

The role of loans and remittances in Consumption and Investment decisions in Urban Ethiopia

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Abstract

This paper is aimed at empirically investigating the role of loans and remittances in household asset accumulation, consumption and the likelihood of self-employment and entrepreneurship. Our study tests the theoretical predictions of models of intermediation, entrepreneurship and growth and other relevant theoretical models. We used a panel data from urban households in Ethiopia who were interviewed 5 times in the period between 1994 and 2004. Our fixed effects results reveal that loan taken out by households has no significance for asset accumulation and total consumption. This evidence holds even when we disaggregate consumption into durable and non-durable (food) consumption. However, the amount of remittances received by households has positive and significant contribution to asset accumulation, non-food, food and total household consumption. Our most interesting and profound results come from our estimates of the random effects panel probit model. We find that amount of loan is positively and significantly associated with the probability of self-employment and entrepreneurship while the amount of remittances is negative and significant. Hence, the policy implication of this micro level evidence is that provision of household credit is crucial for employment generation and serves as an engine of growth.

JEL Classification: D12; O12; O55

Key Words: *consumption, credit, remittances, assets, entrepreneurship, fixed effects, random effects panel probit*

1. Introduction

The role of finance in economic growth has been studied extensively at the macro level (Demetriades and James, 2011; King and Levine, 1993; Rajan and Zingales 1998). This is coupled with a growing literature in recent years that highlights the ‘broken link’ between formal banking sector development and growth in Africa (Honohan and Beck 2007; Andrianova *et al.* 2010; and Demetriades and Fielding (2010) and highlight the dysfunctional nature of African credit markets. Financial exclusion is considered as a major impediment to poverty eradication, economic growth and income equality. Therefore, policies to promote wide access to financial services are at the heart of development policy agenda. However, sound empirical evidence linking access to finance to development outcomes is scarce due to lack of data at the micro level. Most of the literature identified above tends to focus on aggregate data using financial depth indicators rather than access. There are increasing concerns that aggregation of data might hide poverty dynamics at the micro level, which is essential for policy intervention

Given the above background, a discussion of the nature and size of the informal sector in Africa and other developing countries and the role played by informal financial transfers as fundamental anchors of welfare and employment systems has received a special attention by both academics and policy makers. Most of the micro level literature focuses on what determines access to credit and the motives for private transfers such as remittances (Alvi and Dendir, 2009). There is also a strand of literature, which is devoted to the study of the motives of remitting at the macro level (Elbadawi and Rocha, 1992). However, there is a dearth of evidence on how access to credit and remittance income would contribute to investment and consumption in urban households in Sub-Saharan African countries (Liverpool and Winter-Nelson, 2010). We aim to provide micro evidence linking both households’ access to financial resources such as loans and remittances and their impact on household consumption and investment. Often remittances and credit are studied separately (Adams, Jr. 1998). There is limited work in the literature investigating the impact of financial flows such as remittances and credit simultaneously. Hence, the study of the

connection between households' access to credit and remittances with consumption and investment decisions of the household is a central motivation of this paper is a useful way of tracing the mechanism through which these flows affect households' key economic decisions.

Investment takes the form of asset accumulation and includes those engaging in self-employment or entrepreneurial activity while consumption constitutes food, non-food and total consumption of the household per adult equivalent. Since our data does not have information on remitters' motive but only the amount received by recipients we abstract from investigating the causes of remittances. Alvi and Dendir (2009) conducted a useful and relevant recent household level study focusing on credit and remittances flows to Ethiopian households. The authors investigated what factors significantly affect household loans and private transfers in Ethiopia. We go a step further and investigate the effects of these flows and contribute to the understanding of their role in the investment and consumption decisions of households. Based on the analysis of a panel data from 1994 to 2004, we show their effect on households' food, non-food, total consumption, asset accumulation and entrepreneurship/self-employment.

