

Does Public Health Insurance Crowd Out Private Transfer?

Evidence from China's New Cooperative Medical Scheme

Liqu Zhao

Renmin University of China

Zhong Zhao

Renmin University of China

Abstract

We exploit a quasi-natural experiment to examine whether the introduction of New Cooperative Medical Scheme (NCMS) in rural China crowds out remittances and stimulates consumption of migrants in urban areas. We find that the NCMS does not significantly affect the consumption of migrants in cities, whereas it increases the remittances of migrants. On average, the introduction of health insurance program increases the remittances of migrants by 8 percent. Results also show that migrants from counties launching the NCMS tend to return and thus have higher remittances.

Keywords: Health insurance; New Cooperative Medical Scheme; Remittances; Crowding-out effect; Return migrants

JEL Classification: O16; I13

1. Introduction

Public insurance programs have become pervasive in rural areas in developing countries. For example, China launched the New Cooperative Medical Scheme (NCMS) in rural areas in 2003. India implemented the National Health Insurance Program in 2008. A natural concern by policy makers and researchers is whether these public insurance programs are in fact crowding out private transfers, such as remittances¹. To determine whether there is crowding out effect allows us to understand better the full impact of existing programs, which is important for designing policy interventions. However, little is known about the interaction between public insurance and private transfers. In this paper, we exploit a quasi-natural experiment to examine whether the introduction of public health insurance in rural China crowds out the remittances from migrants in urban areas.

Rural households in developing countries are likely to be poor and face substantial, even catastrophic, risk. Meanwhile, they usually have limited access to public insurance, which they could use to mitigate negative shocks. Households thus have to rely on various informal risk-sharing arrangements. The literature in development economics has identified a number of mechanisms which households in developing countries are able to insure themselves partially against risk, such as informal inter-household transfers (Rosenzweig, 1988), state-contingent loan payment (Udry, 1994), informal loans (Fafchamps and Lund, 2003), marriage (Rosenzweig and Stark, 1989), increases in labor supply (Kochar, 1999), sales of productive assets (Rosenzweig and Wolpin, 1993) and precautionary saving (Paxson, 1992).

Related research on the role of internal or international migration in pooling risk within extended families includes Lucas and Stark (1985), Rosenzweig and Stark (1989) and Paulson (2000). Lucas and Stark (1985) find that migrants to urban areas in Botswana send more money home as remittances when there is a drought in their home area and their families own drought-sensitive assets. Rosenzweig (1988) also finds that income transfers to rural households in India vary inversely with agricultural profits. Yang and Choi (2007) show that remittances replace 60 percent of income declines due to adverse rainfall shocks in the Philippines. Remittances are an

¹ The literature has proposed a number of motivations for remittances (see Yang, 2007, for a survey), including altruism and exchange. More recently, studies have explored this research question in the context of China. The main results of these studies suggest that the motivation behind remittances in China is mixed (e.g., Snyder and Chern, 2008).

important source of protection against adverse shocks, such as weather shocks and health shocks, for the receiving household.

Thus, a program of public insurance may crowd-out informal private transfers, for instance, remittances (Cox, 1987; Cox and Fafchamps, 2007). The existing evidence on the extent and magnitude of the crowding-out effect of public transfers is mixed. Some studies find that public transfers have little effect on private transfers (Cox and Jakubson, 1995; Rosenzweig and Wolpin, 1994). Others find that a crowding-out effect exists. Cox, Eser and Jimenez (1998) find that social security benefits crowd out the prevalence of private transfers in Peru. Schoeni (2002) finds that unemployment insurance crowds out interfamily transfers.

A large number of studies find that the adverse health shocks have a negative and statistically significant effect on consumption or income in developing countries (for example, Dercon and Krishnan, 2000; Wagstaff, 2007). Before the launch of the NCMS in rural areas of China, medical care is largely privatized and involves the payment of user fees. Unable to insure efficiently, households are forced to migrate to cities to avoid being hit by large negative health shocks (Poelhekke, 2011). Remittances sent from migrants in cities act as a form of insurance. The implementation of health insurance reduces a household's uncertainty about future out-of-pocket health expenditures and thus reduces the amount of remittances. As migrants make decisions on remittances jointly with their choices about consumption, the health insurance program may stimulate the consumption of migrants in urban areas. This paper aims to examine whether the introduction of the New Cooperative Medical Scheme (NCMS) in rural China crowds out the remittances and stimulates the consumption of migrants in urban areas.

