 percentage point differential, however, varies dramatically among age cohorts (rows 2 to 6). For example, while the difference is only two percentage points for 16- to 25-year-olds (66 minus 64), it is 27 percentage points (18 percentage points) differences for 26- to 35-year-olds (36- to 45-year-olds).

Interestingly, although the differences in off-farm employment participation between men and women remain for local wage earners (19 and 13 percent, respectively) and the self-employed (21 and 14 percent, respectively), the gender difference across cohorts is less pronounced than in the case of migrant wage earners (see Table 1). For example, in the case

GLOBAL FINANCIAL CRISIS IN RURAL CHINA

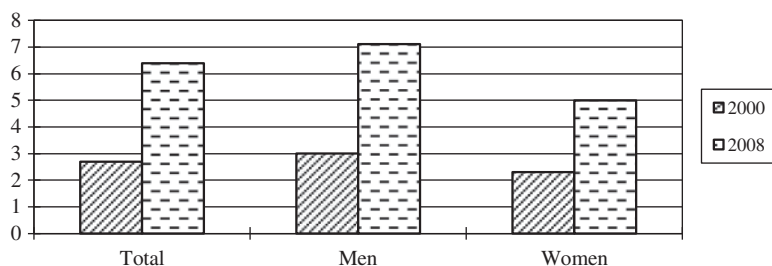


Figure 2 Hourly wages (in real 2008 yuan) of men and women, 2000 and 2008.
Source: Authors' own data (CNRS dataset).

of local wage earners, the percentage point differential between men and women never exceeds 13. In the case of 26- to 35-year-olds, it is actually higher for women (22 percent) than for men (17 percent). In the case of the self-employed, the percentage point gap never exceeds 12 (the highest is for the 46- to 55-year-old cohort) and never exceeds 12 percentage points for all other cohorts.

Similar to off-farm employment rates, wage levels – and trends – also differed for men and women between 2000 and 2008 (Figure 2). The average hourly wage for rural labor working off the farm was 2.7 yuan (in real 2008 yuan) in 2000 and increased to 6.4 yuan in 2008. When looking at this trend for men and women separately, clear differences can be observed. First, women's wages were lower than men's in 2000. In 2000, the average women's wage was 2.3 yuan/hour, about 80 percent of men's average (3 yuan/hour). Second, women's wages grew more slowly than those of men between 2000 and 2008. While men's average hourly wage increased by 137 percent during the period, women's only increased by 117 percent. Given these gender differences in wages in 2000 and the uneven growth rates that persisted subsequently, it becomes clear that the gender wage gap was greater in 2008 than it was in 2000.

In sum, on the eve of the financial crisis, women in China were active – and increasingly so – in rural off-farm labor markets. At least 63 million women (that is, 27 percent of the female labor force) found off-farm employment between 2000 and 2008. Women were active in all segments of the off-farm labor market; their participation in migration for wage earning, local wage earning, and self-employment was nontrivial. Though there were still differences between women workers and their male counterparts prior to the financial crisis, women's ability to find off-farm employment – especially among younger cohorts – was high. This progress, however, was soon to come under pressure as the world's financial system stumbled and the economic turmoil threatened employment gains of all those employed off farm – both women and men – in China's rural labor force.

GENDER IMPACTS OF THE GLOBAL FINANCIAL CRISIS

To track the impact of the global financial crisis on off-farm employment, we developed a method of predicting the counter-factual levels of off-farm employment for the two years of interest to this study: 2008 and 2009. We do so by predicting a 2008/2009 BAU scenario and comparing this scenario with what actually happened in those two years. To do this, we estimated the regression model:

$$y_t = a_0 + a_1t + a_2t^2 + e \quad (1)$$

Using eight years of data for time trends, t ($2000 \leq t \leq 2007$). In Equation 1, y_t is actual employment level for year t . We then used the estimated parameters, \hat{a}_0 , \hat{a}_1 and \hat{a}_2 (from the results of the regression in Equation 1) and predict the employment level, z_t , for year t (where z_t is the fitted value).¹⁰

These BAU scenarios were estimated for men and women separately. We generated separate predictions because we observed that the growth rates for men and women during this period were different in percentage terms (though the increase in employment for men and women was nearly the same in terms of the absolute rise in percentage points). To do this, we used past trends of employment for women and men to predict a BAU scenario for each group.

Under the assumptions embodied in our BAU scenario, Figure 1, Panel B shows the net impact of the financial crisis on China's off-farm employment in 2008 and 2009 by gender. If the 2000–07 trend in off-farm employment had continued as BAU, then the off-farm employment rate for men would have risen to 76 percent in 2008 (84 percent in 2009). Instead, in 2008 the off-farm employment rate for men slowed to 74 percent, a drop of 2 percentage points compared to the BAU scenario. In 2009, according to our estimate of the BAU scenario (and assuming that the fall in off-farm employment observed in the first four months of 2009 would continue for the rest of the year),¹¹ the off-farm employment rate for men would drop to 72 percent, 11.88 percentage points less than BAU. If the annual projections were correct, the difference between BAU and the actual, post-financial crisis off-farm employment for men would have been 34 million laborers (that is, 11.88 percent \times 290 million).

The difference between actual off-farm employment and the BAU scenario for women was smaller than that of men in terms of percentage points and absolute values, but similar in percentage term. Off-farm employment would have risen to 54 percent in 2009 under the BAU scenario. However, actual off-farm employment in 2009 is found to have dropped to 46 percent (under the assumption that the fall in the first four months of 2009 would continue for the rest of the year). The difference between the actual and BAU scenarios is, thus, about 8.6 percentage points. The actual, post financial crisis, off-farm employment for women would have

GLOBAL FINANCIAL CRISIS IN RURAL CHINA

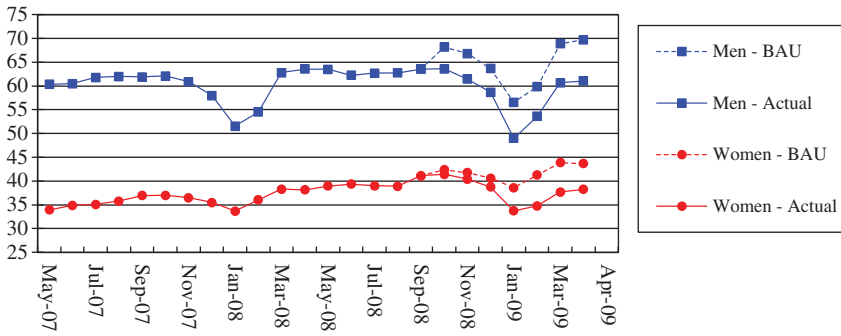


Figure 3 Monthly shares (percentage) of rural labor force with off-farm employment in China, actual (solid line) and under the BAU scenario (dotted line), by gender, May 2007 to April 2009.

