

## **Transfers and Development – Easy Come, Easy Go?**

### **Luc Christiaensen**

United Nations University – World Institute for Development Economics Research  
Katajanokanlaituri 6 B, FI-00160 Helsinki, Finland  
tel.: +358 96599213  
email: luc@wider.unu.edu

and

### **Lei Pan**

Corresponding author  
Development Economics Group, Wageningen University  
Hollandseweg 1, 6706KN Wageningen, The Netherlands  
tel.: +31 317484354  
email: lei.pan@wur.nl

**We would not like to submit this paper to the special issue, or to JCEBS or ODS.**

### **Acknowledgement**

The authors would like to thank the participants of the Annual Meeting of the American Economic Association 2010 for useful comments, and the Chinese authorities of the World Bank's Western Poverty Reduction Project in China (WPRP), Wang Pingping, Assistant Counsel, Department of Rural Surveys of the National Bureau of Statistics of China, and Sari Söderstrom, World Bank Task Manager of the WPRP for making the data available.

## Transfers and Development – Easy Come, Easy Go?

April 15, 2010

### Abstract

A central behavioral assumption of economic theory is that income is fungible. Yet, Thaler (1999) highlights that people code income in different mental accounts, creating a direct link between spending behaviour and income sources. This paper examines the differences in the marginal propensity to consume from earned and unearned income, a distinction that has not received much attention, using a panel dataset from rural China. The results indicate that households have a higher marginal propensity to consume unearned income and a higher marginal propensity to invest earned income. There is also larger propensity to spend (transitory) unearned income on non-basic consumption goods and (permanent) earned income on basic consumption goods. Together these results lend credence to the age-old saying ‘Easy come, easy go’. Heeding this advice might be time well spent in future theoretical and empirical research.

### 1 Spending and the Origins of Income

Folk wisdom holds that income that is easily earned, is also easily spent, a notion that is as powerful as it is simple, and one that resonates throughout the world’s cultures and languages — ‘Easy come, easy go’ (English), ‘Как нажито, так и прожито’ (Russian), ‘Lai de rong yi, qu de kuai’ (Chinese). Yet, a central behavioral assumption of economic theory is that income is fungible.<sup>1</sup> In this view, consumption behavior does not depend on how income has been obtained, but only on the total amount. In technical terms, the marginal propensity to consume (MPC) is independent of the source of income. Can the economic profession discard century old folk wisdom as an anomaly? Or does it fundamentally alter economic models and policy recommendations?

Following the pioneering work by Thaler (1985, 1990) the fungibility assumption is increasingly challenged by behavioral economists. Building on insights from cognitive psychology, they argue that people compartmentalize spending into different budget categories (e.g. food, housing, luxuries, investments) and total income into different mental accounts such as a current income, a future income and an asset account. Further important categorizations of current income concern whether income gains are large or small, transient or permanent and

---

<sup>1</sup> Fungibility is the notion that money has no labels and that all sources of income can be (indistinguishably) collapsed in one number.

expected or unexpected. The mere existence of such accounts would be inconsequential if people would not act upon them, i.e. if they were perfectly fungible (substitutable). The empirical evidence reviewed by Thaler (1999) suggests however that they are not and thus that mental accounts matter, beyond being mere anomalies.

One example of the existence of mental accounts, which has been receiving more attention lately, is the ‘fly-paper’ or ‘labeling effect’, a phenomenon whereby people change their consumption behavior in line with the suggestion of the label (Abeler and Marklein, 2008). Kooreman (2000) finds for example that the MPC of child clothing out of exogenous child benefits in the Netherlands is substantially larger than the MPC of child clothing out of other income sources.<sup>2</sup> Other studies explore how income windfalls affect consumption and saving behavior (Imbens, Rubin, and Sacerdote, 2001; Agarwal, Liu, and Souleles, 2007; Kuhn et al., 2008) and how the MPC out of windfalls also depends on the size of the gains, with the MPC from small unexpected income gains typically much larger than the MPC from large income gains (Thaler, 1999).

This paper focuses on a form of mental accounting which has received much less attention so far, despite age-old folk wisdom to the contrary, the coding of income in line with the amount of effort dispensed.<sup>3</sup> A better understanding of whether the amount of dispensed effort affects spending and investment behavior can have important implications for the design of many policy interventions. For example, massive programs are being developed in many transforming countries to stem the growing rural-urban divide. Yet, is it more efficient to do so through (unconditional or conditional) transfers (e.g. China- Harmonious Socialist Countryside<sup>4</sup> program; Brazil—Bolsa Familia) or through employment guarantee schemes as in India? Similarly, are stimulus packages in times of economic crises aimed at providing employment (Trabajar,

---

2 Similarly, recent studies of school feeding (Jacoby, 2002; Afridi, 2005) and supplementary nutrition (Islam and Hoddinott, 2009) programs find that a substantial part of the supplementary feeding ‘sticks’ with the targeted child (like a fly-paper). Because these transfers are inframarginal, parents would be expected to reallocate the transfer away from the child.

3 Incipient studies include Zhu et al. (2008) who find for example that the marginal propensity to save out of remittances in rural China is only half that out of other sources of income based on cross-sectional data. Hoffman (2007) finds that mosquito nets received by a household as a transfer in Uganda are more likely to be used by vulnerable members of the household, but purchased nets are more likely to be used by income earners in the household. Households treat purchased and free goods differently.

4 An important component of China’s 11th five year plan (2005-2010) is the construction of an harmonious socialist countryside, more recently also through a dramatic increase in land based subsidies to farmers since 2005. As a result, agricultural subsidies are now more than twice those in the United States in per acre terms, even though the transfers are only a couple of percent in relation to average rural incomes but 10 to 15 percent of the income of the rural poor.

Argentina) more effective in stimulating demand than packages aimed at transferring money to households (China's stimulus package). At the macro-level, the findings bear on the ongoing debate about aid effectiveness. They provide a behavioral interpretation of why aid may be less effective in fostering development than say migration or trade (Moffitt, 1984), and inform the debate about the optimality of different aid modalities such as grants, loans as well as the more innovative forms of development finance (Gupta et al. 2003; Odedokun 2003; Girishankar, 2009).<sup>5</sup>

In particular, the paper examines whether the marginal propensity to consume, invest and save from earned incomes is different from that of unearned incomes controlling for loans and returns to other assets. The effect of two other categorizations of income is further explored, i.e. the effect of small versus large income gains and the effects on spending of permanent/regular and transitory/irregular income. The latter has received a lot of attention since Friedman (1957) established the permanent income hypothesis. It implies that the MPC out of transitory income is low (transitory income is largely saved), while the MPC of permanent income is high (Paxson, 1992; Kuhn et al., 2008). The review by Thaler (1990) of many studies of life-cycle consumption profiles in developed countries suggests however that current consumption tracks current income too closely for the permanent income hypothesis to hold, even after accounting for imperfections in credit markets.

Unlike the majority of the studies reviewed above, the empirical application of this paper is to a developing country setting, i.e. rural China. Household fixed effects and time varying village fixed effects panel regression techniques are applied to a 5 year household panel of 1500 rural households from two provinces in western China, Gansu and Inner Mongolia, to estimate the differences in MPCs, marginal propensity to invest (MPIs) and marginal propensity to save (MPSs) across different income categories. Estimates thus reflect revealed preferences, as opposed to stated preferences or experimental settings, and these differences can be non-trivial.<sup>6</sup>

The results indicate that households have a higher marginal propensity to consume unearned income and a higher marginal propensity to invest (permanent) earned income and

---

<sup>5</sup> Nonetheless, while suggestive, care must be taken in interpreting the results in this context. The findings presented here concern micro-behavior at the household level, while the aid debate concerns decision-making processes at more aggregate levels such as local or national governments.

<sup>6</sup> This is nicely illustrated by the large discrepancy in demand for index based insurance observed in experimental settings versus field trials revealed in the papers presented at the I4 conference at FAO in January 2010 (<http://www.basis.wisc.edu/i4/agenda.html>).

loans. The majority of the households also have a higher marginal propensity to save (transitory) earned income. Unearned income gains (especially transitory ones) are more likely spent on non-basic consumption items such as tobacco, liquor, and other non-food and non-clothing consumption items than earned income gains. Permanent earned income gains on the other hand are at least as likely being spent on basic consumption items such as staples, water and fuel or on education. Gifts are mainly financed from unearned income and loans, consistent with the reciprocity principle. The findings are not much affected by the size of household income per capita, and the gender composition of the household. Together these results lend some credence to the age-old saying 'Easy come, easy go'.

In what follows, the data used in the study are described in Section 2. Section 3 explores theoretically how mental accounting affect consumption behaviour. The empirical strategy is reviewed in Section 4. The base results and a series of extensions are presented in Section 5. Section 6 concludes the paper.

## **2 Income, Consumption and Investment among Rural Households in China**

The data were collected by the National Bureau of Statistics of the Government of China as part of the monitoring and evaluation system for the World Bank supported Western Poverty Reduction Project. The project operated in Inner Mongolia and Gansu between 1999 and 2004 and supported households in project villages through the provision of agricultural loans and rural infrastructure. Fifteen project counties were sampled (8 in Inner Mongolia and 7 in Gansu) and within each sample county, 10 villages were sampled in the ratio of 6 project villages to 4 non-project villages. Within each sample village, 10 households were sampled randomly, yielding a sample of 800 households in Inner Mongolia and 700 in Gansu. Households were surveyed annually between 1999 and 2004. There was no attrition across rounds.

All data on household consumption, income and loans were collected through the daily diary method, with the exception of the baseline year 1999, when annual recall was used. To ensure comparability, the study is confined to the 2000-2004 panel. Data on household characteristics, e.g., demography, education, and assets were collected in December every year using a recall method.

Income is coded into two categories based on the effort involved in obtaining the income: earned income and unearned income. Earned income (E) includes wage income from temporary

migration to urban areas, wage income from participating in off-farm wage-earning activities locally, and income from family business. Farming, forestry, fishery, animal husbandry, construction, transportation, restaurant and other services are all considered as family business, which is the most important earned income. Unearned income (U) includes remittances<sup>7</sup>, gifts and transfers.

On average, most earned income is derived from family businesses (78% in Gansu and 86% in Inner Mongolia) (Tables 1 and 2). Less than half of the households have wage income. In Gansu wage income from temporary migration is more important than wages earned locally, while in Inner Mongolia it is the opposite. In both provinces, average unearned income is between 300 to 400 Yuan. In Table 3, households are categorized into four groups according to the size of their unearned income and the relative size between their unearned and earned income. The averages of unearned and earned income are presented. While there are only a few households with unearned income bigger than earned income, the size of unearned income is not negligible for the households in the category unearned income bigger than its median and unearned income smaller than earned income (around one third of the households are in this category and on average unearned income amounts to 8%-12% of earned income in this category).

Income is mostly spent on consumption, business and investment. In both provinces, the sum of consumption, business and investment is very close to total income. In our data, consumption includes food, housing, clothing, medicine, education etc. The share of food in total consumption is 53% in Gansu and 42 % in Inner Mongolia, the richer of both provinces. Housing and education are the next biggest ticket items. Investment spending consists of two parts: expenditure on family business and investment in productive assets with the former multiple times bigger than the latter in both provinces.

On a yearly basis, less than 50% of the households took loans in both provinces. In Gansu the average amount of loans is about 8% of the average income, in Inner Mongolia it is 15%. In both provinces, households also hold a significant amount of assets (in the form of financial assets and livestock). Together these two forms of assets amount on average to 38% and 57% of total income in Gansu and Inner Mongolia respectively.

---

<sup>7</sup> Remittances are sent back by people who are not considered to be household members, while wage income from migrants are from household members who have temporarily migrated to work as wage laborers. The former involves little or no effort from household members.