We estimate the effect of the NCMS on remittances and consumption using a 'difference-in-differences' approach. We compare the temporal changes in remittances or consumption between the migrants from NCMS and non-NCMS counties in the periods before and after the implementation of the NCMS. Although we do not have a natural experiment that randomly assigns the program to counties, we control for county fixed effect and thus time-invariant selection biases. We further reduce the selection by allowing temporal changes in remittances and consumption to vary with observable characteristics.

Using data from Rural Household Survey, we find that the NCMS increases the remittances of migrants by 8% or 323 yuan (US\$39 at the exchange rate in 2005), which seems to be at odds with

the crowding-out hypothesis. We further show that because the introduction of the health insurance program weakens the risk sharing motive of migration, the NCMS reduces migration and increases return migration. The return plans of migrants are related to higher remittances (Dustmann and Mastres, 2010), as the remittances act as an “insurance” to be welcomed in the home community after returning. Finally, we find that the NCMS does not have significant impact on consumption of migrants in urban areas.

The rest of the paper is structured as follows. In the next section we provide background information on the New Cooperative Medical Scheme. In section 3 we provide a description of our data and follow this with a discussion of our empirical framework in section 4. In section 5, we present our results and we conclude in section 6.

2. New Cooperative Medical Scheme

The original Cooperative Medical Scheme (CMS) was first implemented in rural China in the 1950s. There was no real premium transfer in the rural system. The CMS was based on the People’s Commune system. With the collapse of the collective economy in the early 1980s, counties began dropping the program and coverage rates fell sharply from 90% at the end of the 1970s to less than 5% in the late 1990s. Catastrophic illness has become a main cause of poverty in rural China in the 1990s².

To reduce the financial risks of catastrophic illness and improve the access to health care for rural populations, the central government launched NCMS pilots in July 2003, which aimed to provide health coverage for the nation’s entire rural population by 2010 (State Council, 2002). The number of counties covered increased from 310 in 2004 to 617 in 2005 and 1,451 in 2006, accounting for more than 50% of all rural counties in China. The NCMS prevents farmers from falling back to poverty caused by catastrophic illness.

NCMS differed from CMS in various respects. Firstly, participation in the NCMS is voluntary and participation is on a household basis. Secondly, the focus of the NCMS is on coverage for catastrophic illnesses. Thirdly, the premium was heavily subsidized by local and central government and individual’s contribution to the premium was relatively low. Before 2008, insured households contribute a flat-rate premium of 10 Yuan annually per person. Finally, the program

² Some 30% of poor households reported health care costs as a main cause of their poverty (Wagstaff, Lindelöw, Wang and Zhang, 2009).

operates at the county level rather than at the township or village level. The county governments have the authority to design and implement their own programs. The programs vary considerably across counties with respect to deductibles, copayments, premiums, and coverage.

During the period covered by the study (2003-2005), the central government subsidized the program in the central and western provinces at the rate of 10 RMB per enrollee, while the local government and enrollees were required to contribute to the premium no less than 10 RMB to receive the subsidies from the central government. And for the relatively more affluent eastern provinces, the central government offered no subsidies while local governments were required to subsidize the same amount of 20 RMB. Thus, the annual premium per capita was 30 RMB. With the increase in coverage, the government has gradually increased its subsidies to the program. NCMS is a primary medical security system for rural population in China.

3. Data and Descriptive Statistics

The dataset are from the Rural Household Survey (RHS) in China annually conducted by National Bureau of Statistics of China from 2003 to 2005. It has rich information on household consumption patterns in rural China. The survey contains information on village characteristics, basic household information, production and sales, incomes and expenditures. Unlike most surveys that record consumption over a few weeks or rely on respondent recall, the RHS collects the information on consumption, purchase, and expenditure from households using diaries kept over the course of an entire year. Local assistant enumerators periodically visit households to record, check, and organize the diary book and to assist illiterate respondents. County interviewers often go to villages to supervise the recording, to provide guidance or help, and to collect the diary books periodically.

