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Easy Come, Easy Go?

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Abstract

Contrary to the popular notion that money that is easily earned, is also easily spent, economic theory holds that income is fungible. Drawing on the concept of mental accounting, this study theoretically explores when such a link between spending behaviour and the effort dispensed in obtaining income is plausible. Empirically, it is found that the marginal propensity to consume from unearned income is about three times larger than that from earned income, based on household panel data from rural China, with the difference more pronounced when unearned income is transitory and smaller than earned income. The policy implications are real.

Keywords: transfers, saving, mental accounting, permanent income hypothesis, China
JEL classification: D01, D11, D12, O12

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Tables are at the end of the paper.

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1 Spending and the origins of income

Folk wisdom holds that income that is easily earned, is also easily spent. This notion is as powerful as it is simple, has resonated throughout the world's cultures, and is deeply embedded in their languages—'easy come, easy go' (English), 'Как нажито, так и прожито' (Russian), 'lai de rong yi, qu de kuai' (Chinese).[1] Yet, a central behavioural assumption of economic theory is that income is fungible. In this view, consumption behaviour does not depend on how income has been obtained, but only on the total amount.[2] In technical terms, the marginal propensity to consume (MPC) is independent of the source of income. So, can centuries old folk wisdom be relegated to the realm of anomalies, fascinating, but inconsequential? Or does it necessitate querying the standard economic models and their policy recommendations?

Following the pioneering work by Thaler (1985, 1990), the fungibility assumption is increasingly challenged by behavioural economists. Building on insights from cognitive psychology, it is argued that people compartmentalize their income into different mental accounts and decide on their consumption within each of these accounts. This creates a direct link between spending behaviour and the source of income and is in sharp contrast to the standard consumption model, where consumption decisions are integrated into one single optimization problem, and income is in effect treated as fungible. But the mere existence of mental accounts would be inconsequential if people were not bound by them in practice. If the desire to spend from each mental account would not exceed its balance, income would remain fungible at the margin, even though consumption would be in line with their mental accounts on average. The source of income would not be seen to affect their spending or saving behaviour.

Ever since Friedman (1957) and Modigliani and Brumberg (1954) developed their canonical permanent income and lifecycle hypothesis (PIH/LC) there has been a rich empirical literature exploring consumption and saving behaviour, usually focused on consumption/saving out of transfers (particularly windfalls). According to PIH/LC households smooth their consumption over time. Their consumption level is thus determined by their permanent/anticipated income and independent of their current income, implying a large MPC out of permanent/anticipated income and a low MPC out of transitory/unanticipated income, rendering transfers/windfalls[3] ideal to explore the PIH/LC hypothesis.[4] Both supportive and results to the contrary have been reported.[5]

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1 In other Germanic languages one finds 'wie gewonnen, so zerronnen' (German), 'zo gewonnen, zo geronnen' (Dutch), in Spanish 'lo que llega facil, facil se va' and in Amharic, 'bekelalu yemta bekalau yehedal'.

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

3 Examples of the wide range of windfalls explored include lottery prizes, Second World War restitution payments, social security payments and tax refunds, bonus payments, annual state transfers, and shopping coupons.

4 However, the smoothing of consumption may break down also in the standard additive utility model when households are allowed to engage in precautionary saving or when credit markets are imperfect (Browning and Lusardi 1996).

5 Studies finding support for PIH/LC include Kreinin (1961); Paxson (1992); Browning and Collado (2001), while Bodkin (1959); Parker (1999); Souleles (1999); Agarwal et al. (2007); and Hsieh et al. (2010) among others, provide evidence to the contrary.

Careful reading of this literature suggests however that it is not so much the *anticipated* nature of the windfall that matters, but much more its *size*; the MPC of windfalls is typically higher than that of regular income when it concerns small income gains, and smaller when the income gains are relatively large (Landsberger 1966; Keeler et al. 1985; Hsieh 2003; Johnson et al. 2006; Milkman and Beshears 2009). Spending out of international and domestic remittances in developing countries displays similar patterns—focused on consumption goods (food) when they are small compared to regular income, and largely devoted to investment goods (education, housing) when they are relatively large (Davies et al. 2009; Adams and Cuecuecha 2010a,2010b). In other words, there is empirical support for the PIH/LC when it concerns large, but not when it concerns small windfalls or transfers.

In their behavioural lifecycle model Shefrin and Thaler (1981, 1988) accommodate such differential MPCs through the introduction of mental accounts. In their view, individuals maintain a current income, a current asset, and a future income account. Individuals are further posited to classify small transfers into the current income account, which has a high MPC, and larger transfers, which feel more like wealth, into the asset account, which has a lower MPC. They deploy such mental accounting as a self-control device. It helps them maximize their intertemporal utility by reducing the pain (utility loss) of the willpower effort needed to overcome the temptation of overindulgence. Another psychological factor that has been posited to drive mental accounting, besides self control, includes the need to simplify otherwise complex decision problems because of limitations in cognitive capacity (Read et al. 1999; Hsieh 2003). And an example of mental accounts that has received particular attention lately, especially in the context of current (as opposed to intertemporal) consumption portfolio allocation, is the 'flypaper' or 'labeling effect'. In this phenomenon people change their consumption behaviour in line with the suggestion of the label.[6]

In addition to differences in size and anticipation, the windfalls and transfers studied above share a third, and largely ignored, feature compared with regular/permanent income, i.e. that they are essentially unearned.[7] And just like the immediate pain of paying may undermine the pleasure derived from consumption—the ticking of the taxi meter reducing the pleasure of the ride being an oft quoted example (Prelec and Loewenstein 1998), so may the thought of spending hard-earned money induce utility loss and more spending restraint when money is earned, compared with when it is obtained as a transfer or windfall. Further inspired by the widespread and culturally embedded recognition of such behaviour, it is the coding of income in line with the amount of effort dispensed that is the form of mental accounting explored here.

A better understanding of whether the amount of dispensed effort affects spending and saving/investment behaviour can have important implications for the design of many policy interventions. For example, are stimulus packages in times of economic crises aimed at providing employment (Trabajar, Argentina) more effective in stimulating demand than packages aimed at transferring money to households (China's stimulus package in 2008)? Similarly, massive redistribution programmes are being developed in many transforming countries to stem the growing rural-urban divide. Is it more efficient to do so through

6 Kooreman (2000) finds for example that in the Netherlands the MPC of child clothing out of exogenous child benefits is substantially larger than the MPC of child clothing out of other income sources. Similarly, recent studies of school feeding (Jacoby 2002) and supplementary nutrition (Islam and Hoddinott 2009) programmes find that a substantial part of the supplementary feeding 'sticks' with the targeted child (like flypaper). Because these transfers are inframarginal, parents would be expected to reallocate the transfers away from the child.

7 Arkes et al. (1994) were among the first to draw attention to this.

(unconditional or conditional) transfers (e.g. China, Harmonious Socialist Countryside Programme; Brazil, Bolsa Familia) or through employment guarantee schemes as in India? At the macro level, the findings may also provide a behavioural interpretation of why aid may be less effective in fostering development than say migration or trade (Pack and Pack 1993; Wagstaff 2010). They could further bear on the debate about the optimality of different aid modalities such as grants, loans as well as the more innovative forms of development finance (Odedokun 2003; Girishankar 2009).[8]

In particular, two questions are addressed in this paper. First, whether earned and unearned income are indeed fungible. Second, if not, whether there are plausible grounds to attribute this to mental accounting based on effort. The first question is explored within the context of intertemporal consumption allocation (as opposed to current consumption or asset portfolio choice).[9] More specifically, the paper examines whether the marginal propensity to consume or save/invest from earned incomes is different from that of unearned incomes controlling for other intervening factors such as loans and credit constraints. In doing so, it is also explored whether the results are sensitive to the size of the income gain and whether they display heterogeneity across socioeconomic groups. To analyse the explanatory power of the mental accounting hypothesis, a series of competing hypotheses are reviewed with special attention to the implications of the PIH (small MPC from transitory and large MPC from permanent income). To do so, the earned and unearned income categories are also separated explicitly into their permanent and transitory components.