In Africa where consumption volatility leads households to extreme poverty, it is useful to understand not only what makes households borrow more but also what helps them to escape consumption poverty. In an environment where unemployment is a serious social and economic problem, it is very important to study what helps households invest and be entrepreneurial. More importantly, in credit constrained environments such as Ethiopia, it is important to investigate whether access to the limited and low level of household credit would encourage household to be self employed or entrepreneurial. This is fundamental policy question as it links credit availability at the micro level to employment and growth. Hence, our findings will be a vital ingredient to employment and poverty reduction policy making.

By employing five waves of panel data available from the Ethiopian Urban Household Survey (EAHS), this research attempts to contribute to the current debate on the transmission mechanisms of growth at the micro level. The survey has a rich array of socio-economic variables on 1500 households that were interviewed longitudinally in 1994, 1995, 1997, 2000 and 2004. Seven major urban centres are covered by the survey. In our analysis, we investigate

whether women household heads or certain ethnic groups with loans are more likely to be self-employed. For instance, people from the Gurage ethnic group are well known for their commercial ventures and self-employment/entrepreneurship drive. We check whether this is borne out by the data collected from the seven major cities of Ethiopia from 1994 to 2004 via 5 panel/longitudinal waves. According to our preliminary findings, women heads in general are less likely to be self employed. Those with access to credit are also less likely to be self-employed. With regard to ethnicity, we found the gurgages and tigre heads to be more likely to be entrepreneurial. We found remittance to have a significant positive impact on food and total consumption of households (consumption smoothing) instead of promoting employment creation or investment in the form of setting up own business. Remittances also have increase non-food expenditure of households.

The paper proceeds as follows. In section 2, previous research is briefly reviewed to provide context for the current study and to highlight the potential contribution and claim of the current study. Section 3 outlines the conceptual framework and identifies propositions that are brought to the data for testing. Data description with summary statistics and the econometric models are presented in sections 4 and 5 respectively. Before conclusion, section 6 discusses the results and provides possible policy recommendations.

2. Previous research

The extent to which credit, remittances and asset accumulation are interrelated is essentially dependent on the extent to which it addresses the issue of poverty reduction and economic development. A number of researching attempting to identify the link between growth and its effects on poverty reduction argue that the labour market is one of the important mechanisms through which economy wide growth is transmitted to micro economic units such as households (Kedir et al, 2011). Others emphasise the role of access to credit as a possible transmission mechanism (Liverpool and Winter-Nelson, 2010). Most studies in the literature focus either on remittances or credit (Adams, 1991; Banerjee, 1984). Those that studied both variables focused on what determines these financial flows instead of their uses (Aliv and Dendir, 2009). For example, Adams (1998) studied the effect of remittances on asset accumulation in Pakistan. He

found that households in receipt of internal remittances are impatient (high discount rate) and do not sacrifice present consumption for the sake of asset accumulation. However, external remittances were found to be significantly important in increasing the accumulation of rural assets. There is a support for a stronger consumption smoothing role than investment from qualitative studies conducted by sociologists (Sofranko and Idris, 1999).

Christiaensen and Pan (2010) found that the marginal propensity to consume from unearned income is about three times larger than that from earned income. Chami et al (2003) showed the presence of a negative relationship between remittances and growth and interpreted the results as indicative of the existence of moral hazard problem in remittances. The authors also argue that remittances are compensatory transfers; countercyclical and detrimental to growth of an economy. There is, however, a lack of research that links private financial flows and their impact on employment decisions. Hence, in addition to exploring the effect of remittances and credit simultaneously on consumption and asset accumulation, we investigate whether or not they also impact on self-employment and entrepreneurship of households.

3. Theoretical framework

Our analysis can be motivated and put into context by making reference to models of intermediation, entrepreneurship and growth. These models were studied, among others, by Lloyd-Ellis and Bernhardt (2000); Greenwood and Jovanovic (1990), Banerjee and Newman (1993); Townsend (2010) and Buera, Kaboski and Shin (2008). Resource transfers such as remittances have been well recognized as important mechanisms for household welfare by the seminal theoretical contribution of Becker (1974). Both credit and remittances (which we refer to as private transfers) are important financial flows to households. We classify credit as a private transfer because friends, neighbours and relatives are the most important sources of loans in Ethiopia (Kedir and Ibrahim, 2011). Although we classified remittances and credit as private transfers, we provide details of their unique differences.