The survey collects data from 68,000 households in about 9,000 villages of 857 counties selected from the 31 provinces, autonomous regions, and municipalities using a complex multistage stratified sampling method. In our sample, two provinces, Tibet and Xinjiang, are excluded. The 2005 round includes 66,160 households in 6,676 villages drawn from 29 Chinese provinces. Because the NCMS was first piloted in July 2003 and the program probably does not have an immediate impact on the behavior of migrants. Therefore, 2003 is regarded as the year

during which no counties introduced the NCMS³. The final sample includes 902 counties and 104,803 migrants⁴.

[Insert Table 1 here]

Table 2 reports the 2004-2005 NCMS enrollment rates of counties and households. The enrollment rates of counties increased from 32.80% in 2004 to 44.55% in 2005. The participation rates of households in the NCMS-counties were 62.77% in 2004 and 76.09% in 2005. The voluntary nature of household participation raises concerns about adverse selection problem, however, the selection of NCMS pilot counties tends to be more exogenous. Thus we define treatment group as the migrants from counties which launched NCMS and control group as the migrants from counties which did not launch NCMS.

[Insert Table 2 here]

Table 3 shows the descriptive statistics for the insured households in the NCMS-counties, the nonparticipants who lived in the NCMS-counties and the non-exposed households in the non-NCMS counties. Migrants from insured households tend to have higher income from working in urban areas, consume and remit more, have higher education, and spend more months away from home. Insured households generally have higher rural income, higher average years of schooling, higher transfers from migrants and higher value of housing.

[Insert Table 3 here]

Private inter household transfers are a sizable element of household income and spending in developing countries. Rural households receive on average 1998.5 yuan per year from migrants, which accounts for about 20% of rural income.

As shown in Figure 1, the remittance-income ratio for migrants from counties which did not launch NCMS during the sample periods declines over the period 2003-2005. The remittance-income ratio for migrants from counties which launched NCMS in 2004 also declines over the period 2003-2005, but the slope is much flatter. For migrants from counties which launched NCMS in 2005, the ratio decreases in 2004 but increases in 2005. Figure 1 suggests that NCMS may increase the remittances. The consumption-income ratio for migrants from counties

³ We exclude the counties which launched the program in 2004 as a robust test.

⁴ The most recent estimates from the 2010 census reveal that over 220 million people left their rural residence for over 6 months (NBS China, 2010).

which did not launch the NCMS over the sample periods declines over the period 2003-2005. The ratio for migrants from counties which launched the NCMS in 2004 or 2005 declines in 2004 but increases in 2005. Figure 2 suggests that NCMS may increase the consumption of migrants.

[Insert Figure 1 here]

[Insert Figure 2 here]

4. Empirical Framework

We begin by applying the difference-in-differences framework to the three-year data. More specifically, the effect of the NCMS on remittances and consumption is identified by the differences in temporal changes in remittances or consumption between the migrants from NCMS and non-NCMS counties in the periods before and after the implementation of the NCMS in the counties.

4.1 Baseline empirical model

We first use a simple difference-in-differences strategy to examine the impact of NCMS on remittances and consumption of migrants. We pool the 2003-2005 samples of control and treatment groups and estimate the following regression:

$$Y_{it} = \alpha + \gamma NCMS_{ct} + D_c + \zeta_t + \delta X_{it} + \varepsilon_{it} \quad (1)$$

where Y_{it} is the log value of remittances or consumption for migrant i in year t . $NCMS_{ct}$ is an indicator of whether a county c launched NCMS in year t . D_c denotes county fixed effects, ζ_t refers to year dummies, controlling for the year fixed effects. X_{it} is a vector of observable individual, household and village characteristics that may affect remittances (consumption) and the selection of NCMS pilot counties, including gender, age, years of schooling, log(income from migration), and months of working outside the home village, log(income of rural households), number of migrants, education and age of household head, household size, number of family members under age 18, number of family members over age 60, whether households are officially categorized as poor (*Wubao* households), log(value of housing), whether a village is a minority village and geographic features of the village. γ is the coefficient of interest, which measures the effect of the introduction of the health insurance in rural areas on remittances and consumption of migrants in urban areas.