Source: Authors' own data (CNRS dataset).

been 20 million laborers (that is, 8.60 percent \times 230 million) less than under the BAU scenario.

As mentioned above, analyzing monthly data may be more helpful than analyzing annual data to understand the impact of the global financial crisis on China's rural off-farm employment. Therefore, we used monthly data to predict a BAU scenario for the months following September 2008. To do this, we took the monthly employment rate (for each month between September 2008 and April 2009) and multiplied it by the growth rate (using the rate from 2007 to 2008 in the model used in the estimation of the BAU parameters) to calculate an estimated BAU monthly employment rate. The monthly BAU estimates were made separately for men and women.¹²

Using our monthly estimates, we find that the impact of the financial crisis on China's rural off-farm employment between September 2008 and April 2009 was less for both men and women than what we find using annual data (Figure 3). If China had continued according to BAU based on monthly data, then 69.7 percent of the male rural labor force would have been working off farm for earnings. Instead, as a result of the crisis, only 61 percent were actually engaging in paid work off farm.¹³ This means that by April 2009, there was a gap of 8.7 percentage points between the actual off-farm employment rate for men and that under monthly BAU scenario. For women, the actual off-farm employment rate was 38.4 percent in April 2009 while it would have been 43.7 percent under the monthly BAU, a difference of 5.3 percentage points. The gap was slightly smaller for women than for men in absolute percentage point terms, but given the relatively low off-farm employment rate for women, the difference for women in percentage terms (12.2 percent) was similar to that for men (12.5 percent).

The impact of the crisis can be illustrated more explicitly in terms of actual numbers employed. Extrapolating our data to the national level shows

that in September 2008 there were 184 million men and 95 million women working for earnings off farm in rural China. If the BAU scenario (using monthly predictions) had been realized, there would have been 202 million rural men and 101 million rural women working for earnings off farm in April 2009. (This consists of six months of off-farm employment growth, adjusted for the normal [non-crisis related] seasonal differences in off-farm employment between September 2008 and April 2009.) Because of the financial crisis, however, there were only 177 million men and 88 million women working for earnings off farm in rural China. In other words, the net impact of the financial crisis on rural off-farm employment between September 2008 and April 2009 was 25 million for men and 12 million for women.

The net impact of the crisis on employment is not equal to the number of rural workers actually laid off, however.¹⁴ This number cannot be deduced from this net gap. The gap between the monthly BAU estimates and the actual level of employment in April 2009 is affected by a number of factors. First, the gap includes those who were laid off between October 2008 and April 2009 and did not find a job (“long-term laid-off workers”). Second, there is also a class of new entrants to the labor force who, despite the financial crisis, were able to find a job between October 2008 and April 2009 (that is, they were not working for earnings in September 2008, but were working for earnings in April 2009 – henceforth, “newcomers”). Finally, the BAU prediction for April 2009 includes rural individuals who, had the financial crisis not occurred, would have entered the labor force and found a job off farm between October 2008 and April 2009, but because of the financial crisis did not (“delayed entrants”). There is another portion of workers laid off as a result of the crisis that did not affect the employment level in April 2009 – those who were laid off between October 2008 and April 2009 but found new off-farm jobs before April 2009 (henceforth, the “rehires”).

FINANCIAL CRISIS AND WAGES

The effect of the financial crisis extended beyond the issue of off-farm employment. Many of those that remained employed found that their wages fell. As noted above, wages rose in real terms between 2000 and 2008. In the months after the financial crisis, however, wages for rural workers appear to have fallen – for both men and women (Figure 4, Panel A). According to our data, the hourly wage for the typical unskilled male worker (who worked off farm in both 2008 and 2009) was 6.6 yuan in 2008. However, during the months between January and April 2009, the same average unskilled male worker was earning only 5.9 yuan per hour. Monthly wages among those workers who worked in both 2008 and 2009 thus fell by 11.1 percent between the two years. Interestingly, while the wages of women also decreased, the