Unlike most of the savings and mental accounting studies reviewed above, the empirical application of this paper is to a lower income and market-based setting; i.e. rural China in the early 2000s. To estimate the differences in MPCs from earned and unearned income, household fixed effects and time varying village fixed effect panel regression techniques are applied to a 5-year household panel of 1,500 rural households from two provinces in western China, Gansu and Inner Mongolia. Estimates thus reflect revealed preferences in the market place derived from standard household budget surveys, as opposed to stated preferences or experimental settings.[10] The results indicate that households have a higher marginal propensity to consume unearned income and a higher marginal propensity to save/invest earned income, with MPC of the former three times larger than that of the latter. These tendencies are more pronounced when unearned income is transitory and smaller than earned income. They are largely robust to the gender composition of the household, but less pronounced among the richer segments of society. Careful consideration of competing hypotheses reveals mental accounting based on the effort dispensed in obtaining income as a leading contender to understand such behaviour, lending some credence to the age-old saying ‘easy come, easy go’.

The paper proceeds as follows. Section 2 explores theoretically how and when mental accounting affects consumption behaviour. The empirical strategy is reviewed in section 3, followed by a description of the data used in the study in section 4. The core findings, their

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

9 See Choi et al. (2009) for an example of mental accounting in asset portfolio choice.

10 While the latter help greatly in establishing causality, they also require great care in addressing potential issues of randomization bias and framing (List 2009). The use of the more widely available, standard panel household budget surveys to explore the hypotheses advanced here further facilitates re-examination of these hypotheses in other cultural settings.

heterogeneity across settings, and their robustness to competing hypotheses are discussed in section 5. Section 6 concludes.

2 A theoretical account of mental accounting

2.1 A standard model of intertemporal choice

Following Browning and Lusardi (1996) a rudimentary two-period model is used to elucidate the core implications for intertemporal consumption behaviour of holding mental accounts of earned and unearned income.[11] To fix ideas the results from the basic intertemporal choice model are repeated first. Assume a two-period living household (t=1,2) optimizes intertemporal welfare defined over consumption. To do so it deploys an intertemporally additive utility function with as instantaneous utility u(c) = ln(c). The household allocates its wealth in period 1 between consumption and saving in order to achieve the maximum discounted lifetime utility. In period 2, it consumes everything it has. It solves in effect:

$$\max_{c_1} lnc_1 + \beta lnc_2 \quad (1)$$

s.t. $y_1 = c_1 + A,$

$y_2 + (1+r)A = c_2,$

$c_1 \geq 0, c_2 \geq 0,$

where c_1 and c_2 are consumption in period 1 and period 2 respectively; y_1 and y_2 are income in period 1 and period 2 respectively, and A is saving in period 1. The parameter r represents the interest rate and β the discount factor. Solving this model yields:

$$c_1 = \frac{(1+r)y_1+y_2}{(1+\beta)(1+r)},\ c_2 = \frac{\beta(1+r)[(1+r)y_1+y_2]}{(1+\beta)(1+r)} \quad (2)$$

When $\beta(1+r) = 1$, consumption is constant across time ($c_1 = c_2 = \frac{(1+r)y_1 + y_2}{(1+r)+1}$) as in Friedman's PIH. Consumption depends on the household's permanent income ($y^P = \frac{(1+r)y_1 + y_2}{(1+r)+1}$) which corresponds to the annuity value of the sum of current assets (equal to zero in this case) and the discounted present value of future earnings (Deaton 1997).[12] The difference between the income y_t and the permanent income is defined as the transitory income ($y_t^T = y_t - y^P$) which has no effect on current consumption c_1. $MPC_1^P =$

[11] While the derived results carry through in a multi-period horizon (T>2), restriction to two periods facilitates an explicit analysis of corner solutions when spending from unearned income is not constrained in all periods.

[12] To see this, note that the present discounted value of future income $PV = y_1 + \frac{y_2}{1+r}$ (1') and that $y_p = \frac{PV}{\frac{[(1+r)+1]}{1+r}}$ (2') is the annuity value of PV (note $PV = y_p + \frac{y_p}{1+r} = y_p \frac{[(1+r)+1]}{1+r}$). Substituting (1') into (2') yields permanent income: $y_p = \frac{(1+r)y_1 + y_2}{(1+r)+1}$, the annuity value of present discounted value of future income.

$\frac{\partial c_1}{\partial y^P} = 1$, an increase in permanent income is fully consumed; as a result, an increase in transitory income is fully saved, $MPC_1^T = \frac{\partial c_1}{\partial y_1^T} = 0$.

2.2 Intertemporal choice with mental accounting

When there is some pain associated with spending hard-earned money in a way that it is not when spending unearned income, households may mentally put earned and unearned income in different accounts, allowing them to evaluate the utilities derived from immediate and deferred consumption from earned and unearned income differently. This core cultural and psychological insight can be captured by representing the household's utility from consumption by $\lambda lnc^u + lnc^e$ (as opposed to lnc under the fungibility assumption), with c^u and c^e the expenditures from the unearned and earned mental income accounts. The parameter λ ($\geq$1) captures the additional pleasure derived from (or lack of pain associated with) spending unearned income (or conversely, the psychological penalty when spending earned income). The household's optimization challenge now becomes:

$$\max_{c_1^u, c_1^e} \quad \lambda lnc_1^u + lnc_1^e + \beta(\lambda lnc_2^u + lnc_2^e) \tag{3}$$

$$\text{s.t.} \quad y_1^u + y_1^e = c_1^u + c_1^e + A,$$

$$y_2^u + y_2^e + (1+r)A = c_2^u + c_2^e,$$

$$0 < c_1^u \leq y_1^u, \quad 0 < c_2^u \leq y_2^u, \quad c_1^e, c_2^e > 0,$$

where y_1^u, y_1^e, y_2^u, y_2^e are unearned and earned income in periods 1 and 2 respectively.[13] Earned and unearned income are uncorrelated in each period. In each period, unearned consumption cannot exceed unearned income, as the utility bonus (λ) applies only to spending from unearned income. Savings are consumed in the next period. As saving/investment requires at a minimum willpower effort to overcome the temptation of immediate consumption, saving is considered here as earned income in the next period, and its consumption does not yield additional pleasure (and therefore $0 < c_2^u \leq y_2^u$).[14] Both earned and unearned income in period 1 can be saved, though there is no additional pleasure (λ) from spending borrowed money ($0 < c_1^u \leq y_1^u$)—as it has to be paid back in the next period. Write the corresponding Langrange function to solve (3):

$$L = \lambda lnc_1^u + lnc_1^e + \beta(\lambda lnc_2^u + lnc_2^e) + \mu_1(y_1^u + y_1^e - c_1^u - c_1^e - A) + \mu_2(y_2^u + y_2^e + (1+r)A - c_2^u - c_2^e) - \theta_1(c_1^u - y_1^u) - \theta_2(c_2^u - y_2^u). \tag{4}$$

The first order conditions can be derived as:

$$\frac{\lambda}{c_1^u} = \mu_1 + \theta_1, \qquad \frac{1}{c_1^e} = \mu_1, \tag{5}$$

$$\frac{\beta\lambda}{c_2^u} = \mu_2 + \theta_2, \qquad \frac{\beta}{c_2^e} = \mu_2,$$

[13] Without loss of generality for the core insights obtained in the model, the model abstracts from the possibility of zero consumption.

[14] Alternatively, it could be argued that the memory of effort evaporates over time, rendering future consumption from savings more similar to consumption from unearned income (Prelec and Loewenstein, 1998). This line of inquiry is abstracted from in the theoretical exposition that follows.

$-\mu_1 + (1+r)\mu_2 = 0.$

Beginning with the interior solution to (3) ($\theta_1 = \theta_2 = 0$), it can be derived that:

$$c_1^e = \frac{c_1^u}{\lambda},\ c_2^e = \frac{c_2^u}{\lambda},\ c_2^e = \beta(1+r)c_1^e = \beta(1+r)\frac{c_1^u}{\lambda} \quad (6)$$

Substitution of (6) into the budget constraints yields:

$$c_1^u = \frac{\lambda}{(1+\lambda)}\frac{[(1+r)(y_1^u + y_1^e)] + [y_2^u + y_2^e]}{(1+r)(1+\beta)},$$

$$c_1^e = \frac{1}{(1+\lambda)}\frac{[(1+r)(y_1^u + y_1^e)] + [y_2^u + y_2^e]}{(1+r)(1+\beta)}$$

$$c_2^u = \frac{\lambda\beta}{(1+\lambda)}\frac{[(1+r)(y_1^u + y_1^e)] + [y_2^u + y_2^e]}{(1+\beta)},$$

$$c_2^e = \frac{\beta}{(1+\lambda)}\frac{[(1+r)(y_1^u + y_1^e)] + [y_2^u + y_2^e]}{(1+\beta)} \quad (7)$$

From (7) it can be seen that the marginal propensity to consume from unearned income is the same as that from earned income ($MPC_1^u = \frac{\partial(c_1^u + c_1^e)}{\partial y_1^u} = \frac{1}{1+\beta}$ which equals $MPC_1^e = \frac{\partial(c_1^u + c_1^e)}{\partial y_1^e} = \frac{1}{1+\beta}$). While households hold mental accounts, they are not binding at the margin. Income is fungible (at the margin), just like under the standard intertemporal choice model reviewed above, rendering mental accounting inconsequential. If $\beta(1+r) = 1$, consumption in period 1 and 2 becomes:

$$c_1 = c_2 = \frac{[(1+r)(y_1^u + y_1^e)] + [y_2^u + y_2^e]}{(1+r)+1} \quad (8)$$

The interior solution to (3) coincides with the PIH: the household consumes permanent income and saves transitory income ($MPC_1^P = 1$ and $MPC_1^T = 0$).