4.2 Dynamic Effects of the NCMS

The NCMS differed from the CMS in various ways. Thus it takes time for households to learn about the benefits of the insurance program. Furthermore, as the coverage expands, migrants may adjust their remittance and consumption behavior to a greater extent. Therefore, the insurance effect may increase over time. To capture the dynamic effects of health insurance, we control for the interactions between county insurance status and year dummies.

$$Y_{it} = \alpha + \gamma_1 T_{2004} * Y_{2004} + \gamma_2 T_{2004} * Y_{2005} + \gamma_3 T_{2005} * Y_{2004} + D_c + \zeta_t + X_{it} + \varepsilon_{it} \quad (2)$$

where Y_{it} is the log value of remittances or consumption for migrant i in year t . T_{2004} is an indicator of whether a county launched NCMS in 2004. T_{2005} is an indicator of whether a county launched NCMS in 2005. D_c denotes county fixed effects, ζ_t refers to year dummies. γ_1 , γ_2 and γ_3 are the coefficients of interest, capturing the dynamic effects of NCMS.

5. Results

5.1 Results for the baseline model

Table 4 presents results of our basic specification, equation (1), controlling for a set of co-variates. We measure the NCMS enrollment at county level and at household level (i.e., whether a household is insured), respectively. The results in Table 4 show that the NCMS does not affect the consumption of migrants significantly, whereas it increases the remittances of migrants. Particularly, column 3 shows that the migrants from counties launching NCMS increased remittances by 5.9%, significant at the 1% level. The health insurance effect on remittances seems to be at odds with the crowding out hypothesis. We also find that migrants remit more if the income of rural household is low, which provides an evidence of insurance motive of remittances. Migrants remit less if the household has larger number of migrants. Migrants remit money to pay for their younger siblings' education, as the number of members under 18 significantly increases the amount of remittances.

[Insert Table 4 here]

Table 5 shows the dynamic effects of health insurance on remittance and consumption behavior of migrants. As shown in Table 4, the health insurance effect on consumption of migrants in urban areas is insignificant. Migrants from counties launching NCMS in 2004 increases remittances in 2004 by 4.6% and remittances in 2005 by 8.1%. The results in Table 5 provide weak evidence that

the insurance effect increases over time.

[Insert Table 5 here]

5.2 Heterogeneous treatment effect

In Table 4 and 5, we report the average treatment effect of health insurance. However, the health insurance program may have varying impacts in different people with characteristics that cause variation in response to treatment. In this section, we investigate the heterogeneous treatment effect of health insurance. The first aim is to check whether the effects we find before are mostly concentrated in the poor households, as we expect the richer households to have more access to credit and saving mechanisms and are better able to mitigate shocks and less likely to need private transfers. The first two columns in Table 6 indicate that the health insurance has the same effect on migrants from rich rural households and migrants from poor rural households.

New migrants and experienced migrants may response differently to the health insurance program. Experienced migrants are probably motivated by risk sharing considerations, thus the experienced migrants tend to be affected by health insurance. In Table 6, we find that the health insurance only has impact on remittances from experienced migrants.

[Insert Table 6 here]

5.3 Robustness Checks

The key assumption for any difference-in-differences strategy is that the outcome in treatment and control group would follow the same time trend in the absence of the NCMS. Unfortunately, we do not have the data before 2003. To reduce the potential selection bias, we allow the time trend in remittances and consumption to vary with certain village, household and individual characteristics by adding the interaction terms between year dummy and X_{it} . In addition, we also control for the interaction of year dummy of 2004 with an indicator of whether a county launched NCMS in 2005. These interactions yield a very flexible specification.

$$Y_{it} = \alpha + \gamma_1 T_{2004} * Y_{2004} + \gamma_2 T_{2004} * Y_{2005} + \gamma_3 T_{2005} * Y_{2005} + \gamma_4 T_{2005} * Y_{2004} + D_c + \sum_{2004}^{2005} 1\{y = t\} * X_{it} + \zeta_t + \varepsilon_{it} \quad (3)$$

Equation (3) represents our preferred specification throughout the paper. The parameter γ_4 captures whether the time trend of remittances of migrants from counties which launched NCMS

in 2005 before 2005 is significantly different from the time trend of remittances for migrants from counties which did not launch NCMS. The results are reported in column (1) and (2) in Table 7, which implies that the inclusion of interactions does not affect the magnitude of the dynamic effects much. And the estimate of γ_4 is not significant from zero, indicating that the treatment and control group follow the same time trend in the absence of the NCMS.