### 3 A Household Utility Optimization Model with Mental Accounts

Consider a rural household that derives income from multiple sources. Income from farming is the main income for this household, which requires investment in farm inputs and labor. The household can also allocate labor to off-farm self-employment or wage-employment locally or in urban areas. A common characteristic of income from these sources is that they all require effort. This type of income is denoted by  $E$ , earned income. The household obtains also income from other sources, such as transfer income from the government or other institutions, remittances from migrants who are no longer members of the household, and gifts received from friends or relatives. Income from these sources requires typically little direct effort. It is denoted by  $U$ , unearned income. The household's total income,  $I$ , is the sum of the two types of income:  $I = E + U$ .

The household spends its income on various types of expenditures. As a farm household it needs to buy inputs for farming and invest in productive assets. The household also needs to spend on consumption items like food, clothes, liquor, tobacco and medicine. Expenditures on the consumption items are denoted as  $c$  and those on farm inputs and investment as  $b$ . For illustrative purposes, assume that the household does not save (or that  $b$  captures all income transferred to the next period either through spending on investment items or cash savings) and its initial wealth is equal to zero. Therefore, the only way to finance any type of expenditure is by spending income. Thus:

$$c = c^e + c^u, \quad (1)$$

$$b = b^e + b^u, \quad (2)$$

where  $c^e$  is earned income spent on consumption,  $c^u$  is unearned income spent on consumption,  $b^e$  is earned income spent on farm inputs and investment,  $b^u$  is unearned income spent on farm inputs and investment. It follows that

$$E = c^e + b^e, \quad (3)$$

$$U = c^u + b^u. \quad (4)$$

The household derives its utilities from its expenditures. If the household does not mentally put income from different sources into different accounts, it does not matter whether the income

spent on consumption or investment items is earned or unearned. Assuming that the household lives for two periods, that the utilities from the two periods are additive, and that the household cannot borrow ( $c_1 \leq I_1$ ), the household maximizes

$$u(c_1) + \beta u(I_2^u + f(I_1 - c_1)), \text{ subject to } 0 \leq c_1 \leq I_1, \quad (5)$$

where  $u(\cdot)$  is the (concave) utility function  $f(\cdot)$  is the production function, both displaying concavity and  $\beta$  is the discount rate. Consumption in period one  $c_1$  is the sum of  $c_1^e$  and  $c_1^u$ . Income in period one  $I_1$  is given and is the sum of  $E_1$  and  $U_1$ . Assuming that unearned income in the second period  $I_2^u$  is exogenous and in the absence of borrowing. For simplicity we assume it is known to the household in the first period. In this question, the decision on consumption  $c_1$  depends only on the total income in period one  $I_1$  (and  $\beta$ ,  $I_2^u$ , the shapes of the utility and production function), but not the composition of  $I_1$ .

When mental accounting exists, households may feel differently about spending or investing/saving earned and unearned income. They may for example prefer to invest earned income given the efforts they put into obtaining it, while they could be less inclined to defer consumption from unearned income (or vice versa). Mentally the household puts earned and unearned income into different accounts, and evaluate the utilities derived from immediate and deferred consumption from earned and unearned income differently. In other words, current consumption of a certain good yields a different utility depending on whether it is financed by earned versus unearned income.

These insights can be captured by representing the household's utility from consumption by  $\lambda u(c^u) + u(c^e)$  (as opposed to  $u(c)$  under the fungibility assumption), with  $c^e$  and  $c^u$  the expenditures from different mental income accounts. The parameter  $\lambda$  captures how the utilities from spending income from different accounts differ. The household's optimization challenge now becomes:

$$\begin{aligned} \max \quad & \lambda u(c_1^u) + u(c_1^e) + \beta(\lambda u(I_2^u) + u(f(I_1 - c_1^u - c_1^e))) \\ \text{s.t.} \quad & c_1^u \leq I_1^u, \quad c_1^e \leq I_1^e, \quad c_1^u \geq 0, \quad c_1^e \geq 0, \end{aligned} \quad (6)$$

As the household's optimization horizon ends in period two, all income from unearned income is consumed ( $c_2^u = I_2^u$ ). The Lagrange function of this optimization problem becomes :

$$-(\lambda u(c_1^u) + u(c_1^e) + \beta(\lambda u(I_2^u) + u(f(I_1 - c_1^u - c_1^e)))) + \mu_u(c_1^u - I_1^u) + \mu_e(c_1^e - I_1^e) - \mu_1 c_1^u - \mu_2 c_1^e,$$

where  $\mu_u$ ,  $\mu_e$ ,  $\mu_1$  and  $\mu_2$  are the non-negative Lagrange multipliers.

The following conditions need to be satisfied when the utility reaches its optimum:

$$-\lambda \frac{\partial u}{\partial c_1^u} + \beta \frac{\partial u}{\partial (I_1 - c_1^u - c_1^e)} \frac{\partial \mathcal{F}(I_1 - c_1^u - c_1^e)}{\partial (I_1 - c_1^u - c_1^e)} + \mu_u - \mu_1 = 0,$$

$$-\frac{\partial u}{\partial c_1^e} + \beta \frac{\partial u}{\partial (I_1 - c_1^u - c_1^e)} \frac{\partial \mathcal{F}(I_1 - c_1^u - c_1^e)}{\partial (I_1 - c_1^u - c_1^e)} + \mu_e - \mu_2 = 0,$$

$$\mu_u (c_1^u - I_1^u) = 0,$$

$$\mu_e (c_1^e - I_1^e) = 0,$$

$$\mu_1 c_1^u = 0,$$

$$\mu_2 c_1^e = 0,$$

Solving these equations yields  $c_1^{*u} = c_1^u(I_1, \beta, \mu_u, \mu_1)$ ,  $c_1^{*e} = c_1^e(I_1, \beta, \mu_e, \mu_2)$ , From these conditions the following cases are possible:

**Case 1:**  $\mu_u = 0, \mu_e = 0, \mu_1 = 0, \mu_2 = 0$ .

This represents the interior solution, where none of the constraints binds and the household saves a portion of both its earned and unearned income. If a solution exists,

$$\frac{\partial c_1^{*u} + c_1^{*e}}{\partial c_1^u} = \frac{\partial c_1^{*u} + c_1^{*e}}{\partial c_1^e} = \frac{\partial c_1^{*u} + c_1^{*e}}{\partial (I_1 - c_1^u - c_1^e)} \frac{\partial (I_1 - c_1^u - c_1^e)}{\partial c_1^u} \text{ and } \frac{\partial c_1^{*u} + c_1^{*e}}{\partial c_1^e} = \frac{\partial c_1^{*u} + c_1^{*e}}{\partial (I_1 - c_1^u - c_1^e)} \frac{\partial (I_1 - c_1^u - c_1^e)}{\partial c_1^e}.$$

Since  $\frac{\partial c_1^{*u} + c_1^{*e}}{\partial c_1^u} = \frac{\partial c_1^{*u} + c_1^{*e}}{\partial c_1^e}$ , it follows that  $\frac{\partial c_1^{*u} + c_1^{*e}}{\partial c_1^u} = \frac{\partial c_1^{*u} + c_1^{*e}}{\partial c_1^e}$ . In this case the MPCs from earned

and unearned income are identical. The household puts earned and unearned income in different accounts but at the margin the source of income does not affect its overall current consumption and thus the amount it transfers to the next period, i.e. its savings/investment. Income from both sources is de facto still fungible.

**Case 2:**  $\mu_u \neq 0, \mu_e = 0, \mu_1 = 0, \mu_2 = 0$ .

In this case,  $c_1^{*u} = I_1^u$ , unearned income is only used for consumption,  $\frac{\partial c_1^{*u} + c_1^{*e}}{\partial c_1^u} = 1$  and

$0 \leq \frac{\partial c_1^{*u} + c_1^{*e}}{\partial c_1^e} \leq 1$ . Income is no longer fungible, the marginal propensity of (total) current

consumption differs depending on the source of income.

**Case 3:**  $\mu_u = 0, \mu_e \neq 0, \mu_1 = 0, \mu_2 = 0$ .

Earned income is only used for consumption ( $0 \leq \frac{\tilde{\alpha}c_1^{*u} + c_1^{*e}}{\tilde{\alpha}_1^u} \leq 1$  and  $\frac{\tilde{\alpha}c_1^{*u} + c_1^{*e}}{\tilde{\alpha}_1^e} = 1$ ).

**Case 4:**  $\mu_u = 0, \mu_e = 0, \mu_1 \neq 0, \mu_2 = 0$ .

Unearned income is only used for investment ( $\frac{\tilde{\alpha}c_1^{*u} + c_1^{*e}}{\tilde{\alpha}_1^u} = 0$  and  $0 \leq \frac{\tilde{\alpha}c_1^{*u} + c_1^{*e}}{\tilde{\alpha}_1^e} \leq 1$ ).

**Case 5:**  $\mu_u = 0, \mu_e = 0, \mu_1 = 0, \mu_2 \neq 0$ .

Earned income is only used for investment ( $0 \leq \frac{\tilde{\alpha}c_1^{*u} + c_1^{*e}}{\tilde{\alpha}_1^u} \leq 1$  and  $\frac{\tilde{\alpha}c_1^{*u} + c_1^{*e}}{\tilde{\alpha}_1^e} = 0$ ).

**Case 6:**  $\mu_u \neq 0, \mu_e \neq 0, \mu_1 = 0, \mu_2 = 0$ .

Both earned and unearned income are only used for consumption ( $\frac{\tilde{\alpha}c_1^{*u} + c_1^{*e}}{\tilde{\alpha}_1^u} = 1$  and

$$\frac{\tilde{\alpha}c_1^{*u} + c_1^{*e}}{\tilde{\alpha}_1^e} = 1).$$

**Case 7:**  $\mu_u \neq 0, \mu_e = 0, \mu_1 = 0, \mu_2 \neq 0$ .

Unearned income is only used for consumption and earned income is only used for investment

$$(\frac{\tilde{\alpha}c_1^{*u} + c_1^{*e}}{\tilde{\alpha}_1^u} = 1 \text{ and } \frac{\tilde{\alpha}c_1^{*u} + c_1^{*e}}{\tilde{\alpha}_1^e} = 0).$$

**Case 8:**  $\mu_u = 0, \mu_e \neq 0, \mu_1 \neq 0, \mu_2 = 0$ .

Earned income is only used for consumption and unearned income is only used for investment

$$(\frac{\tilde{\alpha}c_1^{*u} + c_1^{*e}}{\tilde{\alpha}_1^u} = 0 \text{ and } \frac{\tilde{\alpha}c_1^{*u} + c_1^{*e}}{\tilde{\alpha}_1^e} = 1).$$

**Case 9:**  $\mu_u = 0, \mu_e = 0, \mu_1 \neq 0, \mu_2 \neq 0$ .

Both earned and unearned income are used only for investment ( $\frac{\tilde{\alpha}c_1^{*u} + c_1^{*e}}{\tilde{\alpha}_1^u} = 0$  and

$$\frac{\tilde{\alpha}c_1^{*u} + c_1^{*e}}{\tilde{\alpha}_1^e} = 0).$$

Income is fungible in cases 1, 6 and 9, and fungibility is possible (though not likely) in cases 2 to 5. In cases 7 and 8 income is not fungible. To fix ideas, the decision making of a few

typical households in the data is illustrated using specific utility and production functions. The average incomes (shown in Table 3) are used as  $I_1^u$  and  $I_1^e$  to calculate the optimal consumption and investment/ saving. Figure 1 shows the results. When unearned income is smaller than earned income (first and last categories in each province), unearned income is only used for consumption and earned income is used for both consumption and investment. This is a special case of Case 2 in our model ( $\frac{\tilde{\alpha}c_1^{*u} + c_1^{*e}}{\tilde{\alpha}_1^u} = 1$  and  $0 < \frac{\tilde{\alpha}c_1^{*u} + c_1^{*e}}{\tilde{\alpha}_1^e} < 1$ ). When unearned income is bigger than earned income (scenario 2), for small  $\lambda$  it is the fungible Case 1 in our model and for big  $\lambda$  it is Case 2 ( $\frac{\tilde{\alpha}c_1^{*u} + c_1^{*e}}{\tilde{\alpha}_1^u} = 1$  and  $0 < \frac{\tilde{\alpha}c_1^{*u} + c_1^{*e}}{\tilde{\alpha}_1^e} < 1$ ). In Gansu when  $\lambda$  is very close to one we observe Case 3 ( $0 < \frac{\tilde{\alpha}c_1^{*u} + c_1^{*e}}{\tilde{\alpha}_1^u} < 1$  and  $\frac{\tilde{\alpha}c_1^{*u} + c_1^{*e}}{\tilde{\alpha}_1^e} = 1$ ) as well, but this case does not appear in Inner Mongolia.