Both earned and unearned income could in principle be permanent or transitory. Equation (8) suggests a further division of permanent income into its earned and unearned parts: permanent unearned income $y^{PU} = \frac{(1+r)y_1^u + y_2^u}{(1+r)+1}$ and permanent earned income $y^{PE} = \frac{(1+r)y_1^e + y_2^e}{(1+r)+1}$. The marginal propensity to consume out of both of them is equal to one ($MPC_1^{PU} = MPC_1^{PE} = 1$). The marginal propensity to consume from unearned transitory income ($y_t^{TU} = y_t - y^{PU}$) and earned transitory income ($y_t^{TE} = y_t - y^{PE}$) is then equal to zero ($MPC_1^{TU} = MPC_1^{TE} = 0$). Unearned and earned income are fungible at the margin (have equal MPCs) in both their permanent and transitory parts.

If mental accounting in the interior solution is inconsequential, then what happens in the corner solutions (when $\theta_1 > 0$ and/or $\theta_2 > 0$)? Important insights are obtained from considering the more extreme case when the households wants to spend all unearned income

in each period, i.e. $\theta_1 > 0, \theta_2 > 0$. In this case, all unearned income is used for consumption in each period ($c_1^u = y_1^u, c_2^u = y_2^u$). As a result, the household's consumption decision on earned income no longer depends on its unearned income, and it is as if it solves the basic model without mental accounting—the only difference being that income is now earned income only.[15] Optimal consumption is given by:

$$c_1^u = y_1^u, c_1^e = \frac{(1+r)y_1^e + y_2^e}{(1+\beta)(1+r)},$$
$$c_2^u = y_2^u, c_2^e = \frac{\beta(1+r)[(1+r)y_1^e + y_2^e]}{(1+\beta)(1+r)} \quad (9)$$

It follows that $MPC_1^u = 1 > MPC_1^e = \frac{1}{1+\beta}$. The marginal propensity to consume from unearned income exceeds the marginal propensity to consume from earned income—or earned and unearned income are no longer fungible and mental accounting binds.

Does this hold across both the permanent and transitory components of earned and unearned income, i.e. when one jointly considers both the (un)earned and transitory nature of income? Looking at the MPCs of unearned and earned income separately by their permanent and transitory components, it is easy to see that both permanent and transitory unearned income are fully consumed ($MPC_1^{PU} = MPC_1^{TU} = 1$).[16] The permanent part of earned income is also fully consumed ($MPC_1^{PE} = 1$), but not its transitory component which is saved ($MPC_1^{TE} = 0$). This suggests first that the *permanent* income parts from earned and unearned income remain fungible ($MPC_1^{PU} = MPC_1^{PE} = 1$), but not the *transitory* income parts ($MPC_1^{TU} = 1 > MPC_1^{TE} = 0$). The fungibility assumption for unearned and earned income breaks down for the transitory part of unearned and earned income.[17] When the constraint only binds in the first period and not in the second period ($\theta_1 > 0, \theta_2 = 0$) however, then fungibility breaks down for both the permanent and transitory part of unearned and earned income (see appendix A1). The findings are summarized in Chart 1.

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15 To see this, note that the Lagrangean to (3) presented in (4) now becomes the Lagrangean to (1), augmented with two constant utility terms from unearned income in periods 1 and 2.

16 Recalling $y_t^u = y_t^{TU} + y^{PU}$ and noting that $c_1^e = c_2^e = y^{PE}$ when $\beta(1+r) = 1$, it follows that $MPC_1^{PU} = \frac{\partial(c_1^u + c_1^e)}{\partial y^{PU}} = \frac{\partial(y^{PU} + y_1^{TU} + y^{PE})}{\partial y^{PU}} = 1$. The other MPCs can be derived similarly.

17 As a corollary, the results of (9) also suggest that the PIH only holds for earned income in this case ($MPC_1^{PE} = 1 > MPC_1^{TE} = 0$), but that it breaks down for unearned income, which is fully consumed ($MPC_1^{PU} = MPC_1^{TU} = 1$).

Chart 1: Fungiblity of earned and unearned income breaks down in the corner solution.

	MPC_1^u	MPC_1^e	Fungibility between earned and unearned income
Interior solution $\theta_1 = 0, \theta_2 = 0$	$\frac{1}{1+\beta}$	$\frac{1}{1+\beta}$	Retained
Corner solutions			
(1) $\theta_1 > 0, \theta_2 > 0$	1	$\frac{1}{1+\beta}$	Breaks down (for transitory part)
(2) $\theta_1 > 0, \theta_2 = 0$	1	$\frac{1}{1+(1+\lambda)\beta}$	Breaks down (for both transitory and permanent parts)

In sum, in the corner solutions, mental accounting binds and earned and unearned income are no longer fungible. This raises the question under which conditions corner solutions are likely to occur. To explore this, note that two conditions need to hold in the interior solution:

$$c_1^u = \frac{\lambda}{(1+\lambda)} \frac{[(1+r)(y_1^u+y_1^e)]+[y_2^u+y_2^e]}{(1+r)(1+\beta)} \leq y_1^u \qquad (10)$$

$$c_2^u = \frac{\lambda\beta}{(1+\lambda)} \frac{[(1+r)(y_1^u+y_1^e)]+[y_2^u+y_2^e]}{(1+\beta)} \leq y_2^u \qquad (10')$$

Focusing on (10), several important insights emerge. First, the larger is the pain associated with spending hard-earned income, i.e. the bigger is λ, the less likely it is that the interior solution holds, and thus the more likely it is that unearned and earned income are no longer fungible, with current unearned income more likely being spent. Given that psychological pain associated with spending hard-earned money has been modeled to affect spending behaviour, this is obviously no surprise.

Second, the more impatient an individual is (i.e. the smaller the discount factor (β) or the larger the discount rate), the more likely fungibility will break down and the more likely the MPC from unearned income will exceed this from earned income. Similarly, the lower *r* (i.e. the less investment opportunities a household has) the more likely unearned income will be spent more readily than earned income. Holding all else equal, unearned income might thus be spent more readily among poorer households (who tend to be more impatient (smaller β) and with less investment opportunities (lower r)) than among richer households.

Third, and potentially more striking at first sight, the smaller is current unearned income (y_1^u) compared to current earned income (y_1^e) or future (earned and unearned) income ($y_2^u + y_2^e$), the more likely the constraint binds. In other words, when current unearned income is small compared to current earned income, it is less likely to be fungible, and unearned income is more likely to be spent. When unearned income is relatively large on the other hand, mental accounting is unlikely to bind at the margin and unearned income is likely spent/saved at a similar marginal rate as earned income. Put simply, relatively small transfers are mostly spent, while large ones tend to be saved. The importance of the ratio of earned over unearned income is reminiscent of the empirical findings regarding the conditions under which the PIH holds (invalid for small transfers, valid for large transfers).

An empirical strategy is now designed to test (1) whether the MPC does indeed differ depending on whether income is earned or not, and if so (2) whether this can be plausibly ascribed to mental accounting.

3 Testing income fungibility in practice

Beginning with the most rudimentary form, let consumption of household *h* living in village *v* at time *t* depend on income in a linear fashion as follows:

$$C_{vht} = \alpha_0 + \alpha_1 U_{vht} + \alpha_2 E_{vht} + e_{vht}, \tag{11}$$

where *U* and *E* represent the household's unearned and earned income respectively and e_{vht} is the error term. When income is fungible, the MPC from unearned income (*U*) is equal to that from the earned income (*E*) or $\alpha_1 = \alpha_2$, providing a straightforward way to test whether household spending behaviour depends on the source of income.

Obviously, direct application of (11) to the data is problematic. First, consumption may not only depend on income but also on credit and (returns to financial) assets, which are likely correlated with income itself. Second, households are located in different villages. 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. Such networks are not directly observed in the data. Households also have different demographic characteristics, which may affect the composition of their income as well as their spending behaviour.