GLOBAL FINANCIAL CRISIS IN RURAL CHINA

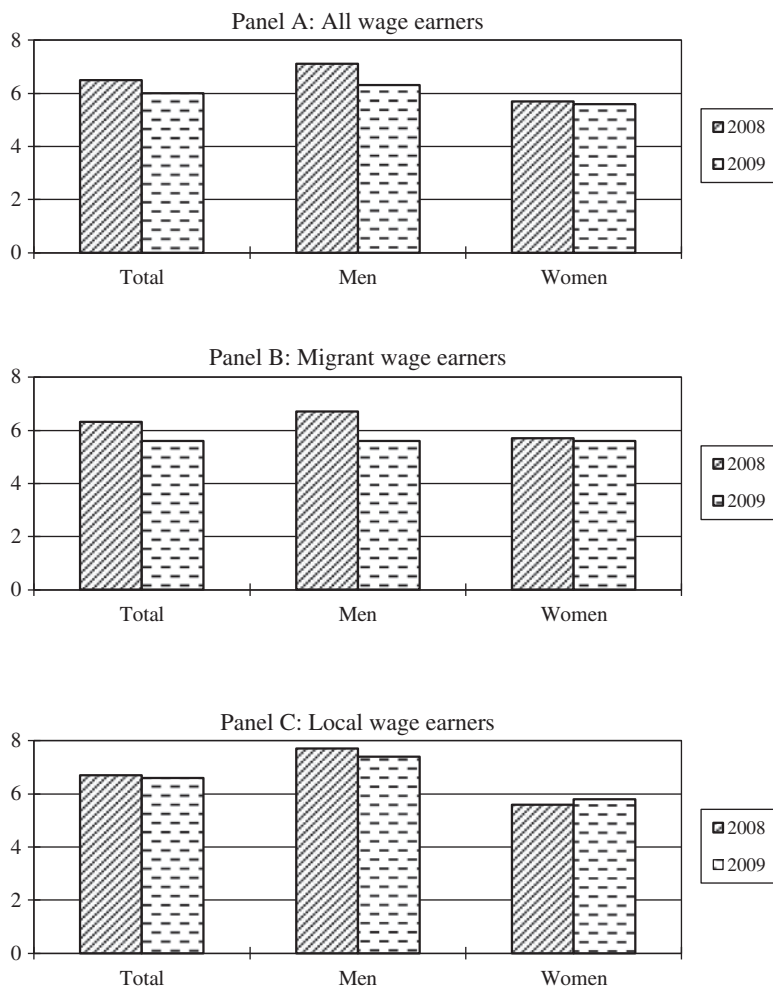


Figure 4 Hourly wages of men and women in 2008 (all year) and 2009 (January to April).

Source: Authors' own data (CNRS dataset).

magnitude (and percentage) of the decrease was not as sharp as for men. The hourly wage for the typical unskilled women worker fell from 5.8 yuan per hour in 2008 to 5.6 yuan per hour in January–April 2009, a decline of 3.6 percent.

It is difficult to pinpoint precisely why workers' wages fell. Was it due to a falling hourly wage, or a fall in the number of hours worked? Unfortunately, no data exist on the number of hours worked per month in 2008 and 2009 for the same workers who worked for earnings in both 2008 and 2009. However, when we look at the number of hours of paid work per month for those

workers for which there are data, we find no statistical difference between the precrisis and crisis periods.¹⁵

The data do show, however, that the fall in the wages is mostly driven by falling wages for migrant wage earners, not local wage earners (see Figure 4). For both men and women, the wage rate fell sharper in the case of migrant wage earners than the group overall. In contrast, the fall in wages of local wage earners was less than that for the overall wage rate. In fact, in the case of the wage for local women wage earners, the wage rate did not fall (statistically, they were the same).

ANALYSIS OF THE “LAID-OFFS”

As discussed above, this study presupposes that a worker was laid off due to the financial crisis if he/she was working for earnings in September 2008 and lost his/her job at some point between October 2008 and April 2009. We recognize that this will be an overestimate of the crisis-induced layoffs. There undoubtedly have been rural workers laid off regardless of crisis conditions. Nonetheless, the number of rural workers laid off between October 2007 and April 2008 was only a fraction (around 15 percent) of those laid off in the same months during the crisis (October 2008 and April 2009). Since 85 percent of layoffs between October 2008 and April 2009 were in response to the financial crisis, we will assume (and use language to the effect) that all of those laid off during this time lost their job due to the crisis.

To better understand the nature of those workers laid off during the crisis, we examined the level of the layoffs for men and women separately, analyzed the determinants of who was laid off and who was not, and examined laid-off men and women’s activities between October 2008 and April 2009. This helps us to estimate a real rate of unemployment for men and women about seven months after the onset of the crisis.

Layoff levels between men and women

Despite there being fewer women than men laid off in the first seven months of the global financial crisis, the number is staggering when compared to the total number of women working for earnings off farm immediately before the crisis. As for men, according to our data, 17.3 percent of the rural men who had an off-farm job in September 2008 lost it between October 2008 and April 2009 (Table 2). Bearing in mind that there were 184.2 million rural men working for earnings off farm, we can infer that 31.9 million rural men suffered layoffs after the financial crisis broke out. In the same period 17.2 million women were laid off, less than the number of laid-off men. Nonetheless, because there were relatively fewer rural women working for earnings off farm (94.7 million), this means that 18.2 percent of the rural women with off-farm jobs in September 2008 were laid off during the next

seven months. Hence, according to our data, women and men were laid off in roughly equal proportions.

Table 3 shows that men and women migrant wage earners were laid off in much higher percentages than local wage earners and the self-employed. While, by April 2009, 17 percent of all men working for earnings off the farm in September 2008 lost their jobs, wage-earning migrant men experienced, as a group, a higher proportion of layoffs at 24 percent. Wage-earning migrant women were laid off at even higher rates (30 percent). In contrast, the levels of layoffs for local wage-earning men and self-employed men were lower than the average rate of layoffs, at 14 and 9 percent, respectively. The same is true for women; only 13 percent of local wage-earning women and 6 percent of self-employed women were laid off (versus 18 percent overall).

Examining what happened to laid-off workers, we find that the number of long-term, laid-off workers and of rehires is fairly similar. This is true for both men and women. Of the 30.4 million rural men who were working for earnings off farm in September 2008 but lost their jobs within the next seven months, 16.3 million found new off-farm jobs by April 2009 – the equivalent of more than 9 percent of the men employed off farm in September 2008. The remaining 14 million men (or so) could be counted as long-term, laid-off workers, meaning that they were working off farm in September 2008 but not in April 2009. Of the 99.4 million rural women working for earnings off farm in September 2008, 8.3 percent were rehires. That is, 8.2 million rural women who lost their off-farm jobs after September 2008 had found new ones by April 2009. This means that nearly 10 million rural women were still not working for earnings off farm in April 2009, although they had been working for earnings off farm in September 2008.

Layoff determinants

This study addresses what types of workers were most likely to be laid off during the crisis; what characteristics can be associated with off-farm employment status between October 2008 and April 2009; and, in particular, whether women were more likely than men to be laid off during this period. To answer these questions, we first report descriptive statistics, then run a set of descriptive regressions.