First, remittance flows are between a remitter and a recipient often separated by long distances. However, quite the opposite is true in the case of credit. Therefore, distance can be a barrier to the chance of monetary use of remittance income. Hence, adverse selection and moral hazard

problems are significant in the case of remittances. Recipients may change their labour market behavior and choose to consume instead of engaging in an investment opportunity such as self-employment. At times, they can be used for valid reasons such as consumption smoothing given the regular shocks to household consumption in the context of poor countries such as Ethiopia. The asymmetric information problem is less serious or even absent in credit transfers as the major providers of loans in Ethiopia are informal lenders (i.e. friends, neighbours and relatives). Informal sources are well recognized in the household credit literature to have superior informational advantage over formal sources. In line with this popular notion we argue that unearned income is easily spent. Contrary to this, economic theory states that income is fungible. We expect remittances to be more likely to be used for unproductive ends while loans enhance the propensity to engage in self-employment. Both at micro and macro levels, there is evidence pointing to the direction of our proposition as shown above.

Second, remittances are not tied to explicit repayment plans while loans are. This leads to lenient attitudes in the case of the former and may tempt recipients to use it for less productive purposes. However, credit has to be repaid not only to guarantee future loan access but also to maintain existing social trust in the community where the household belongs. Thus both asymmetric information and repayment commitment attached to the private transfers we study affect consumption and investment behavior of households. In finance and household credit market literature, the role of particularly asymmetric information has been found to be very important in affecting agent behavior and what we observe in markets.

We test the above propositions using panel data from urban areas in Ethiopia. In summary, we expect the following relationships $\partial C / \partial R > 0$; $\partial E / \partial R < 0$; $\partial C / \partial L > or < 0$; $\partial A / \partial R > 0$ and $\partial E / \partial L > 0$; where A=assets; C= consumption (i.e. food, non-food and total consumption of the household); R=total amount of remittances received; L=total loans and E=self-employment.

4. Methodology

Our empirical strategy is aimed at examining the impact of the amount of loans taken and remittances received by households on consumption, asset accumulation, self-employment and entrepreneurship. The impact on total consumption is investigated as well as on its components such as durable consumption and non-durable (food) consumption.

Monetary values of consumption and assets are reported. Therefore, when we estimated the consumption and assets equations, we adopt the fixed effects (FE) estimator. However, self-employment and entrepreneurship are binary variables. The preferred model when we have a panel binary variable is a random effects (RE) probit model which is instrumental to predict the probability/likelihood of self-employment and entrepreneurship.

Our left hand side variables are (i) log of assets; (ii) Log of durable consumption; (iii) log of non-durable (food) consumption; (iv) log of total consumption; (v) dummy variable indicating self-employment/entrepreneurship. Accordingly, we provide two sets of reduced form equations below. The first set of equations is estimated using fixed effects panel model while the second set is estimated using RE panel probit estimator. The final selection of estimators is selected based on specification tests such as the Hausman test in the case of the FE estimator and checking the stability of the quadrature approximation method used in the RE panel probit model.

a. FE model of consumption and assets

The asset (AS), non-food consumption (NFC), food consumption (FC) and total consumption (TC) equations of household i at time t are given, respectively, as;

$$\ln AS_{it} = \beta_0 + \beta_1 \ln L_{it} + \beta_2 \ln R_{it} + \beta_3 x_{it} + u_{it} \quad (1)$$

$$\ln NFC_{it} = \beta_0 + \beta_1 \ln L_{it} + \beta_2 \ln R_{it} + \beta_3 x_{it} + u_{it} \quad (2)$$

$$\ln FC_{it} = \beta_0 + \beta_1 \ln L_{it} + \beta_2 \ln R_{it} + \beta_3 x_{it} + u_{it} \quad (3)$$

$$\ln TC_{it} = \beta_0 + \beta_1 \ln L_{it} + \beta_2 \ln R_{it} + \beta_3 x_{it} + u_{it} \quad (4)$$

