AJAE appendix for '*Conservation Payments, Liquidity Constraints and Off-Farm Labor: Impact of the Grain for Green Program on Rural Households in China*'

Emi Uchida, Scott Rozelle and Jintao Xu

March 2008

Note: The material contained herein is supplementary to the article named in the title and published in the *American Journal of Agricultural Economics* (*AJAE*).

Assessing Recall Bias

The study relies on information for 1999 that was collected in 2003, and we acknowledge the potential for problems inherent in recall data, especially regarding the pre-program period. Long-term recall data are potentially inaccurate, although this issue continues to be debated in the literature. Unfortunately, the Chinese government's quick decision to implement *Grain for Green* and lack of transparency in the details of its implementation precluded interviews with potential participants at the program's onset. We also endeavor to deal with the recall bias by reestimating all of the analyses using a sample of individuals from only 67 households—the 27 households that switched from nonparticipant to participant status between the two surveys and the 40 nonparticipating households. With this subset, while the sample is smaller, the data are true panel data and are not subject to errors due to recall. With this subsample, we compare the changes in off-farm labor between 2002 and 2005 to avoid having to rely on the recall data for 1999. If the results from the analysis using the subsample of households are consistent with the results from the analysis using the full sample, it would suggest that that recall bias is limited.

Overall, the findings from the smaller subset are consistent with those from the full sample (tables A1 and A2). The DID estimates for the subset are slightly larger than the estimates for the full sample. This consistency between samples suggests that recall bias in 1999 was limited and/or that the DID approach was able to control for the bias that existed in both groups.

Heterogeneous Program Effect On Off-farm labor Using Zeldes' Rule

We found consistent results when we split the households using Zeldes' rule into liquidity-constrained and -unconstrained groups and compared the DID estimates (Zeldes 1989). The DID estimates for the constrained group was positive and statistically significant both at the household and individual levels. The DID estimates for the unconstrained group were insignificant. The number of participating households that were liquidity-constrained and unconstrained were 170 and 55, respectively, and for non-participating households 32 and 8. At the individual level, the number of participating individuals that were liquidity constrained and unconstrained were 1316 and 478, respectively, and for non-participating individuals 226 and 72, respectively.

The DID estimates for liquidity-constrained and unconstrained individuals were 0.180 (z=2.46) and -0.049 (z=0.31), respectively. The findings are consistent with the results from the quartile approach.

References

Zeldes, S. P. 1989. "Consumption and liquidity constraints: An empirical investigation." *Journal of Political Economy* 97(2): 305-346.

Table A1. Impact of *Grain for Green* on individual members' on- and off-farm labor job, restricting treated sample to participating households that changed status from nonparticipating to participating between 2002 and 2004

	(1)	(2)
	Off-farm	On-Farm
Treatment x year2004	0.325	-0.037
	(2.95)***	(0.30)
Treatment	-0.049	-0.027
	(1.31)	(0.76)
Year 2004 dummy	0.007	0.128
	(0.08)	(1.33)
*Year 2004 * Yangtze Basin*	0.178	-0.120
	(1.72)*	(0.95)
Yangtze Basin dummy	-0.028	-0.004
	(0.72)	(0.12)
Household size	0.013	0.022
	(0.74)	(1.18)
Number of children age<15 in 2002	0.012	-0.001
	(0.48)	(0.03)
Total land holding	-0.000	0.007
	(0.13)	(2.71)***
Age in 2002	-0.006	-0.003
	(4.55)***	(1.58)
Education in 2002	0.008	-0.010
	(1.21)	(2.06)**
Total household liquidity in 1999	0.000	-0.000
	(3.73)***	(3.05)***
Individual had off-farm work in 1999	0.741	
	(10.32)***	
Individual worked on farm in 1999		0.745
		(13.73)***
Pseudo R-squared	0.46	0.52
Observations	459	459
* significant at 10%; ** significant at 5%; *** significant at 1%		

Note: The reported coefficients are marginal effects of probit models. Robust z-statistics in parentheses are calculated based on the clustered standard error at the household level.

Table A2. Program Impact on Off-farm and Farm Jobs, Treatment Indicator Interacted with Quartile Dummies of Asset Holdings, Restricting Treated Sample to Individuals that Changed Status From Nonparticipant to Participant Between 2002 and 2004.

	(1) Off-farm	(2) On-farm
Poorest in asset value in 1999 (dummy) x treatment x year2004	0.398	-0.061
	(2.76)***	(0.49)
Second poorest in asset value in 1999 (dummy) x treatment x year2004	0.460	0.079
	(2.74)***	(0.61)
Second richest in asset value in 1999 (dummy) x treatment x year2004	0.271	0.113
	(1.64)	(1.14)
Richest in asset value in 1999 (dummy) x treatment x year2004	0.058	-0.118
	(0.40)	(0.82)
Treatment	-0.055	-0.027
	(0.72)	(0.39)
Year 2004 dummy	0.006	0.127
	(0.08)	(1.71)*
*Year 2004 * Yangtze Basin*	0.183	-0.121
	(1.68)*	(1.17)
Yangtze Basin dummy	-0.022	-0.008
	(0.30)	(0.12)
Household size	0.011	0.020
	(0.49)	(1.00)
Number of children age<15 in 2002	0.021	-0.010
	(0.72)	(0.32)
Education in 2002	0.011	-0.011
	(1.68)*	(1.76)*
Age in 2002	-0.006	-0.003
	(3.40)***	(2.03)**
Total land holding	0.001	0.008
	(0.34)	(2.48)**
Individual had off-farm work in 1999	0.737	
	(12.05)***	
Individual worked on farm in 1999		0.765
		(13.11)***
Pseudo R-squared	0.47	0.53
Observations	453	453
* significant at 10%; ** significant at 5%; *** significant at 1%		

Note: The reported coefficients are marginal effects of probit models. Robust z-statistics in parentheses are calculated based on the clustered standard error at the household level.