To accommodate these considerations equation (11) is augmented with loans (L_{vht}) taken during *t*, the household's financial asset position ($A_{vht\text{-}1}$) at the beginning of the year *t* before investment returns have been realized, $Liv_{vht\text{-}1}$ the value of livestock at the beginning of year *t*, *n* time varying village dummies represented by $V_{t,j}$, household fixed effects u_{vh}, and a series of time varying household characteristics $H_{vht,i}$:

$$C_{vht} = \alpha_1 U_{vht} + \alpha_2 E_{vht} + \alpha_3 L_{vht} + \alpha_4 A_{vht\text{-}1} + \alpha_5 Liv_{vht\text{-}1} + \sum_{i=1}^{m} \alpha_i^H H_{vht,i} + \sum_{j=1}^{n} \alpha_j^V V_{t,j} + u_{vh} + e_{vht}, \tag{12}$$

The set of village-year dummies controls for all time invariant and time variant community characteristics (including changes in relative prices, project interventions, 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 behaviour (and income).

Equation (12) forms the base equation and it is first estimated using ordinary least squares (OLS). The theoretical section further delineated a series of circumstances under which fungibility between unearned and earned income was more likely to break down. These are explored in turn. First, inclusion of household fixed effects in (12) obviously helps protect the

estimates against potential bias from unobserved heterogeneity. But it also reduces efficiency, and more importantly, it forces identification of the MPCs from transitory income, while OLS estimates without household fixed effects identify the MPCs from variations across households in both their transitory and permanent income. As indicated in the theoretical section, depending on the corner solution the household finds itself in, fungibility may only break down for the transitory part of unearned income, and not the permanent part. Household fixed effect estimates cannot speak to this.

To explore this further, earned and unearned income are separated into a permanent and a transitory part in the spirit of the empirical approaches followed earlier by Keeler et al. (1985) and Paxson (1992). In particular, let:

$$E_{vht} = \sum_{j=1}^{n} \eta_j (t \times V_j) + v_{vh}^{e} + r_{vht}^{e}, \; U_{vht} = \sum_{j=1}^{n} \rho_j (t \times V_j) + v_{vh}^{u} + r_{vht}^{u}, \tag{13}$$

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

$$EP_{vht} = \sum_{j=1}^{p} \eta_j (t \times V_j) + v_{vh}^{e}, \qquad ET_{vht} = r_{vht}^{e}, \tag{14}$$

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

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:

$$r_{vht}^{e} = \pi^{e} r_{vht\text{-}1}^{e} + f_{vht}^{e}, \qquad r_{vht}^{u} = \pi^{u} r_{vht\text{-}1}^{u} + f_{vht}^{u}, \tag{15}$$

where f_{vht}^{e} and f_{vht}^{u} are identically independently distributed following normal distributions with means equal to zero. The model in equations (13)-(15) is estimated using the Generalized Least Squares estimator developed in Baltagi and Wu (1999). The following equation is then estimated to explore the fungibility of consumption/saving from unearned and earned income while controlling for the durability of the income gains:

$$\begin{aligned} C_{vht} = {} & \phi_{1,} UP_{vht} + \phi_2 UT_{vht} + \phi_3 EP_{vht} + \phi_4 ET_{vht} + \phi_5 L_{vht} + \phi_6 A_{vht\text{-}1} + \phi_7 Liv_{vht\text{-}1} \\ & + \sum_{i=1}^{m} \phi_i^{H} H_{vht,i} + \sum_{j=1}^{n} \phi_j^{V} V_{t,j} + e_{vht}, \end{aligned} \tag{16}$$

By comparing whether $\phi_1 = \phi_3$ and whether $\phi_2 = \phi_4$ it can be tested whether the fungibility assumption breaks down for both the permanent and the transitory parts of unearned and earned income or only for the latter.

Second, the theory predicts that the MPC of current unearned income is more likely to be larger than the MPC of current earned income the smaller the former is compared to the later. To explore this, equations (12) and (16) are re-estimated dropping observations where

unearned income exceeds earned income. Similarly, equation (10) indicates that differences in the MPCs are more likely when current unearned income is small compared with future unearned income. Given the limited length of our panel, this notion is tested by interacting the income and loan variables with the ratio between current unearned and permanent unearned income instead.[18]

Finally, the earned and unearned income variables are interacted to explore heterogeneity in mental accounting activity across different socioeconomic groups. As illustrated in the model, compared to the rich the poor may be more impatient and endowed with less investment opportunities, making the mental accounts bind quicker at the margin and resulting in a higher MPC from unearned income than from earned income. Yet, the poor and the rich may also differentiate themselves in other aspects, which also affect the likelihood of binding mental accounts (such as the effort devoted to earning money and the relative psychological pain felt in spending it as well as the ratio between unearned and earned income). It is a priori not clear how a household's welfare level affects the fungibility of unearned and earned income. Focusing on differences in MPC differences between the richer and the poorer parts of the population, the income and loan variables are interacted with an indicator variable which takes the value one when a household is in the top 25 income per capita percentile, and zero otherwise. Potential gender differences in the MPCs from different income sources are explored by interacting the income and loan variables with the ratio of female working age household members (between 16-60 years old).

4 Patterns of income, consumption and investment among rural households in China

The data used 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 (IM) and Gansu (GS) between 1999 and 2004 and supported households in project villages through the provision of agricultural loans and rural infrastructure. Fifteen project counties were sampled (eight in Inner Mongolia, seven in Gansu) and within each sample county, ten villages were sampled in the ratio of six project villages to four non-project villages. Within each sample village, ten 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 using the daily diary method, with the exception of the baseline year 1999, when annual recall was used. To ensure comparability in the consumption data, the study is confined to the 2000-04 panel. Data on household characteristics, e.g. demography, education, and assets were collected in December every year using the 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

[18] To see the similarity in spirit, note that (10) can be written as: $c_1^u = \frac{\lambda}{(1+\lambda)} \frac{\left[((1+r)+1)y^{PU}+(1+r)[y_1^e+y_2^e]\right]}{(1+r)(1+\beta)} \leq y_1^u$ given that $(1+r)y_1^{TU} + y_2^{TU} = 0$. As a result, the larger is $y^{PU} \big/ y_1^u$, the more likely the constraint binds, and the more likely it is that unearned and earned income are no longer fungible.

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. Unearned income (U) includes remittances[19], gifts and other transfers.

Most earned income is derived from family businesses (78 per cent in Gansu and 86 per cent 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, households have on average between 300 and 400 (1999) Yuan unearned income. Yet, these averages hide a wide range of experiences, with about a third of the sample households not receiving any unearned income during the survey period, the majority having less unearned income than earned income and a small group (1 per cent) having more unearned than earned income (Table 3). Among those whose unearned income is strictly positive, but smaller than their earned income, it amounts on average to between 5 per cent and 7 per cent of earned income. When unearned income exceeds earned income, it is on average twice as large.

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. The consumption measure used in the estimation includes spending on food, clothing, housing, education, medicine, transportation, entertainment, liquor and tobacco. The share of food in total consumption is 53 per cent in Gansu and 42 per cent in Inner Mongolia, the richer of the two provinces. Housing and education are the next biggest ticket items. As spending on housing durables and education could be seen as a form of investment/savings, the robustness of the results to exclusion of these consumption components is also explored. Finally, 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 from earned and unearned income differs beyond the potential reciprocity induced by gift giving, gifts given are excluded from the overall expenditure measure examined here.[20]

Turning to the control variables (Table 4), in both provinces each year less than 50 per cent of the households took loans. In Gansu the average amount of loans is about 8 per cent of the average income, and in Inner Mongolia it is 15 per cent. In both provinces, households also hold a significant amount of assets (in the form of financial assets and livestock). Together they amount on average to 38 per cent and 57 per cent of total income in Gansu and Inner Mongolia respectively. Household size and the dependency ratio, the female labour ratio, the number of disabled household members as well as the gender, age, and education of the household head are included to capture the (evolving) demographic characteristics of the household. A control for the household's 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).

19 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 labourers. The former involves little or no immediate effort from household members. Nonetheless, robustness of the results to their exclusion is explored.

20 A higher marginal propensity to spend on gifts from unearned income than from earned income is indeed observed in the data.