The graphs illustrate that the relative size between earned and unearned income is a factor which determines whether income is fungible. When unearned income is bigger than earned income, fungibility of income becomes more likely. In this situation the MPI/MPS of unearned income will be higher (compared to the situation when unearned income is smaller than earned income) since unearned income is less likely to be spent entirely on consumption. When unearned income is smaller than earned income, unearned income is more likely to be spent entirely on consumption. In this situation the MPC of unearned income will be bigger compared to the situation when unearned income is bigger than earned income. The parameter  $\lambda$  also affects the fungibility of income. The bigger the  $\lambda$ , the less likely income is fungible. Households with different initial  $I_1^u$  and  $I_1^e$  and different characteristics will end up in different cases (with fungible or non-fungible income). The observed spending behavior will be a weighted average of spending behavior from all types of households.

#### 4 An Empirical Strategy to Compare MPCs across Income Sources

Whether household spending behavior on consumption depends on the source of income can be tested using the following equation:

$$C_{vht} = \alpha_0 + \alpha_1 U_{vht} + \alpha_2 E_{vht} + e_{vht}, \quad (7)$$

where  $C_{vht}$  is the consumption of household  $h$  living in village  $v$  at time  $t$  and  $e_{vht}$  is the error term. When income is fungible, the MPC from the earned income is equal to that from the unearned income ( $\alpha_1 = \alpha_2$ ).

Direct application of (7) to the data is problematic. First, consumption may not only depend on income but also on credit and (returns to) assets, which are likely correlated with income itself. Second, households are located in different villages. Local policies, facilities and cultural characteristics that are specific to locations may simultaneously affect household income and spending. Third, households are different. For example, a household with extensive social networks may receive and send out more gifts and transfers than a less well-connected household. We do not observe social networks directly in our data. Households also have different demographic characteristics, which may affect the composition of their income as well as their spending behavior.

These considerations are accommodated by augmenting equation (7) with loans taken during  $t$ , the asset position at  $t-1$ , time varying village dummies, household fixed effects, and a series of time varying household characteristics:

$$C_{vht} = \alpha_1 U_{vht} + \alpha_2 E_{vht} + \alpha_3 L_{vht} + \alpha_4 A_{vht-1} + \alpha_5 Liv_{vht-1} + \sum_{i=1}^m \alpha_i^H H_{vht,i} + \sum_{j=1}^n \alpha_j^V V_{jt} \quad (8)$$

$$+ u_{vh} + e_{vht},$$

where  $L_{vht}$  denote the loans incurred in  $t$ ,  $A_{vht-1}$  the household's financial assets at the beginning of year  $t$ ,  $Liv_{vht-1}$  the value of livestock at the beginning of year  $t$ ,  $n$  the number of villages, and  $V_{jt}$  is the set of village-year dummies. The latter term controls for all time variant community characteristics (including changes in relative prices and the overall macro-economic conditions).

Time invariant unobserved household heterogeneity (including preferences) is controlled for through the inclusion of household dummies, while  $H_{vht}$  captures the  $m$  most important remaining time variant household characteristics that may also affect consumption behavior (and income). These include demographic characteristics of the household such as household size and dependency ratio, and the number of disabled household members as well as the gender, age, and education of the household head. A control for the household occupation is also included (a business household who owns a shop or a factory may be more inclined to invest its income in its

business than to consume it) as well as whether the household belongs to the rural cadres (which may provide them with easier access to transfers).

One important consideration is the gender composition of the household, which has been widely documented to affect consumption behavior of the household (income earned by women being more likely to be spent on food and human capital investment than income earned by men). It may also affect saving behavior. If the income composition of the household is further affected by the gender composition of the household--households with a majority of women could for example be more (or less) likely to receive transfers—then differences in marginal propensity to consume from earned and unearned income may be attributed erroneously to mental accounting based on the effort involved in obtaining the income as opposed to the maintenance of separate accounts along gender lines (Duflo and Udry, 2004). To the extent that the gender composition of the household remains constant during the period under study (2000-2004), this would not affect our results, given the inclusion of household fixed effects. Nonetheless, the female labor ratio is also included to further control for any changes in the gender composition over time. Table 4 provides a description of the different household characteristics  $H_{vht}$ . The existence of reciprocity in gift giving—income received as gift being more likely to be spent as gifts—has been documented before (Sobel, 2005). To explore whether the marginal propensity to consume now differs between earned and unearned income beyond gift giving, gifts given are excluded from the overall expenditure measure examined here. How the marginal propensity to give gifts differs between earned and unearned income will be studied separately in the later discussions.

Equation (8) forms the base equation and it is first estimated using Ordinary Least Squares (OLS). The linear specification in (8) permits easy testing of the fungibility assumption. Fungibility between unearned income and earned income implies  $\alpha_1 = \alpha_2$ . Inclusion of household fixed effects obviously protects better against potential bias from unobserved heterogeneity, but it may also reduce efficiency. More importantly, inclusion of household fixed effects forces identification of the MPC from transitory income, while OLS estimates without household fixed effects identify the MPCs from variations across households in both transitory and permanent income. The potential effect of the temporary nature of income will be explored more directly in an extension to (8) discussed below.

Similar models as in (8) are estimated to test whether the spending behavior on business and investment and saving in financial assets depends on income sources:

$$\begin{aligned}
B_{vht} = & \beta_1 U_{vht-1} + \beta_2 E_{vht-1} + \beta_3 L_{vht} + \beta_4 A_{vht-2} + \beta_5 Liv_{vht-2} + \sum_{i=1}^m \beta_i^H H_{vht,i} + \sum_{j=1}^n \beta_j^V V_{jt} \\
& + u_{vh} + e_{vht},
\end{aligned} \tag{9}$$

$$\begin{aligned}
A_{vht} - A_{vht-1} = & \gamma_1 U_{vht} + \gamma_2 E_{vht} + \gamma_3 L_{vht} + \gamma_4 A_{vht-2} + \gamma_5 Liv_{vht-1} + \sum_{i=1}^m \gamma_i^H H_{vht,i} + \sum_{j=1}^n \gamma_j^V V_{jt} \\
& + u_{vh} + e_{vht},
\end{aligned} \tag{10}$$

The parameters  $\beta_1$ ,  $\beta_2$  and  $\beta_3$  measure the marginal propensity to invest (MPI) from the two sources of income and credit respectively. Income is lagged and assets are lagged twice, as rural households incur most of their expenditure on family business and productive assets before the farming season at the beginning of the year. The parameters  $\gamma_1$ ,  $\gamma_2$  and  $\gamma_3$  measure the marginal propensity to save (MPS) from the two sources of income and credit respectively. Savings  $A_{vht}$  may depend on the household's initial savings  $A_{vht-1}$ . Since  $\gamma_4$  is not the variable of interest in this paper and to mitigate the usual econometric issue of dynamic panel data models,  $A_{vht-2}$  is used to capture the impact of initial asset level  $A_{vht-1}$ .

Five extensions to equations (8)-(10) are explored: 1) whether the anticipation of income (temporary versus permanent) affects its marginal propensity to consume or invest; 2) whether the nature of the consumption (e.g. necessity or luxury) or investment good affects the MPCs and MPIS from income sources differently, as opposed to the more aggregate distinction between aggregated consumption and investment; 3) the sensitivity of MPC to income per capita levels—the poor being more likely to spend than invest than the rich; 4) gender differences in MPCs from different income sources; 5) sensitivity to the size of the income gains (the windfall argument) and the size of the loans (e.g. small loans for shock mitigation versus big loans for investment).

First, Friedman's theory of permanent income predicts that a household's consumption only depends on its permanent income. Paxson (1992) tests this theory and finds that households save most of their transitory income but not their permanent income. If earned income in our sample is mostly permanent and unearned income mostly transitory, the findings might simply reflect the durability of the income gains, and not the efforts dispensed. If so, the MPC from

unearned income should be smaller than the MPC from earned income. To explore this further, earned and unearned income are separated into a permanent part and a transitory part as follows:

$$E_{vht} = \sum_{j=1}^n \eta_j (t \times V_j) + v_{vh}^e + r_{vht}^e, \quad U_{vht} = \sum_{j=1}^n \rho_j (t \times V_j) + v_{vh}^u + r_{vht}^u, \quad (11)$$

where  $V_j$  is village dummies,  $v_{vh}^e$  and  $v_{vh}^u$  are household fixed effects,  $r_{vht}^e$  and  $r_{vht}^u$  are error terms. Define

$$EP_{vht} = \sum_{j=1}^p \eta_j (t \times V_j) + v_{vh}^e, \quad ET_{vht} = r_{vht}^e, \quad (12)$$

$$UP_{vht} = \sum_{j=1}^p \rho_j (t \times V_j) + v_{vh}^u, \quad UT_{vht} = r_{vht}^u,$$

where  $EP_{vht}$  is earned permanent income,  $ET_{vht}$  is earned transitory income,  $UP_{vht}$  is unearned permanent income, and  $UT_{vht}$  is unearned transitory income.

Permanent income is the household fixed effect plus a village specific time trend and the difference between observed income and estimated permanent income is the transitory income. Considering that transitory income may be correlated across year, the error terms are modeled to follow an AR(1) process:

$$r_{vht}^e = \rho r_{vht-1}^e + f_{vht}^e, \quad r_{vht}^u = \rho r_{vht-1}^u + f_{vht}^u, \quad (13)$$

where  $f_{vht}^e$  and  $f_{vht}^u$  are identically independently distributed and follow normal distributions with the means equal to zero. The following equations are then estimated to explore the effect of the durability of income gains on consumption, investment and saving behavior:

$$\begin{aligned} C_{vht} &= \varphi_1 UP_{vht} + \varphi_2 UT_{vht} + \varphi_3 EP_{vht} + \varphi_4 ET_{vht} + \varphi_5 L_{vht} + \varphi_6 A_{vht-1} + \varphi_7 Liv_{vht-1} \\ &\quad + \sum_{i=1}^m \varphi_i^H H_{vht,i} + \sum_{j=1}^n \varphi_j^V V_{jt} + e_{vht}, \\ B_{vht} &= \psi_1 UP_{vht-1} + \psi_2 UT_{vht-1} + \psi_3 EP_{vht-1} + \psi_4 ET_{vht-1} + \psi_5 L_{vht} + \psi_6 A_{vht-2} + \psi_7 Liv_{vht-2} \\ &\quad + \sum_{i=1}^m \psi_i^H H_{vht,i} + \sum_{j=1}^n \psi_j^V V_{jt} + e_{vht}, \\ A_{vht} - A_{vht-1} &= \kappa_1 UP_{vht} + \kappa_2 UT_{vht} + \kappa_3 EP_{vht} + \kappa_4 ET_{vht} + \kappa_5 L_{vht} + \kappa_6 A_{vht-2} + \kappa_6 Liv_{vht-1} \\ &\quad + \sum_{i=1}^m \kappa_i^H H_{vht,i} + \sum_{j=1}^n \kappa_j^V V_{jt} + e_{vht}, \end{aligned} \quad (14)$$

Second, to explore whether the source of income affects spending (and investment) behavior differently across consumption (investment) items—for example earned income more likely going to necessities and unearned income more likely going to entertainment and luxuries—equations (8) - (10) are re-estimated by consumption (investment) item:

$$\begin{aligned}
 CI_{vht,k} &= \theta_{1,k}U_{vht} + \theta_{2,k}E_{vht} + \theta_{3,k}L_{vht} + \theta_{4,k}A_{vht-1} + \theta_{5,k}Liv_{vht-1} + \sum_{i=1}^m \theta_{i,k}^H H_{vht,i} + \sum_{j=1}^n \theta_{j,k}^V V_{jt} + u_{vh} + e_{vht}, \\
 BI_{vht,l} &= \sigma_{1,l}U_{vht-1} + \sigma_{2,l}E_{vht-1} + \sigma_{3,l}L_{vht} + \sigma_{4,l}A_{vht-2} + \sigma_{5,l}Liv_{vht-2} + \sum_{i=1}^m \sigma_{i,l}^H H_{vht,i} + \sum_{j=1}^n \sigma_{j,l}^V V_{jt} + u_{vh} + e_{vht}
 \end{aligned}
 \tag{15}$$

where  $CI_{vht,k}$  and  $BI_{vht,l}$  denote consumption item and business and investment item respectively.