Where L is the amount of loan taken over the last 12 months by households. R is the annual amount of received and x is a vector of other controls such as age, education, marital status, ethnicity, household size and wave dummies. The error term u_{it} contains both household and time fixed effects and can be represented as follows;

$$u_{it} = \mu_i + \varepsilon_t + v_{it} \quad (5)$$

Note that v is a well-behaved error term with zero mean and constant variance. Hence, $v_{it} \sim iid(0, \sigma_v^2)$.

b. RE panel probit model of self employment and entrepreneurship.

Due to the binary nature of the data on self employment and entrepreneurship, we use the random effects (RE) probit. For a reliable interpretation of our final coefficient estimates, we checked the stability of the quadrature approximation as mentioned above. As implied by the stability test, we adopted higher interpolation points to generate our estimated regression coefficients. Consider the model (Arulampalam, 1998):

$$y_{it}^* = x'_{it} \beta + v_{it}, i = 1, 2, \dots, n; t = 1, 2, \dots, T ;$$

$$v_{it} = \alpha_i + u_{it} ;$$

and

$$y_{it} = 1 \text{ if } y_{it}^* > 0; \text{ and } 0 \text{ otherwise};$$

where (dropping the subscripts) y^* denotes the unobservable variable, y is the observed outcome (i.e., here, household head is self employed or own-account worker in the case of entrepreneurship), x is a vector of time-varying and time invariant regressors that influence y^* and it includes all the variables on the right hand sides of equations (1) to (4) above, β is the vector of coefficients associated with the regressors, α_i denotes the individual specific unobservable effect and u_{it} is a random error. We assume that $u_{it} \sim IN(0, \sigma_u^2)$. In order to marginalize the likelihood, we also assume that, conditional on the x_{it} , α_i s are $IN(0, \sigma_\alpha^2)$ and are independent of u_{it} and x_{it} . The above assumptions suggest that the correlation between

two successive error terms for the same individual is a constant given by;

$$\rho = \text{cor}(v_{it}, v_{it-1}) = \frac{\sigma_{\alpha}^2}{\sigma_{\alpha}^2 + \sigma_u^2}.$$

The parameters of the random effect probit model can be estimated by noting that the distribution of y_{it}^* conditional on α_i are independent normal (Heckman, 1981).

5. Data and summary statistics

The data in this study were collected in five waves: 1994, 1995, 1997, 2000 and 2004, from seven urban centres in Ethiopia by the Department of Economics of Addis Ababa University in collaboration with the Department of Economics of University of Gothenburg. Due to extreme outliers and unreasonable records which we could not verify by consulting the paper version of the completed questionnaire, we excluded the 1997 sample from our analysis. The cities covered in the survey include Addis Ababa (i.e. the capital city), Awassa, Bahar Dar, Dessie, Diredawa, Jimma and Mekele. A total of 1500 households were interviewed to provide information on household demographics, income, expenditure, education, assets, health and on individual and household participation in formal and informal financial institutions. Across the four waves, the total number of individual members that are declared to be members of ROSCAs ranges from 1600 to 2100. The informant was the economic head of the household (in terms of income source) and was normally (but not always) male. The data were collected at slightly different times of the year in each wave. This is important because household patterns of consumption, and indeed their motives for saving, may differ from one month to another. For example, weddings are traditionally held at certain times of the year, and the rainy and dry seasons affect both income and expenditure patterns.

The survey asks households about the amount they borrowed in the last 12 months as well as the total amount of remittances they received both in cash and in kind. When remittances are reported in-kind, a monetary equivalent of the gift is recorded by the enumerators. Therefore, the remittance variable is a sum total of remittances in cash and in kind for each household.