[Insert Table 7 here]

2003 is regarded as the year during which no counties introduced the NCMS. However, few of counties launched the program in July 2003. Thus, the estimate of health insurance effect may be biased. As a robustness check, we exclude the counties which launched NCMS in 2004 and examine the effect of the health insurance enrollment in 2005. The results are shown in the last two columns in Table 7. It suggests that the estimates are similar as that using the full sample.

Even if pre-trends are the same we still have to worry about other policies changing at the same time. The difference-in-differences estimate of the insurance effect attributes any differences in trends between the treatment and control groups that occur at the same time as the NCMS, to the NCMS. Thus, any other policy change during the same period is important to the identification. The reduction of agricultural taxes and fees in rural areas was piloted in 2004 and the agricultural tax was nationally abolished in 2006. If the amount of tax reduction is correlated with the launch of the insurance program, our estimates of the insurance effect are biased. To address this issue, we include the log value of tax and fee payment as a covariate in column (1) and (3) in Table 8. The estimates of insurance effect do not change much.

In China, the dominant form of migration is circular migration and migrants travel between rural home and urban jobs every year. When a migrant return home, the information he has about the destination spreads out fast to the co-villagers, which reduces moving costs. Thus, migrants from the same village tend to cluster at the same destination for the same type of jobs. The differences in trends between the treatment and control groups may be due to the changes in destination over time. Thus, we control for destination fixed effect in column (2) and (4) in Table 8. The coefficients are not much affect by the control of destination fixed effects.

[Insert Table 8 here]

5.4 Remittances and Return Migration

The introduction of public health insurance in rural China increases the remittances from migrants,

which seems to be at odds with crowding-out theory. In this section, we aim to explore the underlying mechanisms. Unable to insure efficiently, households are forced to migrate to cities to avoid being hit by substantial negative health shocks. One major source for potential gain of migration is risk spreading: the household buys insurance by placing members in markets whose outcomes are not highly positive correlated. The introduction of public health insurance in rural China weakens the risk sharing motive of migration. As reported in Table 9, the health insurance reduces the migration rate by 1.2 percentage point. And the program stimulates return migration by 4.3 percentage point.

[Insert Table 9 here]

The return plans are positively associated with remittances of migrants (Merkle and Zimmermann, 1992; Dustmann and Mestres, 2010). Remittances act as a price to be paid for the option to return back home at a later stage, or as an “insurance” to be welcomed in the home community after returning. Thus migrants with incentives to return remit more. The evidence of positive impact of health insurance on remittances is consistent with crowding-out hypothesis, as the remittances will decrease as the decline of the number of migrants.

6. Conclusion

This paper exploits the introduction of NCMS in examining the effects of the health insurance in rural areas on remittances and consumption of migrants in urban areas. The difference-in-differences estimates show that the NCMS increases the remittances by around 8%, which seems to be at odds with the crowding-out hypothesis. We further show that because the introduction of the health insurance program weakens the risk sharing motive of migration, the NCMS reduces migration and increases return migration. The return plans are related to higher remittances (Dustmann and Mastres, 2010), as the remittances act as an “insurance” to be welcomed in the home community after returning. Finally, we find that the NCMS does not have significant impact on consumption of migrants in urban areas.

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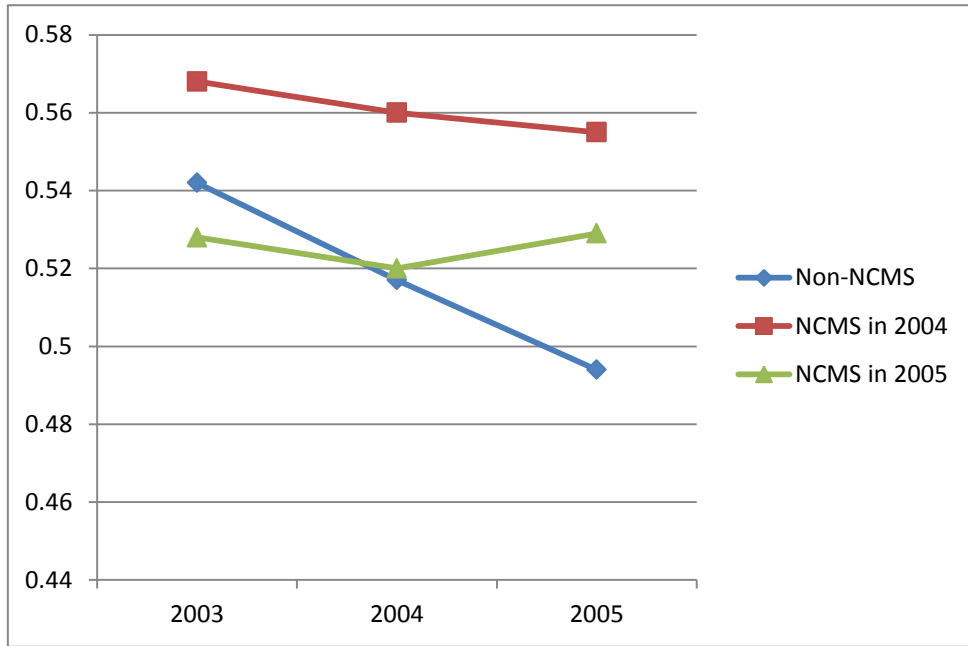