The descriptive analysis in the previous section shows that, although there were few differences in the rates of layoffs of men and women when examining our study's sample in general, there are gender differences when looking at certain subgroups (see Table 2). When examining the younger cohorts, the share of laid-off workers was higher for women than for men. Specifically, 28 percent of women between the ages of 16 and 25 were laid off while only 23 percent of men of the same age were laid off. However, as the age of our cohorts rises, the share of women that are laid off falls. According to our data, this is true until the age 56–65 cohort, where the share is nearly

Table 2 Estimated number of rural workers in China who had an off-farm job in September 2008 and lost jobs between September 2008 and April 2009

	<i>Men</i>				<i>Women</i>			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	<i>Sample size between Sept. 2008 and April 2009</i>	<i>Estimated share of rural labor force who lost off-farm job</i>	<i>Estimated number of rural workers with off-farm job in Sept. 2008 (million)</i>	<i>National estimate – column (2) times column (3) (million)</i>	<i>Sample size between Sept. 2008 and April 2009</i>	<i>Estimated share of rural labor force who lost off-farm job</i>	<i>Estimated number of rural workers with off-farm job in Sept. 2008 (million)</i>	<i>National estimate – column (6) times column (7) (million)</i>
Off-farm employment	946	0.17	184.2	31.9	469	0.18	94.7	17.2
By age								
16–25	191	0.23	38.1	8.6	154	0.28	30.1	8.5
26–35	253	0.14	49.4	6.8	79	0.19	16.6	3.1
36–45	224	0.16	44.5	7.0	118	0.12	25.0	2.9
46–55	185	0.16	35.2	5.6	87	0.07	16.7	1.1
56–65	93	0.23	17.1	4.0	31	0.25	6.3	1.6
By education								
Elementary school or lower	256	0.19	51.2	10.0	164	0.21	35.8	7.5
Middle school	530	0.17	101.4	17.4	233	0.18	43.4	7.8
High school or higher	160	0.14	31.6	4.5	72	0.13	15.6	1.9

Source: Authors' own data (CNRS dataset).

Table 3 Share of rural workers in China who had off-farm jobs in September 2008 and lost jobs between September 2008 and April 2009, by work type

	Men			Women		
	<i>Migrant wage earners</i>	<i>Local wage earners</i>	<i>Self-employed</i>	<i>Migrant wage earners</i>	<i>Local wage earners</i>	<i>Self-employed</i>
Off-farm employment	0.24	0.14	0.09	0.30	0.13	0.06
By age						
16–25	0.24	0.16	0.18	0.32	0.19	0.11
26–35	0.18	0.09	0.08	0.25	0.14	0.18
36–45	0.30	0.15	0.02	0.30	0.09	0.02
46–55	0.23	0.12	0.14	0.21	0.09	0.00
56–65	0.44	0.26	0.09	0.60	0.27	0.15
By education						
Elementary school or lower	0.34	0.15	0.08	0.47	0.15	0.05
Middle school	0.23	0.14	0.10	0.26	0.10	0.09
High school or higher	0.18	0.12	0.06	0.17	0.13	0.00

Source: Authors' own data (CNRS dataset).

as high as in the age 16–25 cohort. For men, the laid-off share is identical for the youngest and oldest cohorts.

The share of laid-off women workers also depends on the level of education. Specifically, as education level increases, the share of laid-off workers falls. That said, as worker education increases, the laid-off share falls more rapidly for women than for men. For example, 21 percent of women with six years of education or less were laid off, while 19 percent of men with six or fewer years of education were laid off. However, the gap between the share of laid-off men and women narrows among those with middle school education. And for those with high school education or higher, the share of women laid off was slightly less than that for men (13 versus 14 percent).¹⁶

We use a probit model to estimate the probability of an individual working for earnings off farm in September 2008 to be laid off between October 2008 and April 2009. The dependent variable is a binary variable, which equals one if an individual with an off-farm job in September was laid off in the next seven months and equals zero if an individual did not lose his/her off-farm job by April 2009. In the first model, we include gender, age, and years of education as explanatory variables, where gender equals one for women and zero for men. We also include dummy variables for wage-earning migrants and the self-employed to hold the type of job constant (and the base

Table 4 Probit model estimating the determinants of being laid off between September 2008 and April 2009

<i>Dependent variable: Whether laid-off between September 2008 and April 2009 (yes = 1, no = 0)</i>								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	<i>Total</i>	<i>Migrant wage earners</i>	<i>Local wage earners</i>	<i>Self-employed</i>	<i>Total</i>	<i>Migrant wage earners</i>	<i>Local wage earners</i>	<i>Self-employed</i>
Gender (women = 1, men = 0)	0.0009 (0.023)	0.036 (0.044)	-0.024 (0.040)	-0.027 (0.027)	0.39 (0.16)***	0.44 (0.23)*	0.34 (0.33)	0.39 (0.33)
Age (years)	-0.0006 (0.0011)	-0.0006 (0.0019)	0.001 (0.002)	-0.001 (0.001)	-0.001 (0.001)	0.001 (0.002)	0.002 (0.002)	-0.0001 (0.0016)
Gender*age					-0.007 (0.002)***	-0.008 (0.004)*	-0.005 (0.004)	-0.004 (0.003)
Education (years)	-0.011 (0.003)***	-0.021 (0.006)***	-0.002 (0.006)	-0.003 (0.005)	-0.008 (0.004)*	-0.017 (0.007)**	0.002 (0.008)	0.002 (0.005)
Gender*education					-0.014 (0.007)*	-0.017 (0.014)	-0.012 (0.012)	-0.016 (0.009)*
Wage-earning (yes = 1, no = 1)	0.102 (0.029)***				0.097 (0.029)***			
Self-employed (yes = 1, no = 1)	-0.085 (0.028)***				-0.084 (0.028)***			
Province dummies included	yes	yes	yes	yes	yes	yes	yes	yes
Observations	1415	632	368	415	1415	632	368	421

Notes: Standard errors in parentheses. The number of stars represents level of statistical significance. ***, **, * denote statistical significance and the 1, 5, and 10 percent levels, respectively.

category is local wage earner). To allow for variations of the effects of age and education by men and women in the second model (which is suggested by the descriptive analysis above), we interact the variables for age and years of education with our gender variable. A set of provincial dummy variables is included in both models. Similar models are run separately for samples that contain wage-earning migrants, wage-earning local workers, and the self-employed (although in these partial sample models we do not include independent regressors as right-hand-side variables).