Comparison of the parameters  $\theta_{1,k}$  and  $\theta_{2,k}$  provides a test of whether the MPC on item  $k$  is different across earned and unearned income. Similarly, comparison of  $\sigma_{1,l}$  and  $\sigma_{2,l}$  permits testing whether the MPI on item  $l$  is equal across income sources.

Third, it is possible that differences in MPCs and MPIs across income sources are driven by need, i.e. the mental accounts might be more likely to bind quicker for the poor than for the rich. To test this, specification (16) is re-estimated with both income sources and loans interacted with income per capita percentiles.

Fourth, while inclusion of the gender composition of the household protects against omitted variable bias, the MPCs to consume or save out of earned and unearned income may still be sensitive to the gender composition of the household. To test this, interaction terms are included between the female-labor ratio and the earned and unearned income terms as well as the loans taken.

Fifth, to explore further whether the size of the unearned income and loans matters, unearned income and loans are interacted with dummy variables indicating whether they are larger than their 90<sup>th</sup> percentile to test whether these large values are driving our results.

## 5 The Empirics of Income Fungibility

### 5.1 Households consume more from unearned income and invest/save more from earned income

The estimated marginal propensity of immediate consumptions (MPCs) (as opposed to deferred consumption through saving/investment) from different income sources are presented in Table 5.<sup>8</sup> For both provinces, the OLS estimates are presented first, followed by the within estimates (column FE). Column PT presents the estimated MPCs and MPIs/MPSs with earned and unearned income decomposed in their transitory and permanent parts. Two panels are presented, one for the full sample, and one excluding households with large unearned income relative to earned income, which the theory predicts to behave differently from other households. There are only few such households (23 and 47 in Gansu and Inner Mongolia respectively, or 0.8 and 1.5 percent of the sample).

Reflective of the existence of mental accounts according to the earned/unearned nature of income, the OLS findings suggest that the MPC from unearned income is one and a half times bigger than that from earned income in both provinces.<sup>9</sup> The within estimates even suggest a difference of a factor three. The within estimates implicitly control for a household's permanent income through the inclusion of household fixed effects, in essence identifying the estimated coefficients from transitory income. This would suggest that it is especially the MPC from *transitory* unearned income that is larger. Decomposing earned and unearned income in their permanent and transitory components respectively (columns PT) provides some support for this. An increase in transitory unearned income is two and a half to three times more likely to be consumed than an increase in transitory earned income.

Yet, the difference increases to more than a factor four when excluding those few observations whose transitory income is on average at least twice as large as its earned income (PT estimates, panel 2). Furthermore, the marginal propensity to consume from unearned permanent income also increases, which, with the MPC from earned income remaining unaffected, results in a statistically significant difference in MPC from unearned income over earned income of a factor 1.5 in Gansu. The gap in MPC from unearned and earned income also

---

<sup>8</sup> The consumption variable does not include gifts given

<sup>9</sup> The p-values from a Wald test of the equality of the coefficients are provided at the bottom of the tables.

increases to a factor 1.9 in IM, though at a p-value of 17 percent the difference remains statistically insignificant. When unearned income largely exceeds earned income, a larger share of unearned income is saved for the next period, reducing the marginal propensity of immediate consumption, as predicted by the theoretical model in section 3. For about 99 percent of the sample however, the MPC from unearned income is substantially larger than the MPC from earned income, more so when it concerns unearned transitory income, but plausibly also when unearned income is more permanent.

Finally, as predicted by the permanent income hypothesis, the marginal propensity to consume is larger from permanent than from transitory income, though this only holds when income is earned and not when income is unearned. Whether income is earned or unearned affects consumption/saving decisions beyond their permanent or transitory nature.

These core results regarding the larger MPC from unearned income are mirrored in a lower MPI/MPS from unearned income and a larger MPI/MPS from earned income (Table 6). This is most clear cut for Inner Mongolia, where the marginal propensity to invest or save unearned income is not statistically different from zero. In Gansu however, a substantial part of unearned income is also deferred through saving in financial assets. Yet, as discussed above, it concerns here also households whose unearned income largely exceeds its earned incomes. When excluding these 23 observations (Table 6, panel 2), the MPS from unearned income is no longer statistically different from zero, and only earned income is invested or saved. It furthermore appears that it is permanent earned income that is invested (or spent on inputs in the family business), while transitory earned income is saved in more liquid financial assets.

The MPC's from loans on total consumption are around 0.19-0.27 (Tables 5 and 6), slightly higher than those from earned income, but well below these from unearned income. However, with an MPC of 0.2-0.3 it is clear that many loans are not only taken for investment purposes, but also for consumption purposes. This is more the case in Gansu (the poorer of the two provinces), where the MPC and the MPI from loans are about the same, than in Inner Mongolia, where the MPI from loans is more than twice the MPC from loans.

Overall, the estimated results reported in Tables 5 and 6 point to a higher MPC for current consumption from unearned income<sup>10</sup> and a larger marginal propensity to invest/save

---

<sup>10</sup> It could be argued that the larger marginal propensity to immediately consume unearned income follows from the fact that it largely consists of transfers given to compensate for (earned) income shocks. Yet, the FE estimates already control for covariant shocks through the time varying

(MPC+MPS) from earned income. These distinctions in the MPC and MPS/I from earned and unearned income are clear when earned income is larger than unearned income as in most of the sample<sup>11</sup> and more pronounced when income is transitory, than when income is permanent.

## 5.2 Unearned income is more likely spent on non-basic consumption items

Comparing the MPC from earned and unearned income across different consumption items it emerges that for a number of non-basic consumption goods (though not all), the MPC is larger from unearned income (especially transitory unearned income) than from earned income (Table 7). This holds especially for spending on non-staple food<sup>12</sup>, tobacco and other non-food spending, but also for spending on liquor and clothing in (richer) Inner Mongolia, and housing (durables) in (poorer) Gansu.

The MPC for spending from earned and unearned income on staple foods is not statistically different. Nonetheless, the decline in MPC from earned income in going from OLS to within estimates suggests the MPC on staple foods from permanent income is larger. When explicitly considering the sustainability of the income gain, it becomes clear that the MPC from permanent earned income on staple foods is larger than this from permanent unearned income (coefficients on unearned permanent income are not statistically significant). Staple foods are not financed from loans. In Inner Mongolia, the MPCs from earned income on housing (non-durables) are bigger than those from unearned income, while in Gansu, the MPCs from unearned income on durables are bigger than those from earned income, indicating that earned income is more likely to be used for basic consumption items like fuel, gas etc. while unearned income is more likely used for larger non-basic consumption items such as furniture and home improvement. Similarly, the MPC from earned income on education is at least as large as that

---

village level effects as well as idiosyncratic shocks through the inclusion of the disability status of the household members (which changes over time). Moreover, if despite these controls, there was still such omitted variable bias based on the exclusion of idiosyncratic shocks, our current estimates of the MPC on unearned income are biased downward (shocks positively correlated with unearned income and negatively correlated with consumption (only partial smoothing)) and the current estimate of MPC on earned income would be biased upward (shocks were negatively correlated with earned income and negatively correlated with consumption). The current gap in MPC from unearned and earned income would thus in effect be a lower bound. Moreover, re-estimation removing relief funds from unearned incomes does not change the results. Similarly, removing pensions from unearned income does not change the results.

11 As discussed before, the only exception is the a few households with bigger unearned income than earned income, who save a significant portion of their unearned income.

12 Staple food includes grains, potatoes and beans.

from unearned income, and the MPC from permanent earned income on education is larger.<sup>13</sup> The MPC from loans on education is as large as the MPC from earned income.

Gifts are only financed from unearned income, not from earned income, consistent with the reciprocity hypothesis raised before. Loans are also used to finance gifts and medicines. The MPC from loans is largest for consumption items like housing, but loans are not used to finance staples. But, as indicated before, loans are mostly spent to finance (variable) family business expenditures (in Gansu) and investment in productive assets (in Inner Mongolia). The marginal propensity to invest in the family business from (permanent) earned income is largest in Inner Mongolia.

In conclusion, there is a tendency for unearned income (and especially transitory unearned income) to be spent more easily on non-basic consumption goods, while permanent gains in earned incomes are spent more on basic consumption goods such as staple foods, housing (non-durables) and education. Gifts are totally financed from unearned incomes and loans, not unlike what is predicted by the age-old saying “What goes around, comes around.”<sup>14</sup>

### **5.3 Core pattern of consuming unearned and investing earned incomes largely unaffected by the income level of households<sup>15</sup>**

Does the difference in MPC from earned and unearned income differ depending on how rich the household is? Specifications so far have assumed MPC, MPI and MPS constant across income per capita levels. This assumption is tested through the inclusion of interactions between income and loans variables and dummies indicating the below 25<sup>th</sup> percentile, 25<sup>th</sup> -50<sup>th</sup> percentile and above 75<sup>th</sup> percentile income per capita percentiles of the household (Table 8).

The results of households in the middle group and the richest 25 percentiles are consistent with our earlier findings. Households are more likely to spend their unearned income on

---

13 In Gansu, this is already hinted at by the higher OLS estimate of the MPC on education compared with the within estimate.

14 Excluding observations with unearned income bigger than earned income does not change the results on investment items (family business and investment on productive assets). In general, the MPCs of unearned income become slightly bigger for almost all consumption items. This change is however not big enough to affect the discussions of the results in the main text. The only exception is gifts. The results for Gansu are largely unchanged. However, in Inner Mongolia unearned income is not used for gifts and gifts are financed only by loans once we only use a sub-sample of the data. This may indicate that the reciprocity of gifts only occurs for households with relatively big unearned income. The results are available from the authors upon request.

15 In all robustness checks excluding observations with unearned income bigger than earned income do not affect the results of living expenditures and investment. The MPSs of unearned income become insignificant and small in all cases. The MPSs of earned income remain almost unchanged. Results are not reported but available upon request.

consumption, and they are more likely to spend earned (permanent) income on their business and investment and saving. The poorest 25 percentiles follow the same pattern (larger for the MPC of unearned income and larger for the MPI of earned income) though the coefficients are not significant in most of the cases. While the marginal propensity to save of unearned income is large in Gansu, it is driven by a few observations with unearned income bigger than earned income.

The poorest 25 percentiles rely more heavily on loans to finance consumption. The MPC from loans are 0.44 and 0.34 for these households in Gansu and Inner Mongolia respectively. Nonetheless, even for these poor households, loans still contribute significantly to business and investment spending. In Gansu, some of the loans are even saved.

#### **5.4 Consumption and investment patterns largely robust to gender composition of household**

While explicit control of the gender composition of the household helps mitigate concerns that the results are driven by maintaining different accounts across gender lines as opposed to across unearned and earned income, the propensity to keep different mental accounts of earned and unearned income ( $\lambda$ ) may also differ by gender. To explore this, the different income sources are interacted with the female-labor ratio within the household (Table 9). The effect of the gender composition of the household are subsequently tested at two points, the 25<sup>th</sup> and 75<sup>th</sup> percentile of the female labor ratio in each province. The proposition that the MPC from unearned income largely exceeds this of earned income holds irrespective of the gender composition of the household. Both unearned income and the interaction term between unearned income and female labor ratio are not significant in the business and investment regression either (at least for the OLS estimates), suggesting that unearned income does not contribute to investment even after controlling for gender composition. Gender composition does not significantly affect the behavior of saving as financial assets as the interaction terms are all not significant in the third panel of Table 9.