5 The empirics of unearned and earned income fungibility

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

The household fixed effects findings reported in Table 5 (panel 1, columns 1 and 4) suggest that the MPC from unearned income is almost three times larger than that from earned income. This holds in both provinces.[21] This difference is not only statistically significant at the 1 per cent level, and thus qualitatively important, but also quantitatively substantial and consistent with the existence of binding mental accounts according to the earned/unearned nature of income. The purported fungibility of unearned and earned income appears not to hold among the households in this sample.

While protecting against bias from unobserved household heterogeneity, the within estimates implicitly also control for a household's permanent income through the inclusion of household fixed effects, in essence identifying the estimated coefficients from transitory income. This raises the question whether it is only the MPC from *transitory* unearned income that is larger. The OLS estimates (Table 5, columns 2 and 5), which are identified from both transitory and permanent income, shed some light on this. The MPC from unearned income is still larger than that from earned income, by a factor 1.5.[22] Yet, the difference is now smaller than when only transitory income is considered (a factor 1.5 compared to 3), suggesting that the difference in MPC between unearned and earned income is larger for their transitory than their permanent parts. This is consistent with the theoretical predictions which hold that the fungibility assumption breaks down for the transitory component in each corner solution, while it only breaks down in one of the corner solutions for the permanent component.

Decomposing earned and unearned income in their permanent and transitory components respectively (PT columns (3) and (6)) brings out this difference more clearly. 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. The MPC from permanent unearned income is still larger than that from permanent earned income, but the difference is no longer statistically significant. When households get a regular unearned income stream, they tend to behave as if it is a regular earned income stream. Yet, in this case, unearned income may well make up an important part of their income (e.g. people living on a government allowance or remittance stream) and as indicated in the model, whether income from different sources is fungible depends critically on the ratio of earned to unearned income.

This is investigated in panel 2 of Table 5, which excludes observations where unearned income exceeds earned income.[23] The estimated MPC of all unearned income components increases and the difference between the MPC from unearned and earned transitory income now rises to a factor four. The MPC from unearned permanent income also increases, which, with the MPC from earned permanent income remaining unaffected, results in a statistically significant difference in the MPC from unearned income over earned income of a factor 1.5

[21] The estimated MPCs across the different income sources are within the range reported in the consumption/saving literature. When combined with the marginal propensities to invest and save (reported in Table A1) they approach one, providing confidence in the results.

[22] This is akin to the findings based on cross sectional data by Zhu et al. (2008) who report that the marginal propensity to save out of remittances in rural China is only half that out of other sources of income (implying that the MPC is twice as large).

[23] 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).

in Gansu. The gap in MPC from unearned and earned income also increases to a factor 1.9 in Inner Mongolia, though at a p-value of 17 per cent the difference remains statistically insignificant. When unearned income 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 theory.[24] For about 99 per cent 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.

These core results regarding the larger MPC from unearned income are mirrored in a lower marginal propensity to invest/save from unearned income and a larger MPI/MPS from earned income (Table A2). 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, it concerns here also households whose unearned income exceeds their earned income. When excluding these 23 observations (Table A1, 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 (Table 5), slightly higher than those from earned income, but well below those from unearned income. However, with an MPC of 0.2-0.3 it is clear that many loans are not only taken for investment, 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 Table 5 (and A3) point to a higher MPC for current consumption from unearned income and a larger marginal propensity to invest/save (MPI/MPS) from earned income. These distinctions are furthermore more pronounced when earned income is larger than unearned income as in most of the sample and when income is transitory.

5.2 Socioeconomic heterogeneity in the fungibility of unearned and earned income

Does the difference in MPC from earned and unearned income differ depending on how rich the household is? Specifications so far have assumed that the MPC is constant across income per capita levels. This assumption is tested through the inclusion of interactions between income and loans variables and a dummy variable which takes the value of 1 if a household is in the 75th percentile income per capita category or higher (Table 6). The results suggest that the MPC from unearned income is substantially larger than that from earned income among both the poorer (the bottom 75 per cent) and the richer (top 25 per cent) segments of society. Yet, the difference tends to be somewhat less pronounced among the richer group, especially in Gansu (by a factor 2.4 compared to a factor 3.7 when considering the fixed effects estimates). The richer also tend to rely less on loans to finance consumption, again, mostly so in Gansu.

[24] The importance of the relative size of current unearned income in affecting its fungibility can also been seen when it is interacted with the ratio of current unearned income to permanent unearned income (Table A1). The larger is the ratio of current unearned income to permanent unearned income, the smaller is the MPC on unearned income and thus the more likely that it becomes fungible with earned income. The result is most manifest in Gansu, but also reveals itself on the investment side in Inner Mongolia through a lower dominance in the MPI from earned income when the ratio of unearned income to permanent unearned income increases (see Appendix A3 for details on the estimation strategy of MPI).

Second, to explore whether the core findings differ depending on the gender composition of the household, which may for example affect the propensity to keep different mental accounts of earned and unearned income (λ), the different income sources are interacted with the female-labour ratio within the household (Table 7). The effect of the gender composition of the household are subsequently tested at two points, the 25^{th} and 75^{th} percentile of the female labour ratio in each province. The proposition that the MPC from unearned income largely exceeds this of earned income holds for most of the household gender compositions observed in the sample.

5.3 Can mental accounting by effort explain the breakdown in fungibility?

The core finding that unearned income tends to be spent and earned income saved, and more so if the former is smaller than the latter and when it is transitory, is consistent with the mental accounting framework based on effort advanced in the theoretical section. Yet, how robust is it to alternative classifications and interpretations? First, education and housing durables could be seen as investment goods, and concerns could be raised about their inclusion in the consumption measure. Similarly, it could be argued that remittances from non-household members are really the results from former investments and efforts and are as such really earned instead of unearned, despite the long delay in receiving the returns to the efforts dispensed.[25] As can be seen from Table 8, the findings are robust to the exclusion of these consumption and income categories.

Second, could the PIH explain the findings? While it is possible that unearned income is largely transitory and earned income largely permanent, if so, PIH would imply that unearned income is largely saved, while earned income is largely spent. The FE and OLS results from this sample suggest the opposite, i.e. a larger MPC from unearned than from earned income. Going one step further, the analysis also jointly considered the transitory/permanent and earned/unearned nature of income. 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 as predicted by the model in Section 2. Whether income is earned or unearned affects consumption/saving decisions beyond their permanent or transitory nature.

Third, even though there are no indications to this effect in the data, 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 village level effects as well as for 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, the 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

[25] Nonetheless, there are also good reasons to categorize it as unearned income. The longer is the lag between effort and spending, the less likely the moment of consumption will call to mind the pain associated with the effort dispensed. As highlighted by Prelec and Loewenstein (1998), consumers prefer to decouple the moment of payment from the moment of consumption (e.g. through advance payment) so that consumption can be enjoyed without thinking about the need to pay for it, a phenomenon frequently exploited in various marketing arrangements such as flat-rate pricing and credit cards.

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.

Fourth, when transfers are mostly going to the poorer households and the poor display greater impatience, the larger MPC on unearned income might simply reflect poverty as opposed to mental accounting by effort dispensed. Such omitted variable bias is highly unlikely, as the estimation already controls for the household's chronic and transitory poverty status through the inclusion of the household fixed effects together with additional controls for the asset holdings of the household in each period, its demographic characteristics as well as the time varying village dummies to capture time variant environmental characteristics that may further determine the household's poverty status.

Finally, if unearned income tends to go disproportionately to one of the partners and if as a result, it changes the spending behaviour of the household (e.g. through a change in the bargaining balance), the higher MPC of unearned income might simply reflect intra-household gender differences in saving behaviour. While most of the literature has focused on gender differences in contemporaneous spending across different goods (with women typically displaying a larger MPC for food than luxury or pleasure goods), as opposed to differences in the intertemporal allocation of income, gender differences in saving behaviour have been reported with women tending to have longer time horizons and being more patient (Browning 2000; Rubalcava et al. 2009).

If unearned income would disproportionately go to women, this would however suggest that the MPC for unearned income should be lower, contrary to what is found in the data. On the other hand, if it would disproportionately go to men and strengthen their spending power in the household, the higher MPC from unearned income could in principle also reflect intra-household differences in saving behaviour, as opposed to mental accounting. But are there any signs that unearned income disproportionately goes to one of the partners and that this affects household spending behaviour? To explore this further in the absence of any direct information about who received and administered the unearned income, the MPC on food and liquor and tobacco from unearned and earned income was estimated (Table A3). If reception of unearned income tipped the spending balance in favor of female (male) preferences, the literature predicts a higher (lower) MPC on food and a lower (higher) MPC on liquor and tobacco from unearned than from earned income. Yet, the results suggest a higher MPC from unearned income both for food *and* liquor/tobacco. A change in intra-household consumption behaviour depending on the (un)earned nature of income does not appear an overriding concern and the origin of income is likely to affect spending behaviour beyond any potential intra-household reallocations.[26]

This review thus suggests that the observed tendency to consume more from unearned income and to save more from earned income isn't only compatible with consumption behaviour based on mental accounting by effort on theoretical and anecdotal/intuitive grounds, but that such an explanation is also empirically robust against a series of competing hypotheses.