Results from these two probit models are consistent with the findings of the descriptive analysis. The first model demonstrates that men and women shared the same chance of being laid off (see Table 4). The results indicate that there are differences in the probability of being laid off by education level. Specifically, in the wake of the financial crisis, those with more education were less likely to lose their jobs. A subtler picture emerges in the second model, however, showing that, as a person's age increases, the probability of being laid off falls more sharply for women than for men. The same trend holds for education. As education levels of women rise, the probability that they would be laid off falls more sharply than for men. Moreover, holding all these characteristics constant, the positive and statistically significant coefficient on the gender dummy variable (women is equal to one) means that women, in general (holding age and education constant), were laid off more frequently. The regressions that are run on samples for the different segments of the off-farm labor force demonstrate that these overall off-farm employment results are being driven by migrant wage earners. In other words, *ceteris paribus*, wage-earning migrant women get laid off at higher rates than wage-earning migrant men.

Labor market determinants

Should we be surprised that both men and women are affected equally by the financial crisis? If we look at data from the economy as a whole, there are reasons to think not. According to the *China Statistical Yearbook* (National Bureau of Statistics of China [NBSC] 2008, 2010), total exports fell by 16 percent in 2009 when compared to 2008. However, the brunt of the fall in the volume of exports was borne by the manufacturing sector, in general, and the chemical (21.8 percent decrease), textile (29.6 percent decrease), and machinery subsectors (18.3 percent decrease), in particular. The fall in exports affected the domestic economy as can be seen in the fact that the growth rate of manufacturing was lower than the growth rates of the service sector and construction in 2009. This, of course, affects the overall demand for labor.

So how would these circumstances affect the relative employment of men and women? National statistics show that the share of men and women in the manufacturing sector was almost the same in both 2007 and 2009 (at

approximately 20 percent for both men and women [NBSC 2008, 2010]). Hence, since there were equal numbers of men and women in the sectors that were hardest hit by the financial crisis (that is, export-oriented sectors), it is not surprising that both women and men were more or less equally affected.

Long-term laid-off workers: Where did they go?

Figure 5 tracks the activities of long-term laid-off workers between October 2008 and April 2009 by gender. These two graphs show how the activities of long-term laid-off men and women evolved as they went from the state

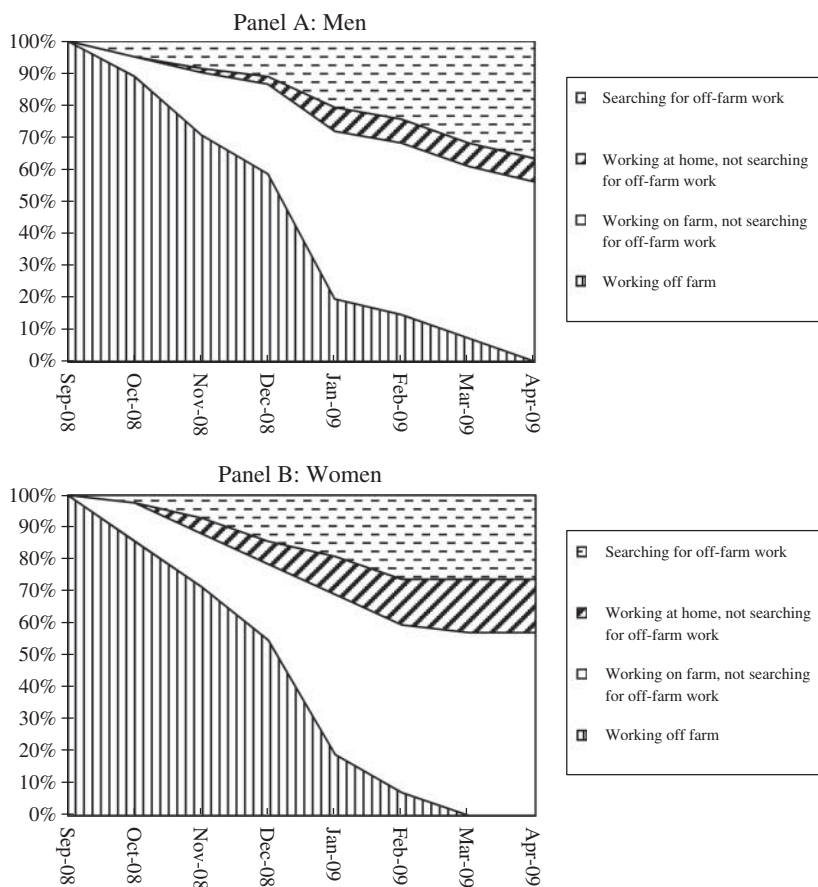


Figure 5 Tracking the employment/job-search status of rural off-farm workers who became long-term layoffs (that is lost their off-farm jobs and did not find another one) after global financial crisis, September 2008 to April 2009 in China.

Source: Authors' own data (CNRS dataset).

of being employed in off-farm work to being laid off. We identified four types of activities: (1) working off-farm for earnings; (2) working on-farm (paid or unpaid) and not searching for off-farm work; (3) working full time inside the home (not getting paid) and not searching for paid off-farm work (sometimes called “discouraged workers”);¹⁷ and (4) searching for paid off-farm work. According to our data, for both men and women long-term laid-off workers, farming was the main source of work. By April 2009, 56 percent of the long-term laid-off men and 57 percent of the long-term laid-off women were working for earnings on farm; 17 percent of long-term laid-off women were working full time inside the home, almost two-and-a-half times the share of men (7 percent). This is not surprising given women’s traditional roles within the family and may reflect in part the fact that women are still viewed (and, perhaps, view themselves) as secondary workers in Chinese society. A relatively smaller share of laid-off women reported still searching for an off-farm job (26 percent) compared to that of men (37 percent).

Based on these numbers, the rate of unemployment due to the financial crisis was quite low. Only 37 percent long-term laid-off men and 26 percent long-term laid-off women were unemployed in the sense that they were not working off the farm, but were searching for a paid job off farm. This means that, out of the 184 million rural men and 95 million rural women working for earnings off farm in September 2008, about 5.7 million men and 2.4 million women were unemployed in April 2009 as a consequence of the global financial crisis. In other words, the unemployment rate of the rural economy in April 2009 was 2 percent for men and 1 percent for women. If discouraged workers were included in these numbers, then the percentage counted as unemployed would increase only marginally (and in round terms, unemployment would still be 2 percent for men and 1 percent for women). Hence, while many were laid off due to the financial crisis, few were unemployed. The flexibility of China’s rural economy, an economy in which almost all households have access to contracted land, provides a source of employment for those laid off from their off-farm jobs.