## 6 Conclusion

Behavioral economists are calling attention to consumption phenomena that violate the income fungibility assumption underpinning most economic modeling and policy advice. They argue that people code income in different mental accounts, establishing an explicit link between the source of income and spending behavior. This paper explores the existence of such accounts with respect to the effort dispensed in earning income. This link has not received much conceptual or empirical attention in (development) economics.

Estimation of the marginal propensity to consume, invest and save among households in rural China supports the notion that unearned income tends to be consumed more (and even more so when it is transitory). Earned income on the other hand (especially when it is permanent) tends to be invested and saved more. Unearned income gains (especially transitory ones) are also more likely spent on non-staple foods and non-basic consumption items such as tobacco, liquor, and other non-food and non-clothing consumption items than earned income gains. Permanent earned income gains on the other hand are at least as likely being spent on basic consumption items such as staple foods or on education. Gifts are mainly financed from unearned income and loans, consistent with the reciprocity principle.

These results hold controlling for time invariant unobserved household heterogeneity (including of preferences) and time variant village characteristics and are largely robust to the household's income position and its gender composition. Together these revealed preferences lend support to the psychologically grounded choice theory of mental accounting. They further bear on important policy debates such as the modalities of stimulus packages and safety nets (e.g. employment generating programs or unconditional cash transfers) and aid programs (loans or grants). Heeding the much ignored age-old saying 'Easy come, easy go' might be time well spent in future theoretical and empirical work.

## References

- Abeler, Johannes, and Felix, Marklein. 2008. "Fungibility, Labels and Consumption." *IZA Discussion Paper 3500*.
- Afridi, Faranza. 2005. "Public Transfers and Intra-Household Resource Allocation: Evidence from a Supplementary School Feeding Program." *Working Paper, University of Michigan, Ann Harbor*.
- Agarwal, Sumit, Chunlin, Liu, and Nicholas, Souleles. 2007. "The Reaction of Consumer Spending and Debt to Tax Rebates—Evidence from Consumer Credit Data." *Journal of Political Economy* 115-6: 986-1019.
- Duflo, Esther, and Christopher, Udry. 2004. Intrahousehold Resource Allocation in Cote d'Ivoire: Social Norms, Separate Accounts and Consumption Choices. *NBER Working Paper Series 10498*.
- Friedman, Milton. 1957. *A Theory of the Consumption Function*. Princeton University Press.
- Girishankar, Navin. 2009. "Innovating Development Finance – From Financing Sources to Financial Solutions". *World Bank Policy Research Working Paper 5111*: World Bank: Washington D.C.
- Gupta, Sanjeev, Benedict Clements, Alexander Pivovarsky, and Erwin R. Tiongson. 2003. "Foreign Aid and Revenue Response: Does the Composition of Aid Matter?" Edited by Sanjeev Gupta, Benedict Clements, and Gabriela Inchauste, *Helping Countries Develop: The Role of Fiscal Policy*. Washington: International Monetary Fund.
- Hoffman, Vivian. 2007. "Mental accounts, gender, or both: The intrahousehold allocation of free and purchased mosquito nets." Working paper, Cornell University.
- Imbens, G., D., Rubin, and B., Sacerdote. 2001. "Estimating the Effect of Unearned Income on Labor Earnings, Savings and Consumption: Evidence from a Survey of Lottery Players." *American Economic Review* 91-4: 778-794.
- Islam, Mahnaz, and John, Hoddinott. 2009. "Evidence of Intrahousehold Flypaper Effects from a Nutrition Intervention in Rural Guatemala." *Economic Development and Cultural Change* 57-2: 215-37.
- Jacoby, Hanan. 2002. "Is There an Intrahousehold 'Flypaper' Effect? Evidence from a School Feeding Programme." *Economic Journal* 112: 196-221.

- Kooreman, Peter. 2000. "The Labeling Effect of a Child Benefit System." *American Economic Review* 90-3: 571-583.
- Kuhn, Peter, Peter, Kooreman, Adriaan, Soetevent, Arie Kapteyn. 2008. "The Own and Social Effects of an Unexpected Income Shock." *Tinbergen Institute Discussion Paper* 48-1, Erasmus Universiteit Rotterdam.
- Moffitt, Robert. 1984. "The Effects of Grant-in-Aid on State and Local Expenditures: The Case of AFDC." *Journal of Public Economics* 23: 279-305.
- Odedokun, Matthew. 2003. "Economics and Politics of Official Loans versus Grants: Panoramic Issues and Empirical Evidence." Discussion Paper No. 2003/04, World Institute for Development Economics Research, Helsinki, Finland.
- Paxson, Christina H. 1992. "Using weather variability to estimate the response of savings to transitory income in Thailand." *American Economic Review* 82: 15-33.
- Sobel, Joel. 2005. Interdependent Preferences and Reciprocity. *Journal of Economic Literature*, 43 June: 392-436.
- Thaler, Richard. 1985. "Mental accounting and consumer choice." *Marketing Science* 4: 199-213.
- , 1990. "Anomalies: Saving, Fungibility, and Mental Accounts." *Journal of Economic Perspectives* 4-1: 193-205.
- . 1999. "Mental accounting matters." *Journal of Behavioral Decision Making* 12: 183-206.
- Zhu, Yu, Zhongmin, Wu, Meiyan Wang, Yang, Du, and Fang, Cai. 2008. "Do Migrants Really Save More? Understanding the Impact of Remittances on Savings in Rural China", mimeographed.

## Tables

Table 1: Summary statistics (Gansu)

Variables	N	mean	sd	min	median	max
Total income	3,500	6,360	3,907	0	5,598	87,533
Earned income	3,500	5,962	3,536	0	5,269	86,092
Wage income from migrants	3,500	827	1,483	0	0	17,480
Other wage income	3,500	513	1,185	0	0	12,955
Income from family business	3,500	4,623	3,332	0	3,930	86,092
Unearned income	3,500	363	1,705	0	34	79,858
Remittances	3,500	128	611	0	0	18,634
Gifts	3,500	95	638	0	0	19,980
Other transfers <sup>1)</sup>	3,500	141	1,443	0	17	79,858
Survey subsidy	2,100	27	40	0	23	528
Relief funds	3,500	2	38	0	0	1,408
Insurance	2,100	0	3	0	0	113
Pension	3,500	19	313	0	0	8,977
Injury (death) compensation	1,400	59	2,135	0	0	79,858
Money for supporting the old	1,400	8	110	0	0	1,851
Reimbursement of medical cost	1,400	0	0	0	0	0
Tax refund	1,400	0	3	0	0	41
Forestry subsidy ( <i>Tuigenhuanlin</i> )	1,400	17	97	0	0	1,516
Total consumption	3,500	4,381	2,950	633	3,621	51,675
Food	3,500	2,337	1,435	404	2,116	50,809
Staple food <sup>2)</sup>	3,500	1,208	1,095	0	1,076	50,430
Non-staple food	3,500	624	476	0	531	7,829
Entertainment	3,500	93	302	0	5	2,989
Education	3,500	396	1,101	0	92	15,179
Liquor	3,500	109	146	0	64	1,979
Tobacco	3,500	122	140	0	82	1,958
Money to non-residential family members	3,500	21	146	0	0	4,505
Gifts sent out	3,500	86	645	0	0	17,904
Other consumption	3,500	1,423	1,723	10	910	29,195
Clothing	3,500	203	193	0	153	2,623
Housing - durables <sup>3)</sup>	3,500	272	965	0	0	27,972
Housing – non-durables	3,500	505	812	0	318	13,880
Medicine	3,500	223	702	0	74	18,143
Transportation	3,500	164	559	0	19	10,729
Business and investment	3,500	1,282	1,735	0	873	24,998
Family business	3,500	1,128	1,253	0	844	24,710
Productive assets	3,500	154	1,006	0	0	22,523
Taxes	3,500	148	189	0	111	5,631
Loans	3,500	490	2,202	0	0	75,075
Financial assets <sup>4)</sup>	3,500	1,462	2,020	0	781	26,405
Livestock	3,500	953	953	0	887	14,985

Note. - The unit is Yuan (1 Yuan is around 0.12 Dollar). All values are in 1999 price of Gansu.

1) While all items were recorded in all years, subclassification of survey subsidy and insurance was only available in 2000-2002, and subclassification of the last five items of other transfers was only available in 2003-2004. 2) Staple food includes grains, potatoes and beans. 3) Housing – durables include materials for building and decorating houses, costs of purchasing houses, furniture and housing facilities. Housing – non-durables include costs of electricity, water, fuel, and daily necessities. 4) Financial assets include deposit in banks, cash at home, bonds and stocks.

**Table 2: Summary statistics (Inner Mongolia)**

Variables	N	mean	sd	min	median	max
Total income	4,000	9,716	5,972	357	8,626	70,047
Earned income	4,000	9,331	5,816	49	8,277	68,631
Wage income from migrants	4,000	328	1,146	0	0	17,349
Other wage income	4,000	669	1,429	0	0	12,687
Income from family business	4,000	8,334	5,676	0	7,308	68,631
Unearned income	4,000	329	990	0	64	22,444
Remittances	4,000	20	208	0	0	7,807
Gifts	4,000	119	834	0	0	22,388
Other transfers <sup>1)</sup>	4,000	190	483	0	56	10,815
Survey subsidy	2,400	48	52	0	56	741
Relief funds	4,000	1	22	0	0	672
Insurance	2,400	0	0	0	0	0
Pension	4,000	0	2	0	0	136
Injury (death) compensation	1,600	0	4	0	0	153
Money for supporting the old	1,600	4	75	0	0	2,056
Reimbursement of medical cost	1,600	0	3	0	0	117
Tax refund	1,600	3	34	0	0	718
Forestry subsidy ( <i>Tuigenhuanlin</i> )	1,600	94	278	0	0	3,186
Total consumption	4,000	5,452	3,720	288	4,438	45,919
Food	4,000	2,297	885	105	2,171	8,817
Staple food <sup>2)</sup>	4,000	838	402	0	787	4,438
Non-staple food	4,000	884	481	0	835	8,100
Entertainment	4,000	134	338	0	32	8,227
Education	4,000	630	1,329	0	154	13,713
Liquor	4,000	135	143	0	94	1,467
Tobacco	4,000	136	141	0	101	2,430
Money sent to non-residential family members	4,000	86	747	0	0	25,563
Gifts sent out	4,000	312	1,110	0	54	27,529
Other consumption	4,000	1,961	2,492	12	1,218	38,795
Clothing	4,000	346	342	0	265	5,016
Housing – durables <sup>3)</sup>	4,000	270	1,247	0	0	28,346
Housing – non-durables	4,000	504	579	0	367	10,453
Medicine	4,000	327	999	0	92	21,465
Transportation	4,000	410	996	0	95	21,842
Business and investment	4,000	4,090	4,414	0	2,836	62,242
Family business	4,000	3,415	3,264	0	2,580	58,057
Productive assets	4,000	673	2,679	0	0	45,008
Taxes	4,000	349	482	0	201	7,964
Loans	4,000	1,404	3,358	0	0	63,800
Financial assets <sup>4)</sup>	4,000	2,784	3,357	2	1703	33,646
Livestock	4,000	1,285	3,948	0	694	61,763

Note. - The unit is Yuan (1 Yuan is around 0.12 Dollar). All values are in 1999 price of Inner Mongolia.

1) While all items were recorded in all years, subclassification of survey subsidy and insurance was only available in 2000-2002, and subclassification of the last five items of other transfers was only available in 2003-2004. 2) Staple food includes grains, potatoes and beans. 3) Housing – durables include materials for building and decorating houses, costs of purchasing houses, furniture and housing facilities. Housing – non-durables include costs of electricity, water, fuel, and daily necessities. 4) Financial assets include deposit in banks, cash at home, bonds and stocks.