[26] Duflo and Udry (2004) also highlight the importance of the origin of income, beyond the gender of the income earner, in allocating income across different consumption goods in Cote d'Ivoire.

6 Concluding remarks

Behavioural 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 behaviour. This paper has explored the existence of such accounts with respect to the effort dispensed in earning income both through theoretical modeling and empirical estimation. This potential link between spending and earning—more specifically the notion that there is pain/disutility in spending hard-earned money—has not received much conceptual or empirical attention in the economic literature despite longstanding and deeply embedded references across the world's cultures to the importance of such a link in understanding human spending behaviour.

The empirical results, based on five-year household panel data from rural China support the notion that unearned income tends to be consumed more, while earned income tends to be saved, contradictory to the fungibility assumption, but consistent with the theoretical predictions derived from utility optimization with mental accounting depending on the origin of income. These tendencies are quantitatively significant with the MPC from unearned income three times larger than that from earned income, and more pronounced when unearned income is transitory and smaller than households' earned income. They are slightly less pronounced among the richer segments of the population, but largely robust to the gender composition of the household. Careful consideration of several competing hypotheses supports the psychologically grounded choice theory of mental accounting based on the (un)earned origin of income as a plausible contender to understand these observations.

The findings bear on important ongoing policy debates both in western and southern economies such as the effectiveness of economic stimulus packages and the optimal modalities of safety nets (e.g. employment generating programmes or cash transfers) as well as aid programmes (loans or grants). The results also highlight the importance of the relative size of the transfer in relation to other income sources, with relatively small transfers more likely to be spent, and large ones more likely to be saved, an important insight, for example in considering the effects for consumer demand of extending tax cuts across the board, as in the US in 2010. The behavioural patterns observed here are obviously not the only consideration in determining the optimality of the different policy instruments. Nonetheless, mental accounting based on the effort dispensed in obtaining income emerges as a fruitful line of inquiry in examining consumption and saving behaviour in other contexts and settings and heeding the much ignored age-old saying 'easy come, easy go' might be time well spent in future theoretical and empirical work.

Table 1: Income, consumption, investment and saving in Gansu (2000-04)

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[1]	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 (*Tuigenhuanlin*)	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[2]	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[3]	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[4]	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 US$0.12). 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 2000-02, and subclassification of the last five items of other transfers was only available in 2003-04. (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.

Source: See text.

Table 2: Income, consumption, investment and saving in Inner Mongolia (2000-04)

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[1]	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 (*Tuigenhuanlin*)	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[2]	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[3]	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[4]	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 US$0.12). 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 2000-02, and subclassification of the last five items of other transfers was only available in 2003-04. (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.

Source: See text.

Table 3: Unearned income ranges from being negligible to being very important

	Unearned income=0			Unearned income>0		
	# obs.	Average income (1999 yuan)		# obs.	Average income (1999 yuan)	
		Unearned	Earned		Unearned	Earned
			Gansu			
Unearned < Earned	1,241	0	5,624	2,208	413	6,224
Unearned > Earned	NA	0	NA	48	7,469	3,012
			Inner Mongolia			
Unearned < Earned	1,383	0	8,803	2,594	446	9,664
Unearned > Earned	NA	0	NA	23	6,923	3,597

Source: See text.

Table 4: Household characteristics of rural households in Gansu and Inner Mongolia

variables	explanation	N[1]	mean	sd	min	max
Gansu						
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 labour ratio	Female 16<=age<=60/household labour	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
Edu. 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
Inner Mongolia						
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 labour ratio	Female 16<=age<=60/household labour	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
Edu. 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

Note:[1]Based on all five survey rounds in 2000-04. The difference in the number of observations is due to missing values.

Source: See text.

Table 5: MPC from unearned income larger than from earned income

Consumption (exclusive gifts given)	Gansu			Inner Mongolia		
	FE	OLS	PT	FE	OLS	PT
	(1)	(2)	(3)	(4)	(5)	(6)
Panel 1: Living expenditures (full sample)						
Unearned permanent income			0.473***			0.319**
			(0.081)			(0.116)
Unearned (transitory) income	0.436***	0.465***	0.471***	0.339***	0.327***	0.334***
	(0.076)	(0.082)	(0.081)	(0.070)	(0.068)	(0.075)
Earned permanent income			0.390***			0.244***
			(0.035)			(0.025)
Earned (transitory) income	0.155***	0.252***	0.146***	0.124***	0.194***	0.133***
	(0.042)	(0.041)	(0.041)	(0.025)	(0.019)	(0.023)
Loans	0.240***	0.277***	0.275***	0.197***	0.193***	0.188***
	(0.062)	(0.075)	(0.072)	(0.044)	(0.043)	(0.042)
Unearned (permanent) = Earned (permanent) [1)]	0.001	0.013	0.329	0.003	0.061	0.533
Unearned transitory = Earned transitory			0.000			0.009
R-squared	0.466	0.601	0.616	0.292	0.436	0.442
N. of Obs.	2,788	2,788	2,788	3,196	3,196	3,196
Panel 2: Living expenditures (exclusive observations with Unearned income >Earned income)						
Unearned permanent income			0.614***			0.459**
			(0.091)			(0.156)
Unearned (transitory) income	0.582***	0.616***	0.644***	0.545***	0.473***	0.493***
	(0.105)	(0.092)	(0.094)	(0.139)	(0.133)	(0.137)
Earned permanent income			0.393***			0.242***
			(0.035)			(0.025)
Earned (transitory) income	0.158***	0.254***	0.147***	0.121***	0.192***	0.130***
	(0.044)	(0.042)	(0.042)	(0.025)	(0.019)	(0.023)
Loans	0.236***	0.273***	0.270***	0.196***	0.192***	0.186***
	(0.061)	(0.074)	(0.071)	(0.044)	(0.043)	(0.043)
Unearned (permanent) = Earned (permanent) [1]	0.000	0.000	0.021	0.003	0.038	0.176
Unearned transitory = Earned transitory			0.000			0.009
R-squared	0.470	0.604	0.620	0.295	0.436	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 equation (12), 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%, and 1% levels respectively.

Source: See text.

Table 6: Difference in MPCs between earned and unearned income smaller among the rich

Living expenditures	Gansu		Inner Mongolia	
	FE	OLS	FE	OLS
Unearned income	0.401***	0.340***	0.439**	0.400**
	(0.101)	(0.090)	(0.173)	(0.157)
Unearned income * top 25 percentile	0.031	0.135	-0.119	-0.094
	(0.124)	(0.122)	(0.181)	(0.163)
Earned income	0.106*	0.194***	0.105***	0.167***
	(0.056)	(0.054)	(0.032)	(0.026)
Earned income * top 25 percentile	0.057**	0.062**	0.023	0.028*
	(0.025)	(0.023)	(0.016)	(0.016)
Loans	0.413**	0.467***	0.225***	0.215***
	(0.127)	(0.130)	(0.060)	(0.060)
Loans*top 25 percentiles	-0.250*	-0.276*	-0.076	-0.059
	(0.134)	(0.143)	(0.073)	(0.075)
Unearned = Earned[1]	0.002	0.071	0.056	0.143
Unearned top 25p=Earned top 25p	0.005	0.034	0.007	0.113
R-squared	0.483	0.613	0.295	0.437
N. of obs.	2,788	2,788	3,196	3,196

Note: Time varying village dummies are included in all regressions. Financial assets, livestock as specified in equation (12), and variables in Table 4 are included in all regressions. Robust standard errors are shown in brackets. The 75th percentile of income per capita is 1,677 Yuan and 3,378 Yuan in Gansu and Inner Mongolia respectively. [1]P-values from Wald test of equality of the coefficients. *, **, *** significant at the 10%, 5%, and 1% levels respectively.

Source: See text.