Figure 1: Remittance-income ratio over time

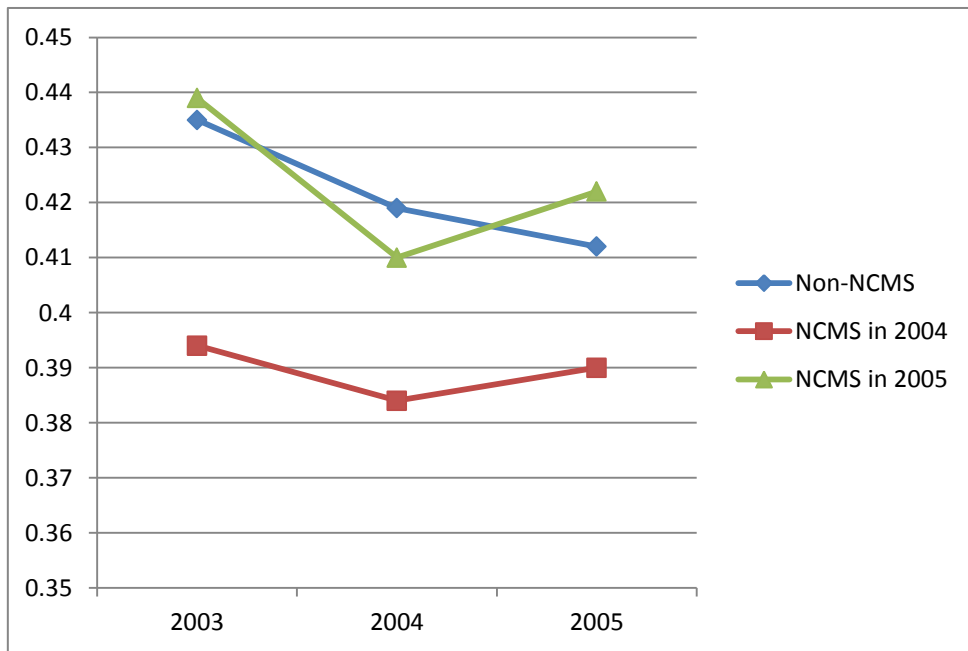


Figure 2: Consumption-income ratio over time

Table 1: Rural household Survey

Year	Province	Village	Household	Individual
2003	29	6676	66,160	272,996
2004	29	6676	66,160	269,207
2005	29	6676	66,160	270,026

Table 2: The enrollment of counties and households

Year	2004	2005
<i>County's enrollment</i>		
Number of counties newly enrolled	268	96
Cumulative enrollment rate	32.80%	44.55%
<i>Household's participation</i>		
Number of households newly enrolled	14,531	8,447
Cumulative enrollment rate	21.96%	34.73%
Participation rate in the NCMS-counties	62.77%	76.09%