**Table 3: Average unearned and earned income in each group**

		Unearned income<median <sup>1)</sup>	Unearned income>median
<b>Gansu</b>			
Unearned < Earned	Avg. unearned	32 (1,127)	810 (1,080)
	Avg. earned	6,040 (1,127)	6,415 (1,080)
Unearned > Earned	Avg. unearned	50 (1)	7,627 (47)
	Avg. earned	7 (1)	3,076 (47)
<b>Inner Mongolia</b>			
Unearned < Earned	Avg. unearned	66 (1,308)	833 (1,286)
	Avg. earned	9,191 (1,308)	10,145 (1,286)
Unearned > Earned	Avg. unearned	NA (0)	6,922 (23)
	Avg. earned	NA (0)	3,596 (23)

Note. – The number of observations in each group is in the bracket.

1) “Median” is the median of unearned income of all observations from the province with non-zero unearned income.

**Table 4: Descriptive statistics of the control variables**

variables	explanation	N <sup>1)</sup>	mean	sd	min	max
<b>Gansu</b>						
Business household	Dummy:=1 if household is a business household; 0 if not	3,500	0.07	0.26	0	1
Rural cadres' household	Dummy:=1 if household is a cadres' household; 0 if not	3,500	0.07	0.25	0	1
Household size	Size of the household	3,500	4.77	1.34	0	10
Female labor ratio	Female 16<=age<=60/household labor	3,500	0.48	0.15	0	1
Dependency ratio	(household size - member 16<=age<=60)/member 16<=age<=60	3,500	0.29	0.21	0	1
Gender household head	Dummy:=1 if gender of household head is male; 0 if not	3,497	1.00	0.06	0	1
Age household head	Age of household head	3,497	41.88	11.10	5	83
Education level household head	Years of education	3,486	6.85	3.66	0	16
No. of disabled people	No. of disabled people 16<=age<=60	3,500	0.07	0.29	0	3
<b>Inner Mongolia</b>						
Business household	Dummy:=1 if household is a business household; 0 if not	4,000	0.03	0.18	0	1
Rural cadres' household	Dummy:=1 if household is a cadres' household; 0 if not	4,000	0.04	0.19	0	1
Household size	Size of the household	4,000	3.72	0.98	1	8
Female labor ratio	Female 16<=age<=60/household labor	4,000	0.48	0.15	0	1
Dependency ratio	(household size - member 16<=age<=60)/member 16<=age<=60	4,000	0.22	0.20	0	1
Gender household head	Dummy:=1 if gender of household head is male; 0 if not	3,995	0.99	0.09	0	1
Age household head	Age of household head	3,995	44.10	8.89	23	78
Education level household head	Years of education	3,995	8.25	2.50	0	16
No. of disabled people	No. of disabled people 16<=age<=60	4,000	0.08	0.40	0	4

<sup>1)</sup> Based on all 5 survey rounds in 2000-2004. The difference in the number of observations is due to missing values.

**Table 5: Regressions results - Consumption**

Consumption (exclusive gifts given)	Gansu			Inner Mongolia		
	OLS	FE	PT	OLS	FE	PT
<b>Panel 1: Living expenditures (full sample)</b>						
Unearned permanent income			0.473*** (0.081)			0.319** (0.116)
Unearned (transitory) income	0.465*** (0.082)	0.436*** (0.076)	0.471*** (0.081)	0.327*** (0.068)	0.339*** (0.070)	0.334*** (0.075)
Earned permanent income			0.390*** (0.035)			0.244*** (0.025)
Earned (transitory) income	0.252*** (0.041)	0.155*** (0.042)	0.146*** (0.041)	0.194*** (0.019)	0.124*** (0.025)	0.133*** (0.023)
Loans	0.277*** (0.075)	0.240*** (0.062)	0.275*** (0.072)	0.193*** (0.043)	0.197*** (0.044)	0.188*** (0.042)
Unearned (permanent) = Earned (permanent) <sup>1)</sup>	0.013	0.001	0.329	0.061	0.003	0.533
Unearned transitory = Earned transitory			0.000			0.009
R-squared	0.601	0.466	0.616	0.436	0.292	0.442
N. of Obs.	2,788	2,788	2,788	3,196	3,196	3,196
<b>Panel 2: Living expenditures (exclusive observations with Unearned income &gt;&gt; Earned income)</b>						
Unearned permanent income			0.614*** (0.091)			0.459** (0.156)
Unearned (transitory) income	0.616*** (0.092)	0.582*** (0.105)	0.644*** (0.094)	0.473*** (0.133)	0.545*** (0.139)	0.493*** (0.137)
Earned permanent income			0.393*** (0.035)			0.242*** (0.025)
Earned (transitory) income	0.254*** (0.042)	0.158*** (0.044)	0.147*** (0.042)	0.192*** (0.019)	0.121*** (0.025)	0.130*** (0.023)
Loans	0.273*** (0.074)	0.236*** (0.061)	0.270*** (0.071)	0.192*** (0.043)	0.196*** (0.044)	0.186*** (0.043)
Unearned (permanent) = Earned (permanent) <sup>1)</sup>	0.000	0.000	0.021	0.038	0.003	0.176
Unearned transitory = Earned transitory			0.000			0.009
R-squared	0.604	0.470	0.620	0.436	0.295	0.442
N. of Obs.	2,753	2,753	2,753	3,176	3,176	3,176

Note. – Time varying village dummies are included in all regressions. Financial assets, livestock as specified in equations (8)-(10), and variables in Table 4 are included in all regressions. Robust standard errors are shown in brackets. 1) P-values from Wald test of equality of the coefficients. \*, \*\*, \*\*\* Significant at the 10%, 5%, 1% levels.

**Table 6: Regression results – Investment and savings**

	Gansu			Inner Mongolia		
	OLS	FE	PT	OLS	FE	PT
<b>Business and investment</b>						
L.Unearned permanent income			0.064 (0.047)			0.048 (0.150)
L.Unearned (transitory) income	0.039 (0.044)	-0.042 (0.047)	0.039 (0.040)	0.001 (0.064)	0.008 (0.071)	-0.005 (0.077)
L.Earned permanent income			0.259*** (0.049)			0.527*** (0.053)
L.Earned (transitory) income	0.095** (0.043)	0.004 (0.021)	-0.025 (0.040)	0.284*** (0.031)	-0.032 (0.068)	-0.023 (0.048)
Loans	0.269*** (0.054)	0.291*** (0.050)	0.251*** (0.051)	0.471*** (0.082)	0.478*** (0.088)	0.425*** (0.077)
Unearned (permanent) = Earned (permanent)	0.318	0.357	0.003	0.000	0.714	0.005
Unearned transitory = Earned transitory		0.245			0.851	
R-squared	0.502	0.465	0.542	0.533	0.402	0.601
N. of Obs.	2,089	2,089	2,089	2,400	2,400	2,400
<b>Saving in financial assets</b>						
Unearned permanent income			0.225* (0.120)			-0.037 (0.125)
Unearned (transitory) income	0.279** (0.129)	0.420** (0.145)	0.304** (0.132)	0.063 (0.081)	0.125 (0.091)	0.098 (0.089)
Earned permanent income			0.043 (0.030)			0.055** (0.021)
Earned (transitory) income	0.104*** (0.031)	0.140** (0.043)	0.150*** (0.043)	0.076*** (0.017)	0.109*** (0.029)	0.106*** (0.023)
Loans	-0.018 (0.012)	-0.015 (0.015)	-0.019 (0.012)	-0.024 (0.022)	-0.004 (0.029)	-0.022 (0.022)
Unearned (permanent) = Earned (permanent)	0.184	0.061	0.143	0.877	0.877	0.479
Unearned transitory = Earned transitory		0.256			0.932	
R-squared	0.402	0.394	0.407	0.284	0.233	0.285
N. of Obs.	2,089	2,089	2,089	2,400	2,400	2,400
<b>Panel 2: without observations with Unearned income &gt;&gt; Earned income</b>						
<b>Business and investment</b>						
L.Unearned permanent income			0.044 (0.091)			0.075 (0.180)
L.Unearned (transitory) income	0.009 (0.094)	0.000 (0.080)	0.020 (0.089)	-0.009 (0.140)	0.042 (0.152)	0.030 (0.131)
L.Earned permanent income			0.260*** (0.049)			0.528*** (0.054)
L.Earned (transitory) income	0.094** (0.043)	0.004 (0.022)	-0.027 (0.040)	0.284*** (0.031)	-0.032 (0.069)	-0.023 (0.048)
Loans	0.270*** (0.054)	0.290*** (0.050)	0.252*** (0.051)	0.469*** (0.082)	0.477*** (0.087)	0.423*** (0.076)
Unearned (permanent) = Earned (permanent)	0.409	0.963	0.035	0.042	0.694	0.022
Unearned transitory = Earned transitory			0.644			0.716
R-squared	0.503	0.466	0.544	0.533	0.404	0.602
N. of Obs.	2,058	2,058	2,058	2,382	2,382	2,382

	Gansu			Inner Mongolia		
	OLS	FE	PT	OLS	FE	PT
<b>Saving in financial assets</b>						
Unearned permanent income			-0.043 (0.080)			-0.085 (0.135)
Unearned (transitory) income	-0.014 (0.078)	0.04 (0.123)	-0.008 (0.081)	0.008 (0.093)	0.044 (0.140)	0.041 (0.103)
Earned permanent income			0.047 (0.030)			0.058** (0.021)
Earned (transitory) income	0.106*** (0.030)	0.143*** (0.042)	0.150*** (0.042)	0.079*** (0.017)	0.111*** (0.029)	0.107*** (0.023)
Loans	-0.016 (0.012)	-0.013 (0.015)	-0.017 (0.012)	-0.024 (0.022)	-0.003 (0.030)	-0.022 (0.022)
Unearned (permanent) = Earned (permanent)	0.158	0.431	0.291	0.470	0.653	0.310
Unearned transitory = Earned transitory			0.086			0.545
R-squared	0.402	0.382	0.406	0.286	0.234	0.287
N. of Obs.	2,067	2,067	2,067	2,387	2,387	2,387

Note. – Time varying village dummies are included in all regressions. Financial assets, livestock as specified in equations (8)-(10), and variables in Table 4 are included in all regressions. Robust standard errors are shown in brackets. 1) P-values from Wald test of equality of the coefficients. \*, \*\*, \*\*\* Significant at the 10%, 5%, 1% levels.