CONCLUSION

Between 2000 and 2008, prior to the global financial crisis, rural women in China benefited substantially from the expansion in off-farm employment. Nonetheless, low levels of paid off-farm employment among women in the early 2000s meant that, by 2008, they were still considerably less employed in the sector than their male counterparts. Gender disparities in off-farm employment mainly came from the older cohorts. In the case of young people, both men and women, the rural labor transition toward paid off-farm work was almost complete. Real wages also increased during the 2000–08

period. In terms of wages, however, both the initial levels and the growth rate were lower for women than for men during the 2000s.

As our data suggest, the crisis hurt both women and men in the rural labor force in almost equal proportion. By April 2009, between 8 and 12 percent of men and women in the rural labor force were affected. In the absence of a crisis, 30 million more men and 20 million more women would have been working off farm for wages. Real wages for both men and women (and especially those of migrant wage earners) fell in 2009, though less so for women than for men. The likelihood that an individual working for earnings off farm in September 2008 would be laid off sometime in the next seven months was also more or less equal among men and women workers overall.

While the large impact of the crisis on the rural labor force is noteworthy, what is particularly striking in contrast to more developed economies in North America and Europe is the speed of the labor force adjustment in the wake of the crisis. A number of factors are behind this relatively rapid adjustment. First, as this study demonstrates, in the immediate wake of the crisis, the laid-off migrant worker could and did return to the family farm from either their migrant or local wage-earning job or self-employed position. Second, the rapid implementation of a robust macroeconomic stimulus (or at the very least a resurgence of economic activity in China's general economy spurred on by other factors) appears to have meant that former off-farm workers had little time to become accustomed to rural life before new off-farm opportunities appeared in domestic-oriented activities in the construction and services sectors.

While this study does not go into the details of the sectoral shift in nonfarm employment from tradable to non-tradable goods, analysis does demonstrate the marked reemployment of laid-off workers in off-farm sectors prior to the recovery of exports. Falling wages also helped, allowing employers to hire workers at lower rates – although this may have hurt the wages of the part of the rural work force that did not get laid off.

Finally, education, especially in the case of women, also appears to be an important determinant of both exposure to layoffs and ability to cope with lost employment. Consistent with this finding, given the high returns of education in China, off-farm workers from poorer families were more exposed to layoffs than those from nonpoor families. Across the age distribution, younger workers were more likely to be laid off, but they also found new employment more readily. Older workers who experienced layoffs had more difficulty finding new, off-farm employment. However, the basic message of the study, given the concern in recent years over the possibility of growing gender disparities during the period of state sector restructuring, is that gender differences did not appear in either exposure to shocks or ability to find new employment.

Huayong Zhi
Institute for Geographical Sciences and Natural Resources Research
Chinese Academy of Sciences, Beijing, China
e-mail: zhi.ccap@igsnrr.ac.cn

Zhurong Huang
Institute for Geographical Sciences and Natural Resources Research
Chinese Academy of Sciences, Beijing, China
e-mail: huangzx.ccap@igsnrr.ac.cn

Jikun Huang
Institute for Geographical Sciences and Natural Resources Research
Chinese Academy of Sciences, Beijing, China
e-mail: jkhuang.ccap@igsnrr.ac.cn

Scott D. Rozelle
Food Security and the Environment Program, Stanford University
402 East Encina Hall, Stanford, California 94305, USA
e-mail: rozelle@stanford.edu

Andrew D. Mason
Poverty Reduction and Economic Management Network, World Bank
1818 H Street, NW, Washington DC 20433, USA
e-mail: Amason@worldbank.org

ACKNOWLEDGMENTS

We thank the four anonymous referees for their valuable comments and Trang Nguyen for her support on the review of recent literature.

NOTES

- ¹ Sarah Cook, Quheng Deng, Meiyang Wang, and Ni Yuan (2009) argue that, once laid-off, women's need to balance their household and market roles likely made it more difficult to re-enter the paid labor force – though Du and Dong (2009) test and reject empirically that women desired re-employment less than men.
- ² In technical terms, the labor demand elasticity tends to be higher for women than for men. In addition to being laid off earlier and in greater numbers during an economic downturn, it also means (at least globally) that demand for women's labor grows more sharply than that for men's labor during an economic upturn.
- ³ This was the pattern in the 2007–09 crisis in the US, which in turn had an asymmetric effect on the allocation of unpaid tasks in the household, by gender (Günseli Berik and Ebru Kongar 2013).
- ⁴ This latter factor appears to have contributed to the gender-differentiated impacts observed during the early stages of economic restructuring in China.