Table 3: Descriptive Statistics

	NCMS households	n-NCMS households in NCMS counties	Difference: insured-n-NCMS	households in non-NCMS counties	Difference: Insured-non-NCMS counties
Variables					
Income from migration	7619.83	7003.12	***	6075.78	***
Consumption	2808.29	2732.48	***	2387.96	***
Remittance	4299.22	3529.18	***	2951.86	***
Age	29.51	29.04	***	28.61	***
Gender	0.65	0.64		0.66	***
Years of education	9.20	9.02	***	8.82	***
Months away from home	8.49	8.46		8.20	***
Household rural income	14667.11	10829.4	***	9397.46	***
Total income from migrants	2370.9	2478.08	**	1725.45	***
Head's years of schooling	8.52	8.43	***	8.34	***
Head's age	47.55	47.29	***	46.64	***
Average years of education	8.31	8.15	***	7.95	***
Household size	3.91	4.00	***	4.11	***
# of members under 18	0.95	1.04	***	1.10	***
# of members above 60	0.32	0.28	***	0.30	***
Number of migrants	0.51	0.63	***	0.58	***
Value of housing	44022.76	30925.74	***	22206.57	***
Cultivated land (*100)	615.30	660.14	***	922.79	***
Wubao household	0.0011	0.00051	**	0.00048	***
Minority village	0.0074	0.0074		0.013	***
Mountainous area	0.21	0.25	***	0.28	***
Hilly area	0.26	0.39	***	0.34	***

Note: The category of households is defined on the basis of household's participation status in 2004 and 2005.

Table 4: Basic Difference-in-Differences Results

	(1)	(2)	(3)	(4)
	Log Consumption		Log Remittances	
NCMS-county	0.015 (0.016)		0.059*** (0.017)	
Insured family		0.0072 0.014		0.051*** 0.016
Log(income from migration)	0.72*** 0.010	0.71*** 0.010	1.07*** 0.012	1.07*** 0.012
Age	-0.012*** (0.0014)	-0.012*** 0.0014	0.0095*** 0.0015	0.0096*** 0.0015
Age ² /100	0.0045** 0.0020	0.0045** 0.0020	-0.0028 0.0021	-0.0029 0.0021
Gender	0.0065 0.0042	0.0065 0.0042	0.0081 0.0051	0.0082 0.0051
Years of education	0.0085*** 0.0011	0.0085*** 0.0011	-0.0053*** 0.0013	-0.0053*** 0.0013
Months away from home	0.050*** 0.0021	0.050*** 0.0021	-0.031*** 0.0024	-0.031*** 0.0024
Log(household rural income)	0.0062* 0.0034	0.0062* 0.0034	-0.020*** 0.0041	-0.021*** 0.0041
Head's years of schooling	0.0014 0.0011	0.0014 0.0011	-0.00050 0.0013	-0.00054 0.0013
Head's age	0.0033*** 0.00031	0.0033*** 0.00031	-0.0042*** 0.00036	-0.0042*** 0.00036
Average years of education	-0.0028 0.0018	-0.0028 0.0018	0.0057** 0.0023	0.0056** 0.0023
Household size	0.0059** 0.0026	0.0059** 0.0026	-0.0051* 0.0030	-0.0051* 0.0030
# of members under 18	-0.020*** 0.0028	-0.020*** 0.0028	0.022*** 0.0038	0.023*** 0.0038
# of members above 60	-0.00044 0.0037	-0.00050 0.0037	0.0016 0.0048	0.0013 0.0048
Number of migrants	0.027*** 0.0039	0.027*** 0.0039	-0.066*** 0.0052	-0.066*** 0.0052
Log(value of housing)	-0.011*** 0.0030	-0.011*** 0.0030	0.024*** 0.0036	0.024*** 0.0036
Log(land)	0.0066** 0.0032	0.0064** 0.0032	-0.0016 0.0037	-0.0021 0.0036
<i>Wubao</i> household	0.036 0.066	0.036 0.066	0.071 0.097	0.073 0.098
Minority village	0.030 0.025	0.030 0.025	-0.069** 0.029	-0.069** 0.029

Mountainous area	0.044*** 0.015	0.044*** 0.015	-0.046** 0.020	-0.046** 0.020
Hilly area	0.036*** 0.013	0.036*** 0.013	-0.0068 .014	-0.0063 0.014
County fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
R-squared	0.61	0.61	0.56	0.56
Observations	104,803	104,803	94,219	94,219

Notes: robust standard errors are clustered at county level and are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 5: Dynamic Effects

	(1)	(2)	(3)	(4)
	Log Consumption		Log Remittances	
$T_{2004} \times Y_{2004}$	0.0068 (0.020)	0.0097 (0.020)	0.051** (0.024)	0.046** (0.022)
$T_{2004} \times Y_{2005}$	0.018 (0.029)	0.027 (0.028)	0.079*** (0.031)	0.081*** (0.030)
$T_{2005} \times Y_{2005}$	0.0071 (0.033)	-0.0060 (0.029)	0.088** (0.035)	0.079** (0.034)
County fixed effects	No	Yes	No	Yes
Year fixed effects	Yes	Yes	Yes	Yes
R-squared	0.66	0.62	0.57	0.57
Observations	95,387	95,387	85,853	85,853

Notes: robust standard errors are clustered at county level and are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1. All specifications control for the full set of covariates in Table 4.