**Table 7: Regressions of sub-categories**

	Gansu			Inner Mongolia		
	OLS	FE	PT	OLS	FE	PT
<b>Gifts</b>						
Unearned permanent income			0.051** (0.025)			0.354*** (0.085)
Unearned (transitory) income	0.059** (0.026)	0.077** (0.031)	0.064** (0.028)	0.320*** (0.089)	0.307*** (0.091)	0.308** (0.094)
Earned permanent income			0.015 (0.016)			0.003 (0.005)
Earned (transitory) income	0.006 (0.006)	-0.001 (0.007)	-0.001 (0.007)	0.002 (0.004)	0.001 (0.006)	0.001 (0.006)
Loans	0.040 (0.029)	0.045 (0.031)	0.040 (0.028)	0.046* (0.025)	0.050* (0.029)	0.046* (0.025)
Unearned income=Earned income <sup>1)</sup>	0.043	0.010		0.000	0.001	
Unearned permanent = Earned permanent			0.225			0.000
Unearned transitory = Earned transitory			0.017			0.001
R-squared	0.187	0.180	0.189	0.226	0.219	0.226
N. of Obs.	2,788	2,788	2,788	3,196	3,196	3,196
<b>Staple food</b>						
Unearned permanent income			0.010 (0.008)			0.013 (0.011)
Unearned (transitory) income	0.014* (0.007)	0.016** (0.007)	0.017** (0.007)	0.011 (0.007)	0.011 (0.007)	0.010 (0.008)
Earned permanent income			0.015*** (0.004)			0.009*** (0.002)
Earned (transitory) income	0.008** (0.004)	0.003 (0.003)	0.002 (0.005)	0.007*** (0.001)	0.005** (0.002)	0.004** (0.002)
Loans	-0.002 (0.002)	0.000 (0.002)	-0.002 (0.002)	-0.001 (0.002)	-0.001 (0.002)	-0.001 (0.002)
Unearned income=Earned income	0.433	0.086		0.569	0.371	
Unearned permanent = Earned permanent			0.522			0.121
Unearned transitory = Earned transitory			0.073			0.661
R-squared	0.679	0.570	0.681	0.593	0.537	0.594
N. of Obs.	2,788	2,788	2,788	3,196	3,196	3,196
<b>Non-staple food</b>						
Unearned permanent income			0.069*** (0.015)			0.126*** (0.030)
Unearned (transitory) income	0.065*** (0.013)	0.045** (0.016)	0.067*** (0.012)	0.103*** (0.024)	0.094*** (0.023)	0.095*** (0.025)
Earned permanent income			0.095*** (0.013)			0.052*** (0.005)
Earned (transitory) income	0.042*** (0.010)	0.001 (0.008)	0.001 (0.010)	0.039*** (0.003)	0.021*** (0.004)	0.023*** (0.004)
Loans	0.024*** (0.005)	0.017** (0.006)	0.023*** (0.004)	0.007* (0.004)	0.009** (0.004)	0.006 (0.004)
Unearned income=Earned income	0.110	0.008		0.009	0.002	
Unearned permanent = Earned permanent			0.176			0.016
Unearned transitory = Earned transitory			0.000			0.005

Table 7 continued

	Gansu			Inner Mongolia		
	OLS	FE	PT	OLS	FE	PT
R-squared	0.664	0.557	0.691	0.537	0.379	0.545
N. of Obs.	2,788	2,788	2,788	3,196	3,196	3,196
<b>Clothing</b>						
Unearned permanent income			0.009** (0.004)			0.008 (0.012)
Unearned (transitory) income	0.010** (0.004)	0.012** (0.006)	0.011** (0.004)	0.020** (0.010)	0.025** (0.010)	0.025** (0.010)
Earned permanent income			0.014*** (0.002)			0.024*** (0.003)
Earned (transitory) income	0.010*** (0.002)	0.007** (0.002)	0.007** (0.003)	0.016*** (0.002)	0.006** (0.003)	0.006** (0.003)
Loans	0.004 (0.003)	0.005* (0.002)	0.004 (0.003)	0.001 (0.002)	-0.001 (0.002)	0.000 (0.002)
Unearned income=Earned income	0.960	0.367		0.735	0.038	
Unearned permanent = Earned permanent			0.234			0.189
Unearned transitory = Earned transitory			0.331			0.071
R-squared	0.456	0.293	0.459	0.346	0.171	0.361
N. of Obs.	2,788	2,788	2,788	3,196	3,196	3,196
<b>Housing- durables</b>						
Unearned permanent income			0.149** (0.055)			0.024 (0.057)
Unearned (transitory) income	0.152** (0.051)	0.137** (0.046)	0.154** (0.050)	0.037 (0.027)	0.046* (0.024)	0.042 (0.030)
Earned permanent income			0.012 (0.010)			0.032** (0.011)
Earned (transitory) income	0.013 (0.010)	0.013 (0.011)	0.014 (0.013)	0.029*** (0.008)	0.025** (0.010)	0.026** (0.010)
Loans	0.042 (0.030)	0.052 (0.033)	0.042 (0.030)	0.058** (0.023)	0.061** (0.023)	0.058** (0.023)
Unearned income=Earned income	0.007	0.008		0.784	0.403	
Unearned permanent = Earned permanent			0.013			0.895
Unearned transitory = Earned transitory			0.007			0.595
R-squared	0.241	0.214	0.241	0.182	0.153	0.182
N. of Obs.	2,788	2,788	2,788	3,196	3,196	3,196
<b>Housing - non-durables</b>						
Unearned permanent income			0.037** (0.014)			0.018 (0.021)
Unearned (transitory) income	0.039** (0.014)	0.049** (0.020)	0.040** (0.015)	0.006 (0.010)	0.002 (0.009)	0.002 (0.012)
Earned permanent income			0.053*** (0.013)			0.028*** (0.005)
Earned (transitory) income	0.058** (0.018)	0.064** (0.024)	0.062** (0.023)	0.025*** (0.005)	0.019** (0.006)	0.020*** (0.006)
Loans	0.028** (0.010)	0.024** (0.010)	0.028** (0.010)	0.020** (0.006)	0.023** (0.007)	0.020** (0.006)
Unearned income=Earned income	0.265	0.522		0.094	0.131	

Table 7 continued

	Gansu			Inner Mongolia		
	OLS	FE	PT	OLS	FE	PT
Unearned permanent = Earned permanent			0.309			0.646
Unearned transitory = Earned transitory			0.305			0.166
R-squared	0.500	0.456	0.500	0.353	0.211	0.354
N. of Obs.	2,788	2,788	2,788	3,196	3,196	3,196
<b>Medicine</b>						
Unearned permanent income			0.015 (0.015)			0.038 (0.045)
Unearned (transitory) income	0.014 (0.014)	0.021 (0.014)	0.015 (0.013)	0.042 (0.034)	0.047 (0.029)	0.044 (0.034)
Earned permanent income			0.020 (0.014)			0.003 (0.008)
Earned (transitory) income	0.010 (0.011)	0.003 (0.012)	0.002 (0.012)	-0.001 (0.005)	-0.009 (0.008)	-0.005 (0.007)
Loans	0.051 (0.035)	0.052 (0.038)	0.051 (0.035)	0.053** (0.018)	0.057** (0.017)	0.053** (0.018)
Unearned income=Earned income	0.790	0.323		0.231	0.078	
Unearned permanent = Earned permanent			0.785			0.451
Unearned transitory = Earned transitory			0.453			0.174
R-squared	0.157	0.122	0.158	0.169	0.167	0.169
N. of Obs.	2,788	2,788	2,788	3,196	3,196	3,196
<b>Transportation</b>						
Unearned permanent income			0.055** (0.024)			0.068** (0.031)
Unearned (transitory) income	0.052** (0.022)	0.038 (0.024)	0.050** (0.022)	0.047** (0.018)	0.038* (0.020)	0.040* (0.021)
Earned permanent income			0.034** (0.011)			0.042*** (0.006)
Earned (transitory) income	0.026** (0.009)	0.019** (0.008)	0.019* (0.010)	0.037*** (0.005)	0.028*** (0.006)	0.030*** (0.007)
Loans	0.027** (0.011)	0.027** (0.012)	0.026** (0.012)	0.020** (0.008)	0.021** (0.009)	0.020** (0.008)
Unearned income=Earned income	0.256	0.461		0.573	0.626	
Unearned permanent = Earned permanent			0.409			0.419
Unearned transitory = Earned transitory			0.172			0.625
R-squared	0.233	0.178	0.234	0.237	0.194	0.238
N. of Obs.	2,788	2,788	2,788	3,196	3,196	3,196
<b>Entertainment</b>						
Unearned permanent income			0.012 (0.008)			-0.003 (0.011)
Unearned (transitory) income	0.012 (0.008)	0.013 (0.011)	0.012 (0.009)	0.003 (0.007)	0.006 (0.007)	0.005 (0.007)
Earned permanent income			0.009** (0.004)			0.008*** (0.002)
Earned (transitory) income	0.008** (0.004)	0.007* (0.004)	0.007 (0.005)	0.005** (0.002)	0.003 (0.002)	0.003 (0.002)
Loans	0.000	0.000	0.000	0.005**	0.004	0.004**

Table 7 continued

	Gansu			Inner Mongolia		
	OLS	FE	PT	OLS	FE	PT
	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)
Unearned income=Earned income	0.660	0.647		0.706	0.713	
Unearned permanent = Earned permanent			0.709			0.348
Unearned transitory = Earned transitory			0.647			0.733
R-squared	0.205	0.173	0.205	0.206	0.163	0.207
N. of Obs.	2,788	2,788	2,788	3,196	3,196	3,196
<b>Education</b>						
Unearned permanent income			0.074*			-0.019
			(0.040)			(0.047)
Unearned (transitory) income	0.065*	0.065	0.064	0.012	0.022	0.024
	(0.039)	(0.040)	(0.040)	(0.033)	(0.025)	(0.036)
Earned permanent income			0.140***			0.036***
			(0.026)			(0.008)
Earned (transitory) income	0.078***	0.036**	0.031	0.029***	0.021**	0.021**
	(0.019)	(0.015)	(0.031)	(0.007)	(0.008)	(0.009)
Loans	0.098**	0.060**	0.097**	0.030**	0.028**	0.029**
	(0.044)	(0.026)	(0.043)	(0.011)	(0.010)	(0.011)
Unearned income=Earned income	0.751	0.498		0.614	0.967	
Unearned permanent = Earned permanent			0.156			0.262
Unearned transitory = Earned transitory			0.473			0.942
R-squared	0.269	0.177	0.284	0.193	0.149	0.194
N. of Obs.	2,788	2,788	2,788	3,196	3,196	3,196
<b>Liquor</b>						
Unearned permanent income			0.010**			0.030**
			(0.004)			(0.009)
Unearned (transitory) income	0.009**	0.005**	0.008**	0.028***	0.027***	0.027***
	(0.003)	(0.003)	(0.003)	(0.007)	(0.005)	(0.007)
Earned permanent income			0.010***			0.006***
			(0.002)			(0.001)
Earned (transitory) income	0.006**	0.003*	0.003	0.005***	0.002**	0.003**
	(0.002)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)
Loans	0.004**	0.004***	0.004**	0.001	0.002	0.001
	(0.002)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)
Unearned income=Earned income	0.334	0.322		0.000	0.000	
Unearned permanent = Earned permanent			0.830			0.015
Unearned transitory = Earned transitory			0.086			0.000
R-squared	0.550	0.502	0.554	0.379	0.378	0.382
N. of Obs.	2,788	2,788	2,788	3,196	3,196	3,196
<b>Tobacco</b>						
Unearned permanent income			0.013**			0.024**
			(0.006)			(0.011)
Unearned (transitory) income	0.014**	0.012**	0.014**	0.025**	0.026**	0.026**
	(0.005)	(0.004)	(0.005)	(0.010)	(0.010)	(0.010)
Earned permanent income			0.010***			0.005***
			(0.002)			(0.001)
Earned (transitory) income	0.005**	0.001	0.001	0.005***	0.003***	0.004***

Table 7 continued

	Gansu			Inner Mongolia		
	OLS	FE	PT	OLS	FE	PT
	(0.002)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)
Loans	0.005***	0.004**	0.005***	0.001	0.002*	0.001
	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
Unearned income=Earned income	0.094	0.010		0.043	0.024	
Unearned permanent = Earned permanent			0.523			0.094
Unearned transitory = Earned transitory			0.012			0.031
R-squared	0.546	0.499	0.554	0.336	0.304	0.337
N. of Obs.	2,788	2,788	2,788	3,196	3,196	3,196
<b>Family business</b>						
L.Unearned permanent income			0.056*			0.113
			(0.033)			(0.128)
L.Unearned (transitory) income	0.031	-0.045	0.026	-0.053	-0.108*	-0.106*
	(0.029)	(0.036)	(0.027)	(0.046)	(0.056)	(0.060)
L.Earned permanent income			0.198***			0.438***
			(0.039)			(0.034)
L.Earned (transitory) income	0.085**	0.006	0.004	0.248***	0.000	0.008
	(0.038)	(0.020)	(0.036)	(0.024)	(0.048)	(0.034)
Loans	0.220***	0.238***	0.208***	0.110**	0.046	0.073**
	(0.063)	(0.061)	(0.062)	(0.034)	(0.034)	(0.029)
Unearned income=Earned income	0.202	0.215		0.000	0.164	
Unearned permanent = Earned permanent			0.004			0.016
Unearned transitory = Earned transitory			0.584			0.096
R-squared	0.537	0.475	0.569	0.543	0.304	0.634
N. of Obs.	2,089	2,089	2,089	2,400	2,400	2,400
<b>Investment in productive assets</b>						
L.Unearned permanent income			0.009			-0.063
			(0.024)			(0.116)
L.Unearned (transitory) income	0.009	0.002	0.013	0.055	0.117**	0.102*
	(0.022)	(0.022)	(0.021)	(0.042)	(0.054)	(0.055)
L.Earned permanent income			0.062**			0.088**
			(0.023)			(0.030)
L.Earned (transitory) income	0.010	-0.003	-0.028	0.035**	-0.030	-0.031
	(0.012)	(0.009)	(0.018)	(0.017)	(0.029)	(0.026)
Loans	0.049	0.052	0.043	0.362***	0.433***	0.353***
	(0.031)	(0.033)	(0.031)	(0.074)	(0.089)	(0.074)
Unearned income=Earned income	0.978	0.839		0.686	0.025	
Unearned permanent = Earned permanent			0.115			0.226
Unearned transitory = Earned transitory			0.148			0.044
R-squared	0.215	0.188	0.232	0.450	0.437	0.458
N. of Obs.	2,089	2,089	2,089	2,400	2,400	2,400

Note. – Time varying village dummies are included in all regressions. Financial assets, livestock as specified in equation (15), and variables in Table 4 are included in all regressions. Robust standard errors are shown in brackets.