- ⁵ The provinces are Hebei, Liaoning, Shaanxi, Zhejiang, Hubei, and Sichuan. The data collection effort involved students and staff from the Center for Chinese Agricultural Policy and a group of masters and PhD students from a number of other agricultural universities. Households were paid 20 yuan and given a gift in compensation for the time that they spent with the survey team. In fact, the same villages and households were visited in 2000 during the first round of the CNRS. In 2000, there were sixty villages and 1,200 households. Unfortunately, two villages were in the Sichuan earthquake zone and were damaged so heavily that a year after the earthquake most of the households had not returned to their normal lives in the village. Forty households from these two villages that were sampled in 2000 were omitted from the 2008 resampling.
- ⁶ Although the sample size is small, there are many reasons to believe it can produce means of the variables that are consistent with national-level datasets collected and published by the National Bureau of Statistics of China (NBSC). For example, according to MOA (2009), 45.5 percent of the rural labor force works off farm. At first glance, our data, which produce a number of 62 percent, seem to overstate off-farm employment. But it should be remembered that our definition of off-farm employment is different than that used in official statistics. In official statistics, people are counted as employed off farm if their major job during the year is working off the farm. We can use our data and mimic this definition by counting the individuals in our sample that worked at least six months. When we do so, our point estimate is 45.3 percent, almost exactly the same as the numbers in the official statistical yearbooks. In addition, according to our data (not used in the paper), the average farm size in 2008 is 0.59 hectares; it is 0.60 hectares in 2008 according to NBSC.
- Despite this ability to replicate national statistics, there may still be biases due to the relatively small size of the sample. For example, we do not have any provinces in the far south of China. Although the share of the population that are non-Han (or minority) in our sample is the same as that reported by NBSC, there are some minorities that are not included.
- ⁷ A person is in the rural labor force if he/she works on farm, works for earnings in the off-farm sector, or is self-employed off farm regardless of where he/she lives or works (either in the rural areas or in the city). The rural labor force, however, excludes: (1) those in school, military, and prison and (2) those who do not participate in farming or nonfarm works due to health considerations (for example, too old and ill). In other words, the labor force is defined as all people ages 16–65 who work on or off farm or who are seeking a job.
- ⁸ Enumerators attempted to ask the employment histories from each individual. If a household member or one of the children of the household head was not present, the respondent (which was almost always the household head or spouse of the household head) answered. Extensive pretesting found that the data are accurate. In addition, we conducted a practical test to see whether or not a respondent bias problem exists in the employment history part of our data. We replicated the analysis after excluding observations on individuals whom we did not interview directly and found that the results did not change. In addition, we were worried about recall bias. Fortunately, we have data on the exact same households from an earlier wave of the survey in 2000. We are thus able to compare the household's estimate of labor market participation in 2000 from the 2008 survey versus the information provided by the household from the 2000 survey. As it turns out, there is almost none. Household participation in the off-farm labor market in 2000 was estimated to be 34.5 percent in the 2008 CNRS survey; participation in the off-farm labor market in 2000 was estimated to be 35.4 percent when using the 2000 survey.
- ⁹ In the same way in which the growth of women's off-farm employment is robust (and on the same trajectory) prior to the crisis and is the same as that of men, women's

employment still lags behind that of men in all of the subsectors of the rural off-farm labor market. The trends in each of the three panels in Supplemental Figure 1 show that the trends of women's participation in migration, local off-farm employment, and self-employment parallel those of men. (The Supplemental Table and Figures are available on the publisher's website and at <http://en.ccap.org.cn>.) Despite the similar trend lines, the employment levels of men (in all three categories) are higher than the employment levels of women.

- 10 Please see Supplemental Table 1 for a complete description of our approach to the estimation of the employment share predictions. We also carry out a within-sample validation exercise and show that the final model (Equation 1) used in the predictions performs the best in predicting the 2007 employment shares for both men and women when compared to the alternative models.
- 11 To adjust for the seasonality of off-farm employment, we first divide the average off-farm employment rate in the first four months in 2009 by that in the first four months in 2008, and then multiply the annual off-farm employment rate in 2008 by this ratio to get our estimate of the annual off-farm employment rate in 2009.
- 12 Supplemental Figure 2 shows monthly shares of the rural force of off-farm employment in China for men and women (actual and under the BAU assumption). The relative nature of the trends between the subsectors (Supplemental Figure 2) and overall (Figure 3) are essentially the same. This means that, indeed, the global financial crisis is affecting both men and women in the rural labor markets and the effects are similar in each subsector (migration, local off-farm wage employment, and self-employed). Given the discussion above on the balance of employment in the manufacturing sector, this may not be surprising.
- 13 When comparing off-farm employment rates using annual data and those using monthly data for only part of the year, the off-farm employment rates using annual data will be higher. The reason is simple: Consider a two-person economy. One person worked off the farm in the first half of the year, but not in the second; the other person worked off the farm in the second half, but not in the first. Then the monthly off-farm employment rate would be 50 percent for all the twelve months, but the annual off-farm employment rate would be 100 percent.
- 14 The term "layoff" in this study includes the job loss in self-employment. The choice of using "layoff" instead of "job loss" is based on the fact (as we show later in the study) that wage earners bear the largest share of job losses during the financial crisis.
- 15 Because data on hours worked exist for different workers in 2008 and 2009, it is possible that our conclusions about hours worked for wages are not completely accurate. In telephone interviews held with a subset of workers from our sample, however, most workers who retained their jobs indicated that their hours worked remained unchanged from before to during the crisis. For those who said their hours worked had changed between 2008 and 2009, as many workers said their hours went up as said their hours went down.
- 16 The pattern of layoffs by migrant wage earners and local wage earners across age cohorts is similar to that of overall off-farm employment (Table 3). It is higher in the case of 16–25, 25–36, and 56–65 age cohorts for women. It is higher in the case of 36–45 and 45–55 age cohorts for men.
- 17 "Working full time inside the home" refers to the working status of individuals that are: (1) not working in an off-farm job for pay (that is the individual neither has a wage-earning job nor a nonfarm, self-employed job that is generating earnings); and (2) the individuals are not working on farm (or engaged in agricultural production). Although such individuals are almost never idle (they are taking care of children; taking care of aged adults; doing household chores; and so on), these individuals are not getting paid for their efforts.