Table 6: Heterogeneous response

Dependent variable: log remittance

	(1)	(2)	(3)	(4)
	Rich rural households	Poor rural households	New migrants	Experienced migrants
$T_{2004} \times Y_{2004}$	0.062** (0.031)	0.046 (0.031)	0.0031 (0.037)	0.058** (0.0241)
$T_{2004} \times Y_{2005}$	0.12*** (0.041)	0.095*** (0.037)	0.040 (0.038)	0.089*** (0.034)
$T_{2005} \times Y_{2005}$	0.088* (0.049)	0.094* (0.049)	-0.0094 (0.063)	0.097*** (0.037)
County fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
R-squared	0.59	0.57	0.66	0.53
Observations	21,409	23,849	16,916	68,936

Notes: robust standard errors are clustered at county level and are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1. All specifications control for the full set of covariates in Table 4. Column 1 (2) considers only the bottom 25 percentile (top 75 percentile) of the income distribution of this sample. New migrants are defined as workers who start to migrate in current year, and experienced migrants refer to workers migrated before.

Table 7: Validity checks: time trend before the treatment

	(1)	(2)	(3)	(4)
	Full sample		W/out counties launching NCMS in 2004	
$T_{2004} \times Y_{2004}$	0.048** 0.023	0.038 0.024		
$T_{2004} \times Y_{2005}$	0.083*** 0.031	0.082*** 0.031		
$T_{2005} \times Y_{2005}$	0.084** 0.037	0.084** 0.037	0.084** 0.037	0.082** 0.037
$T_{2005} \times Y_{2004}$	0.011 0.041	0.013 0.040	0.011 0.041	0.012 0.040
$X_{it} \times$ year fixed effect	No	Yes	No	Yes
County fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
R-squared	0.57	0.57	0.55	0.55
Observations	85,853	85,853	56,518	56,518

Notes: robust standard errors are clustered at county level and are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1. All specifications control for the full set of covariates in Table 4.

Table 8: Robustness Checks

	(1)	(2)	(3)	(4)
	Log Consumption		Log Remittances	
$T_{2004} * Y_{2004}$	0.0095 0.020	0.0093 0.019	0.046** 0.022	0.046** 0.022
$T_{2004} * Y_{2005}$	0.028 0.028	0.026 0.028	0.080*** 0.030	0.080*** 0.030
$T_{2005} * Y_{2005}$	-0.0059 0.029	-0.0073 0.029	0.078** 0.034	0.080*** 0.034
Log(tax and fee)	-0.00034 0.0015		0.0019 0.0018	
Destination fixed effects	No	Yes	No	Yes
County fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
R-squared	0.62	0.62	0.57	0.57
Observations	95,387	95,377	85,853	85,843

Notes: robust standard errors are clustered at county level and are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1. All specifications control for the full set of covariates in Table 4.

Table 9: The Effect of NRCMS on Migration and Return Migration

	(2)	(3)	(3)	(4)
	Migration		Return migration	
$T_{2004} \times Y_{2004}$	-0.0042 (0.0030)	-0.0041 (0.0030)	0.022 (0.020)	0.022 (0.020)
$T_{2004} \times Y_{2005}$	-0.012** (0.0055)	-0.010** (0.0054)	0.042* (0.026)	0.043* (0.026)
$T_{2005} \times Y_{2005}$	-0.0023 (0.0058)	-0.0019 (0.0058)	-0.0021 (0.020)	-0.0014 (0.020)
Log(tax and fee)		0.0010 (0.0014)		-0.0011 (0.0011)
County fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
R-squared	0.21	0.21	0.30	0.30
Observations	501,871	501,871	104,745	104,745

Notes: robust standard errors are clustered at county level and are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1. All specifications control for the full set of covariates in Table 4.