1) P-values from Wald test of equality of the coefficients.

\* Significant at the 10% level.

\*\* Significant at the 5% level.

\*\*\* Significant at the 1% level.

**Table 8: Regression results with percentiles of income per capita**

	Gansu		Inner Mongolia	
	OLS	FE	OLS	FE
<b>Living expenditures</b>				
Unearned income poorest 25 percentiles	0.064 (0.145)	0.301** (0.147)	0.204 (0.299)	0.306 (0.322)
Unearned income middle 50 percentiles	0.346*** (0.094)	0.416*** (0.108)	0.491** (0.160)	0.626*** (0.165)
Unearned income top 25 percentiles	0.433*** (0.098)	0.400*** (0.086)	0.274*** (0.066)	0.265*** (0.064)
Earned income poorest 25 percentiles	0.021 (0.089)	0.029 (0.086)	0.066 (0.061)	0.026 (0.068)
Earned income middle 50 percentiles	0.133** (0.057)	0.064 (0.058)	0.159*** (0.032)	0.096** (0.038)
Earned income top 25 percentiles	0.227*** (0.041)	0.147** (0.045)	0.188*** (0.022)	0.124*** (0.028)
Loans poorest 25 percentiles	0.444*** (0.123)	0.343** (0.129)	0.349** (0.113)	0.336** (0.121)
Loans middle 50 percentiles	0.383** (0.138)	0.356** (0.133)	0.191** (0.065)	0.194** (0.063)
Loans top 25 percentiles	0.227** (0.075)	0.195*** (0.057)	0.153** (0.050)	0.156** (0.054)
Bottom p25: Unearned = Earned <sup>1)</sup>	0.748	0.049	0.641	0.386
Middle 50p: Unearned = Earned	0.012	0.000	0.039	0.002
Top 25p: Unearned = Earned	0.041	0.006	0.210	0.039
R-squared	0.609	0.477	0.441	0.300
N. of Obs.	2,788	2,788	3,196	3,196
<b>Business and investment</b>				
L.Unearned income poorest 25 percentiles	0.006 (0.113)	0.113 (0.123)	0.181 (0.315)	0.213 (0.360)
L.Unearned income middle 50 percentiles	0.013 (0.072)	-0.009 (0.086)	0.028 (0.119)	-0.026 (0.147)
L.Unearned income top 25 percentiles	0.027 (0.055)	-0.064 (0.056)	-0.035 (0.072)	0.002 (0.080)
L.Earned income poorest 25 percentiles	0.057 (0.084)	-0.028 (0.041)	0.150** (0.072)	-0.147 (0.136)
L.Earned income middle 50 percentiles	0.073 (0.057)	-0.007 (0.027)	0.217*** (0.042)	-0.052 (0.089)
L.Earned income top 25 percentiles	0.089* (0.046)	0.004 (0.022)	0.252*** (0.033)	-0.036 (0.075)
Loans poorest 25 percentiles	0.360** (0.135)	0.467** (0.150)	0.169 (0.114)	0.256** (0.120)
Loans middle 50 percentiles	0.088** (0.043)	0.128** (0.055)	0.355*** (0.091)	0.376*** (0.104)
Loans top 25 percentiles	0.284*** (0.062)	0.298*** (0.057)	0.650*** (0.096)	0.646*** (0.098)
Bottom p25: Unearned = Earned	0.635	0.259	0.920	0.292
Middle 50p: Unearned = Earned	0.336	0.981	0.120	0.867

Table 8 continued

	Gansu		Inner Mongolia	
	OLS	FE	OLS	FE
Top 25p: Unearned = Earned	0.355	0.271	0.000	0.757
R-squared	0.508	0.476	0.549	0.420
N. of Obs.	2,089	2,089	2,400	2,400
<b>Saving in financial assets</b>				
Unearned income poorest 25 percentiles	0.231 (0.161)	0.329 (0.280)	0.421 (0.305)	0.615 (0.454)
Unearned income middle 50 percentiles	0.297** (0.119)	0.535** (0.163)	0.048 (0.134)	0.114 (0.182)
Unearned income top 25 percentiles	0.275* (0.158)	0.395** (0.176)	0.046 (0.091)	0.092 (0.101)
Earned income poorest 25 percentiles	0.021 (0.088)	0.031 (0.112)	-0.042 (0.059)	-0.060 (0.079)
Earned income middle 50 percentiles	0.111** (0.052)	0.155** (0.064)	0.055* (0.032)	0.046 (0.044)
Earned income top 25 percentiles	0.102** (0.035)	0.141** (0.048)	0.068*** (0.021)	0.094** (0.031)
Loans poorest 25 percentiles	0.137** (0.055)	0.216*** (0.056)	-0.013 (0.086)	0.005 (0.105)
Loans middle 50 percentiles	0.005 (0.043)	-0.026 (0.058)	-0.006 (0.024)	0.030 (0.031)
Loans top 25 percentiles	-0.035* (0.018)	-0.033** (0.016)	-0.052 (0.035)	-0.051 (0.045)
Bottom p25: Unearned = Earned	0.210	0.334	0.140	0.153
Middle 50p: Unearned = Earned	0.109	0.013	0.959	0.708
Top 25p: Unearned = Earned	0.281	0.165	0.822	0.989
R-squared	0.406	0.402	0.286	0.237
N. of Obs.	2,089	2,089	2,400	2,400

Note. – Time varying village dummies are included in all regressions. Financial assets, livestock as specified in equations (8)-(10), and variables in Table 4 are included in all regressions. Robust standard errors are shown in brackets. The 25<sup>th</sup> percentile of income per capita is 876 Yuan and 1599 Yuan in Gansu and Inner Mongolia respectively. The 75<sup>th</sup> percentile of income per capita is 1677 Yuan and 3378 Yuan in Gansu and Inner Mongolia respectively.

1) P-values from Wald test of equality of the coefficients.

\* Significant at the 10% level.

\*\* Significant at the 5% level.

\*\*\* Significant at the 1% level.

**Table 9: Regression results with female labor ratio**

	Gansu		Inner Mongolia	
	OLS	FE	OLS	FE
<b>Living expenditures</b>				
Unearned income	0.386**	0.485**	0.593**	0.684**
	(0.190)	(0.191)	(0.217)	(0.225)
Unearned income*female labor ratio 16<=age<=60	0.151	-0.108	-0.480	-0.626*
	(0.369)	(0.376)	(0.344)	(0.352)
Earned income	0.295***	0.259**	0.163***	0.146**
	(0.069)	(0.086)	(0.046)	(0.061)
Earned income*female labor ratio 16<=age<=60	-0.094	-0.226	0.063	-0.048
	(0.123)	(0.162)	(0.085)	(0.106)
Loans	0.161	0.033	0.140	0.197*
	(0.176)	(0.157)	(0.111)	(0.119)
Loans*female labor ratio 16<=age<=60	0.261	0.465	0.109	-0.003
	(0.460)	(0.409)	(0.224)	(0.233)
Ratio=p25: Unearned income=Earned income <sup>1)</sup>	0.030	0.001	0.035	0.005
Ratio=p75: Unearned income=Earned income	0.012	0.000	0.037	0.001
R-squared	0.601	0.470	0.437	0.294
N. of Obs.	2,788	2,788	3,196	3,196
<b>Business and investment</b>				
L.Unearned income	-0.041	-0.324**	-0.351	0.197
	(0.072)	(0.123)	(0.284)	(0.256)
L.Unearned income*female labor ratio 16<=age<=60	0.164	0.576**	0.627	-0.339
	(0.113)	(0.210)	(0.458)	(0.431)
L.Earned income	0.192**	0.109*	0.297***	-0.18
	(0.069)	(0.059)	(0.076)	(0.131)
L.Earned income*female labor ratio 16<=age<=60	-0.199**	-0.205**	-0.025	0.311*
	(0.096)	(0.096)	(0.122)	(0.176)
Loans	-0.300*	-0.333**	0.515**	0.627***
	(0.158)	(0.158)	(0.173)	(0.175)
Loans*female labor ratio 16<=age<=60	1.217***	1.338***	-0.091	-0.29
	(0.322)	(0.329)	(0.330)	(0.304)
Ratio=p25: Unearned income=Earned income	0.138	0.037	0.004	0.352
Ratio=p75: Unearned income=Earned income	0.348	0.348	0.000	0.643
R-squared	0.521	0.498	0.534	0.408
N. of Obs.	2,089	2,089	2,400	2,400
<b>Saving in financial assets</b>				
Unearned income	0.146	0.129	0.335	0.445
	(0.175)	(0.252)	(0.270)	(0.393)
Unearned income*female labor ratio 16<=age<=60	0.271	0.587	-0.490	-0.575
	(0.370)	(0.532)	(0.452)	(0.655)
Earned income	0.144**	0.239**	0.060	0.067
	(0.060)	(0.091)	(0.045)	(0.070)
Earned income*female labor ratio 16<=age<=60	-0.086	-0.216	0.033	0.087
	(0.108)	(0.167)	(0.083)	(0.133)
Loans	-0.026	-0.01	-0.069	0.024

Table 9 continued

	Gansu		Inner Mongolia	
	OLS	FE	OLS	FE
	(0.068)	(0.096)	(0.079)	(0.116)
Loans*female labor ratio 16<=age<=60	0.018	-0.007	0.089	-0.059
	(0.142)	(0.202)	(0.148)	(0.215)
Ratio=p25: Unearned income=Earned income	0.227	0.114	0.451	0.409
Ratio=p75: Unearned income=Earned income	0.168	0.044	0.868	0.652
R-squared	0.402	0.396	0.284	0.233
N. of Obs.	2,089	2,089	2,400	2,400

Note. – Time varying village dummies are included in all regressions. Financial assets, livestock as specified in equations (8)-(10), and variables in Table 4 are included in all regressions. Robust standard errors are shown in brackets. The 25<sup>th</sup> and 75<sup>th</sup> percentiles of female labor ratio in Gansu are 0.4 and 0.5 respectively. In Inner Mongolia they are 0.33 and 0.5 respectively.

1) P-values from Wald test of equality of the coefficients.

\* Significant at the 10% level.

\*\* Significant at the 5% level.

\*\*\* Significant at the 1% level.

**Figure 1: Consumption decision in each category, where**

$$u(x) = x^{0.1} / 0.1, f(x) = (1 + 0.05)x, \beta = 0.9, I_2^u = 400.$$