REFERENCES

- Appleton, Simon, John Knight, Lina Song, and Qingjie Xia. 2002. "Labor Retrenchment in China: Determinants and Consequences." *China Economic Review* 13(2–3): 252–75.
- Berik, Günseli, Xiao-yuan Dong, and Gale Summerfield. 2007. "China's Transition and Feminist Economics." *Feminist Economics* 13(3–4): 1–33.
- Berik, Günseli and Ebru Kongar. 2013. "Time Allocation of Married Mothers and Fathers in Hard Times: The 2007–09 US Recession." *Feminist Economics*, <http://dx.doi.org/10.1080/13545701.2013.798425>.
- Bruni, Lucilla, Andrew D. Mason, Laura Pabon, and Carrie Turk. 2011. "Gender Impacts of the Global Financial Crisis in Cambodia." World Bank, Washington, DC.
- Cai, Fang and Kam Wing Chan. 2009. "The Global Economic Crisis and Unemployment in China." *Eurasian Geography and Economics* 50(5): 513–31.
- Chen, Xuebin and Mingdong Xu. 2010. "Quantitative Analysis of the Impacts of Financial Crisis on China's Foreign Trade." *Fudan Journal* 1: 24–33.
- Cook, Sarah, Quheng Deng, Meiyan Wang, and Ni Yuan. 2009. "Towards Gender Equality in China's Economic and Social Transformation: The Rise in Informal Employment and its Impact on Women during China's Economic Transition." Project Report, Heinrich Böll Foundation, Berlin, Germany.
- de Brauw, Alan, Jikun Huang, Scott Rozelle, Linxiu Zhang, and Yigang Zhang. 2002. "The Evolution of China's Rural Labor Markets During the Reforms." *Journal of Comparative Economics* 30(2): 329–53.
- Dong, Xiao-yuan, Jianchun Yang, Fenglian Du, and Sai Ding. 2006. "Women's Employment and Public-Sector Restructuring: the Case of Urban China." In *Unemployment in China: Economy, Human Resources and Labor Markets*, edited by Grace Lee and Malcolm Warner, 87–107. London: RoutledgeCurzon.
- Du, Fenglian and Xiao-yuan Dong. 2009. "Why Do Women Have Longer Durations of Unemployment than Men in Post-Restructuring Urban China?" *Cambridge Journal of Economics* 33(2): 233–52.
- Giles, John, Albert Park, and Fang Cai. 2006a. "How has Economic Restructuring Affected China's Urban Workers?" *China Quarterly* 185(1): 61–95.
- . 2006b. "Reemployment of Dislocated Workers in Urban China: The Roles of Information and Incentives." *Journal of Comparative Economics* 34(3): 582–607.
- Hallward-Driemeier, Mary, Bob Rijkers, and Andrew Waxman. 2011. "Ladies First? Firm-Level Evidence on the Labor Impacts of the East Asian Crisis." Policy Research Working Paper 5789, World Bank, Washington, DC.
- Huang, Jikun, Huayong Zhi, Zhurong Huang, Scott Rozelle, and John Giles. 2010. "Impact of Financial Crisis on Rural Labor Employment and Income in China." Working Paper, Center for Chinese Agricultural Policy, Chinese Academy of Sciences, Beijing, China.
- Kong, Sherry Tao, Xin Meng, and Dandan Zhang. 2009. "Impact of Economic Slowdown on Migrant Workers." In *China's New Place in a World in Crisis: Economic, Geopolitical and Environmental Dimensions*, edited by Ross Garnaut, Ligang Song, and Wing Thyee Woo, 233–60. Canberra: Australian National University E Press.
- Liu, Jieyu. 2007. "Gender Dynamics and Redundancy in Urban China." *Feminist Economics* 13(3–4): 125–58.
- Maurer-Fazio, Margaret. 2006. "In Books One Finds a House of Gold: Education and Labor Market Outcomes in Urban China." *Journal of Contemporary China* 15(47): 215–31.
- Ministry of Agriculture of the People's Republic of China (MOA), eds. 2009. *Statistical Materials on 60 Years of China's Agriculture*. Beijing: China Agriculture Press.
- National Bureau of Statistics of China. 2008. *China Statistical Yearbook*. Beijing: China Statistics Press.

- . 2010. *China Statistical Yearbook*. Beijing: China Statistics Press.
- World Bank. 2001. *Engendering Development – Through Gender Equality in Rights, Resources, and Voice*. New York: Oxford University Press.
- Zhang, Linxiu, Alan de Brauw, and Scott Rozelle. 2004. “China’s Rural Labor Market Development and its Gender Implications.” *China Economic Review* 15(2): 230–47.
- Zhang, Linxiu, Xiaofei Li, Scott Rozelle, and Jikun Huang. 2009. “China’s Labor Transition and the Future of China’s Rural Wages, Employment and Urbanization Shifts.” Working Paper, Center for Chinese Agricultural Policy, Chinese Academy of Sciences, Beijing, China.

NOTES ON CONTRIBUTORS

Huayong Zhi is Senior Research Assistant at the Center for Chinese Agricultural Policy, Chinese Academy of Sciences (CAS). He completed undergraduate studies at Peking University in 2004 with degrees in physics and economics and received his MA in management from CAS in 2007. His research focuses on China’s agricultural and rural development, including public extension system reform, agricultural markets, farmers’ organizations, land tenure, and labor migration.

Zhurong Huang is Senior Research Assistant at the Center for Chinese Agricultural Policy, Chinese Academy of Sciences (CAS). She received her MA in management from CAS in 2008. Her research interests include agricultural markets, land tenure, and labor migration.

Jikun Huang is Founder and Director of the Center for Chinese Agricultural Policy (CCAP) of the Chinese Academy of Sciences (CAS) and Professor at the Institute of Geographical Sciences and Natural Resources Research. A graduate of Nanjing Agricultural University and the University of the Philippines at Los Banos, his research covers China’s agricultural and rural development, including agricultural and trade policies, waterresource economics, price and marketing, food consumption, and poverty. He has co-authored sixteen books and published more than 150 papers in refereed international journals, including two reports in *Science* and one article in *Nature*.

Scott D. Rozelle is Helen F. Farnsworth Senior Fellow in the Freeman Spogli Institute for International Studies. Dr. Rozelle received his BS from the University of California, Berkeley; and his MS and PhD from Cornell University. Dr. Rozelle’s research focuses almost exclusively on China and is concerned with agricultural policy, including the supply, demand, and trade in agricultural projects; issues involving rural resources, especially the management of water, the forests, and cultivated land; and the economics of poverty – with an emphasis on the economics of education and health. He is Co-director of the Rural Education Action Project (REAP).

ARTICLES

Andrew D. Mason is Lead Economist for the World Bank's East Asia and the Pacific region, where he coordinates an analytical program on poverty, inequality, gender, and labor. Dr. Mason has co-authored several World Bank flagship studies, including *Engendering Development – Through Gender Equality in Rights, Resources, and Voice* and *Informality: Exit and Exclusion*. He is also Adjunct Faculty at the Georgetown Public Policy Institute, where he teaches a course on gender and development. Dr. Mason holds a PhD in applied economics from Stanford University and a Master of Public Policy (MPP) from Harvard University.