Table 7: Gender composition of household does not affect differences in MPC from earned and unearned income

Living expenditures	Gansu		Inner Mongolia	
	FE	OLS	FE	OLS
Unearned income	0.485**	0.386**	0.684**	0.593**
	(0.191)	(0.190)	(0.225)	(0.217)
Unearned income*female labour ratio				
16<=age<=60	-0.108	0.151	-0.626*	-0.480
	(0.376)	(0.369)	(0.352)	(0.344)
Earned income	0.259**	0.295***	0.146**	0.163***
	(0.086)	(0.069)	(0.061)	(0.046)
Earned income*female labour ratio				
16<=age<=60	-0.226	-0.094	-0.048	0.063
	(0.162)	(0.123)	(0.106)	(0.085)
Loans	0.033	0.161	0.197*	0.140
	(0.157)	(0.176)	(0.119)	(0.111)
Loans*female labour ratio 16<=age<=60	0.465	0.261	-0.003	0.109
	(0.409)	(0.460)	(0.233)	(0.224)
Ratio=p25: Unearned income=Earned income[1]	0.001	0.030	0.005	0.035
Ratio=p75: Unearned income=Earned income	0.000	0.012	0.001	0.037
R-squared	0.470	0.601	0.294	0.437
N. of Obs.	2,788	2,788	3,196	3,196

Note: Time varying village dummies are included in all regressions. Financial assets, livestock as specified in equation (12), and variables in Table 4 are included in all regressions. Robust standard errors are shown in brackets. The 25th and 75th percentiles of female labour 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%, 5%, and 1% levels respectively.

Source: See text.

Table 8: Results are robust to excluding housing durables and education from living expenditures and excluding remittances from unearned income

Living expenditures	Gansu		Inner Mongolia	
	FE	OLS	FE	OLS
Panel 1: Excluding housing durables and education from living expenditures				
Unearned income	0.235***	0.247***	0.271***	0.278***
	(0.051)	(0.041)	(0.057)	(0.054)
Earned income	0.106**	0.160***	0.077***	0.135***
	(0.047)	(0.046)	(0.017)	(0.013)
Loans	0.128***	0.138***	0.108***	0.105***
	(0.035)	(0.032)	(0.027)	(0.026)
Unearned income=Earned income[1)]	0.027	0.071	0.001	0.011
R-squared	0.457	0.602	0.290	0.460
N. of Obs.	2,788	2,788	3,196	3,196
Panel 2: Excluding remittances from unearned income				
Unearned income	0.373***	0.546***	0.338***	0.324***
	(0.103)	(0.127)	(0.072)	(0.071)
Earned income	0.151***	0.247***	0.123***	0.193***
	(0.041)	(0.040)	(0.025)	(0.019)
Loans	0.241***	0.276***	0.198***	0.195***
	(0.062)	(0.074)	(0.044)	(0.043)
Unearned income=Earned income[1]	0.036	0.020	0.005	0.077
R-squared	0.446	0.594	0.292	0.435
N. of Obs.	2,788	2,788	3,196	3,196

Note: Time varying village dummies are included in all regressions. Financial assets, livestock as specified in equation (12), 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%, and 1% levels respectively.

Source: See text.

Appendix A1: MPC from earned and unearned income when the spending constraint on unearned income binds in the first, but not the second period

When the constraint only holds in the first period and not in the second ($\theta_1 > 0, \theta_2 = 0$), such that $c_1^u = y_1^u$, it can be derived from (5) that $c_1^u = y_1^u, c_2^e = \frac{c_2^u}{\lambda}, c_2^e = \beta(1+r)c_1^e$, which after substitution in the budget constraint yields:

$$c_1^u = y_1^u,\ c_1^e = \frac{(1+r)y_1^e + y_2^u + y_2^e}{(1+r)(1+(1+\lambda)\beta)},\ c_1 = y_1^u + \frac{(1+r)y_1^e + y_2^u + y_2^e}{(1+r)(1+(1+\lambda)\beta)}, \quad \text{(A1-1)}$$

$$c_2^u = \frac{\lambda\beta[(1+r)y_1^e + (y_2^u + y_2^e)]}{1+(1+\lambda)\beta}, c_1^e = \frac{\beta[(1+r)y_1^e + (y_2^u + y_2^e)]}{1+(1+\lambda)\beta},$$

$$c_2 = \frac{(1+\lambda)\beta[(1+r)y_1^e + (y_2^u + y_2^e)]}{1+(1+\lambda)\beta}$$

It follows that $MPC_1^u = 1 > MPC_1^e = \frac{1}{1+(1+\lambda)\beta}$, but $, MPC_2^u = \frac{(1+\lambda)\beta}{1+(1+\lambda)\beta} = MPC_2^e = \frac{(1+\lambda)\beta}{1+(1+\lambda)\beta}$. Unearned and earned income are not fungible in the first period, but they become fungible again in the second period. Substituting $y_t^k = y^{Pk} + y_t^{Tk}$ for k=u,e and t=1,2 respectively into (A1) it can be shown that unearned and earned income in period one are not fungible both for their transitory ($MPC_1^{Tu} = \frac{\partial c_1}{\partial y_1^{Tu}} = 1 > MPC_1^{Te} = \frac{\partial c_1}{\partial y_1^{Te}} = \frac{1}{1+(1+\lambda)\beta}$) and permanent ($MPC_1^{Pu} = \frac{\partial c_1}{\partial y^{Pu}} = 1 + \frac{1}{(1+r)(1+(1+\lambda)\beta)} = \frac{(1+r)+1+(1+r)(1+\lambda)\beta)}{(1+r)(1+(1+\lambda)\beta)} > MPC_1^{Pe} = \frac{\partial c_1}{\partial y^{Pe}} = \frac{(1+r)+1}{(1+r)(1+(1+\lambda)\beta)}$) parts.

Appendix 2

Table A1: The larger the ratio between current and permanent unearned income, the more likely it is that unearned and earned income are fungible

	Gansu		Inner Mongolia	
Living expenditures	OLS	FE	OLS	FE
Unearned income	0.839***	0.961***	0.586*	0.639*
	(0.167)	(0.201)	(0.313)	(0.372)
Unearned income*Ratio	-0.098**	-0.119**	-0.073	-0.084
	(0.041)	(0.050)	(0.070)	(0.081)
Earned income	0.273***	0.182***	0.201***	0.130***
	(0.033)	(0.033)	(0.020)	(0.025)
Earned income*Ratio	-0.001	-0.002	-0.004	-0.003
	(0.011)	(0.009)	(0.006)	(0.006)
Loans	0.432***	0.353***	0.130**	0.125**
	(0.106)	(0.099)	(0.047)	(0.046)
Loans*Ratio	-0.124**	-0.090*	0.049	0.056*
	(0.055)	(0.048)	(0.032)	(0.030)
R-squared	0.615	0.480	0.440	0.302
No. of obs.	2,788	2,788	3,196	3,196
Family business and investment				
LUnearned income	0.118	0.110	0.437	0.660
	(0.105)	(0.196)	(0.297)	(0.688)
L.Unearned income*L.Ratio	-0.001	-0.028	-0.069	-0.113
	(0.026)	(0.050)	(0.065)	(0.143)
L.Earned income	0.145***	0.034	0.324***	0.008
	(0.040)	(0.030)	(0.034)	(0.058)
L.Earned income*L.Ratio	-0.021**	-0.006	-0.028**	-0.022*
	(0.008)	(0.006)	(0.010)	(0.013)
Loans	0.140*	0.188**	0.441***	0.474***
	(0.072)	(0.076)	(0.109)	(0.113)
Loans*Ratio	0.111**	0.088*	0.019	0.002
	(0.057)	(0.053)	(0.048)	(0.043)
R-squared	0.527	0.483	0.538	0.406
No. of obs.	2,089	2,089	2,400	2,400
Saving in financial assets				
Unearned income	-0.221*	-0.035	0.095	0.697
	(0.131)	(0.294)	(0.255)	(0.509)
Unearned income*Ratio	0.162**	0.137	-0.004	-0.119
	(0.053)	(0.085)	(0.063)	(0.109)
Earned income	0.137***	0.193***	0.080***	0.118***
	(0.032)	(0.043)	(0.018)	(0.032)
Earned income*Ratio	-0.013*	-0.015*	-0.003	-0.004
	(0.007)	(0.009)	(0.007)	(0.009)
Loans	0.034	0.054	-0.026	0.001
	(0.031)	(0.041)	(0.029)	(0.038)
Loans*Ratio	-0.043*	-0.059**	0.001	-0.004
	(0.022)	(0.027)	(0.012)	(0.016)
R-squared	0.419	0.406	0.284	0.234
No. 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 equation (12), and variables in Table 4 are included in all regressions. Robust standard errors are shown in brackets. *, **, *** significant at the 10%, 5%, and 1% levels respectively.

Source: See text.

Appendix A3 Marginal propensity to invest/save from unearned and earned income

To test whether the spending behaviour on business and investment and saving in financial assets also depends on income sources, similar models as in (12) are estimated:

$$B_{vht} = \beta_1 U_{vht\text{-}1} + \beta_2 E_{vht\text{-}1} + \beta_3 L_{vht} + \beta_4 A_{vht\text{-}2} + \beta_5 Liv_{vht\text{-}2} + \sum_{i=1}^{m} \beta_i^H H_{vht,i} + \sum_{j=1}^{n} \beta_j^V V_{t,j} + u_{vh} + e_{vht}, \quad \text{(A2-1)}$$

$$A_{vht} - A_{vht\text{-}1} = \gamma_1 U_{vht} + \gamma_2 E_{vht} + \gamma_3 L_{vht} + \gamma_4 A_{vht\text{-}2} + \gamma_5 Liv_{vht\text{-}1} + \sum_{i=1}^{m} \gamma_i^H H_{vht,i} + \sum_{j=1}^{n} \gamma_j^V V_{t,j} + u_{vh} + e_{vht}, \quad \text{(A2-2)}$$

The parameters β_1, β_2 and β_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 γ_1, γ_2 and γ_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 $A_{vht\text{-}1}$. Since γ_4 is not the variable of interest in this paper and to mitigate the usual econometric issue of dynamic panel data models, $A_{vht\text{-}2}$ is used to capture the impact of initial asset level $A_{vht\text{-}1}$. To explore differences in the MPI/MPS of the permanent and transitory parts of unearned and earned income, the following equations were estimated.

$$B_{vht} = \psi_1 UP_{vht\text{-}1} + \psi_2 UT_{vht\text{-}1} + \psi_3 EP_{vht\text{-}1} + \psi_4 ET_{vht\text{-}1} + \psi_5 L_{vht} + \psi_6 A_{vht\text{-}2} + \psi_7 Liv_{vht\text{-}2} + \sum_{i=1}^{m} \psi_i^H H_{vht,i} + \sum_{j=1}^{n} \psi_j^V V_{t,j} + e_{vht},$$

$$A_{vht} - A_{vht\text{-}1} = \kappa_1 UP_{vht} + \kappa_2 UT_{vht} + \kappa_3 EP_{vht} + \kappa_4 ET_{vht} + \kappa_5 L_{vht} + \kappa_6 A_{vht\text{-}2} + \kappa_6 Liv_{vht\text{-}1} + \sum_{i=1}^{m} \kappa_i^H H_{vht,i} + \sum_{j=1}^{n} \kappa_j^V V_{t,j} + e_{vht}, \quad \text{(A2-3)}$$

The estimated results are in Table A2.

Table A2: Households tend to invest/save more from earned than from unearned income.

	Gansu			Inner Mongolia		
	FE	OLS	PT	FE	OLS	PT
	(1)	(2)	(3)	(4)	(5)	(6)
Business and investment						
L.Unearned permanent income			0.064			0.048
			(0.047)			(0.150)
L.Unearned (transitory) income	-0.042	0.039	0.039	0.008	0.001	-0.005
	(0.047)	(0.044)	(0.040)	(0.071)	(0.064)	(0.077)
L.Earned permanent income			0.259***			0.527***
			(0.049)			(0.053)
L.Earned (transitory) income	0.004	0.095**	-0.025	-0.032	0.284***	-0.023
	(0.021)	(0.043)	(0.040)	(0.068)	(0.031)	(0.048)
Loans	0.291***	0.269***	0.251***	0.478***	0.471***	0.425***
	(0.050)	(0.054)	(0.051)	(0.088)	(0.082)	(0.077)
Unearned (permanent) = Earned (permanent)[1)]	0.357	0.318	0.003	0.714	0.000	0.005
Unearned transitory = Earned transitory	0.245			0.851		
R-squared	0.465	0.502	0.542	0.402	0.533	0.601
N. of Obs.	2,089	2,089	2,089	2,400	2,400	2,400
Saving in financial assets						
Unearned permanent income			0.225*			-0.037
			(0.120)			(0.125)
Unearned (transitory) income	0.420**	0.279**	0.304**	0.125	0.063	0.098
	(0.145)	(0.129)	(0.132)	(0.091)	(0.081)	(0.089)
Earned permanent income			0.043			0.055**
			(0.030)			(0.021)
Earned (transitory) income	0.140**	0.104***	0.150***	0.109***	0.076***	0.106***
	(0.043)	(0.031)	(0.043)	(0.029)	(0.017)	(0.023)
Loans	-0.015	-0.018	-0.019	-0.004	-0.024	-0.022
	(0.015)	(0.012)	(0.012)	(0.029)	(0.022)	(0.022)
Unearned (permanent) = Earned (permanent)	0.061	0.184	0.143	0.877	0.877	0.479
Unearned transitory = Earned transitory	0.256			0.932		
R-squared	0.394	0.402	0.407	0.233	0.284	0.285
N. of Obs.	2,089	2,089	2,089	2,400	2,400	2,400
Panel 2: without observations with Unearned income > Earned income						
Business and investment						
L.Unearned permanent income			0.044			0.075
			(0.091)			(0.180)
L.Unearned (transitory) income	0.000	0.009	0.020	0.042	-0.009	0.030
	(0.080)	(0.094)	(0.089)	(0.152)	(0.140)	(0.131)
L.Earned permanent income			0.260***			0.528***
			(0.049)			(0.054)
L.Earned (transitory) income	0.004	0.094**	-0.027	-0.032	0.284***	-0.023
	(0.022)	(0.043)	(0.040)	(0.069)	(0.031)	(0.048)
Loans	0.290***	0.270***	0.252***	0.477***	0.469***	0.423***
	(0.050)	(0.054)	(0.051)	(0.087)	(0.082)	(0.076)
Unearned (permanent) = Earned (permanent)	0.963	0.409	0.035	0.694	0.042	0.022
Unearned transitory = Earned transitory			0.644			0.716
R-squared	0.466	0.503	0.544	0.404	0.533	0.602
N. of Obs.	2,058	2,058	2,058	2,382	2,382	2,382

table continues…

Saving in financial assets						
Unearned permanent income			-0.043			-0.085
			(0.080)			(0.135)
Unearned (transitory) income	0.04	-0.014	-0.008	0.044	0.008	0.041
	(0.123)	(0.078)	(0.081)	(0.140)	(0.093)	(0.103)
Earned permanent income			0.047			0.058**
			(0.030)			(0.021)
Earned (transitory) income	0.143***	0.106***	0.150***	0.111***	0.079***	0.107***
	(0.042)	(0.030)	(0.042)	(0.029)	(0.017)	(0.023)
Loans	-0.013	-0.016	-0.017	-0.003	-0.024	-0.022
	(0.015)	(0.012)	(0.012)	(0.030)	(0.022)	(0.022)
Unearned (permanent) = Earned (permanent)	0.431	0.158	0.291	0.653	0.470	0.310
Unearned transitory = Earned transitory			0.086			0.545
R-squared	0.382	0.402	0.406	0.234	0.286	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 (A2:1-3), and the 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%, and 1% levels respectively.

Source: See text.

Table A3: Households spend more unearned income on both food and liquor/tobacco

	Gansu		Inner Mongolia	
	OLS	FE	OLS	FE
	Food			
Unearned income	0.078***	0.061***	0.114***	0.105***
	(0.016)	(0.018)	(0.027)	(0.026)
Earned income	0.049***	0.004	0.046***	0.026***
	(0.013)	(0.010)	(0.004)	(0.004)
Loans	0.023***	0.017**	0.007	0.009*
	(0.006)	(0.006)	(0.005)	(0.005)
Unearned income=Earned income[1)]	0.108	0.002	0.013	0.003
R-squared	0.689	0.582	0.542	0.384
N. of Obs.	2,788	2,788	3,196	3,196
Liquor/tobacco				
Unearned income (excluding remittances)	0.023**	0.017***	0.053***	0.053***
	(0.008)	(0.005)	(0.013)	(0.011)
Earned income	0.011**	0.004*	0.009***	0.006***
	(0.004)	(0.002)	(0.001)	(0.001)
Loans	0.009***	0.008***	0.002*	0.003*
	(0.002)	(0.002)	(0.001)	(0.002)
Unearned income=Earned income[1]	0.128	0.010	0.001	0.000
R-squared	0.528	0.332	0.341	0.249
N. of Obs.	2,788	2,788	3,196	3,196

Note: Time varying village dummies are included in all regressions. Financial assets, livestock as specified in equation (12), 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%, and 1% levels respectively.

Source: See text.

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