Tables 1 and 2 below provide a summary statistics of key variables of interest by wave and city respectively. Table 1 shows that, except in 1995, there is an increasing temporal trend in remittance income to Ethiopian households. While the opposite is true to their access to credit except in 2004. Asset accumulation has mixed results with drastic increases in 1997 followed by a decline in 2000. The period between 2000 and 2004 is notable for remittance income, credit and asset accumulation as all of these variables showed dramatic increases. Except for a big decline in 2004, average household food expenditure stayed around a 400 Ethiopian birr over the whole period under consideration while non-food expenditure shows a modest increase over time.

Table 1: Average monthly summary statistics by year (in Ethiopian birr)

Variable	1994	1995	1997	2000	2004
Remittances	49.9	48.5	72.2	76.4	104.0
Credit	1476.3	902.5	576.4	319.6	700.3
Assets	4955.2	4443.9	7626.6	4587.2	7108.2
Food expenditure	462.4	407.7	387.6	493.9	283.4
Non-food expenditure	189.3	224.4	222.3	252.7	266.2

According to table 2, on average more remittance income goes to households located in Awassa followed by those residing in Mekele and Diredawa. Except for Bahar Dar the remittances received by households in all of the urban centres do not display large disparities. Credit availability is much better in Bahar Dar and Jimma based on the relatively large average loans acquired. The figure for Diredawa is surprisingly low given the city's reputation as one of the commercial centres in the East of the country. The largest mean asset accumulation are in households in the capital city, Awassa and Jimma. In relation to food expenditure, households in Dessie (a city in the arid and food insecure northern region of the country) have the lowest

mean. In the remaining urban centres, there are no alarming divergences in food expenditure. Non-food purchases are higher in Awassa followed by Addis Ababa. To Awassa residents as well as those in the capital, the pattern of non-food consumption and asset accumulation seems to follow remittances received but this can only be confirmed by a multivariate analysis which we carried out in the relevant section below.

Table 2: Average monthly summary statistics by city (in Ethiopian birr)

City	Remittances	Credit	Assets	Food Expenditure	Non-food Expenditure
Addis Ababa	73.1	785.5	6947.5	412.4	253.3
Awassa	87.8	769.4	5003.9	430.7	316.6
Bahir Dar	57.2	1853.5	2841.9	466.0	204.3
Dessie	69.3	194.8	2785.6	317.1	164.6
Diredawa	74.0	147.5	3418.7	393.1	180.1
Jimma	43.2	1739.6	5305.4	423.9	165.5
Mekele	74.3	465.5	3384.1	399.3	189.3

Another set of important variables for our analysis consists of the proportion of own-account workers (i.e. the self-employed), employers and entrepreneurs¹. The employment related variables are summarized below in tables 3 and 4 by wave and city respectively. Given the importance of the informal sector as a major employer in many urban centres in Africa, it is not surprising to observe a non-negligible proportion of household heads being self-employed (i.e. own-account workers). However, this percentage showed a decline over the years from a high of

¹ Households heads whose main activity is reported either as self-employment or employer are classified as entrepreneurs.

19% in 1994 to 12.7% in 2004. Not many household heads are employers and the overall mean percentage is below 2% across the period considered. Entrepreneurship follows a similar declining trend to self-employment except for a slight rise in 2004.

Table 3: Average percentage of household heads with employment status by year

Variable	1994	1995	1997	2000	2004
Employer	2.0	2.2	1.9	1.4	1.3
Self-employed	18.0	17.3	15.6	12.3	12.7
Entrepreneur	19.6	16.1	13.7	13.7	14.0

Table 4 shows that self-employed and employer household heads are most common in Awassa, Dessie and Jimma. The lowest percentage of households with self-employed and entrepreneurial households is in Diredawa. In recent years, Awassa as a city has made remarkable progress. It is one of the faster growing urban centres and most of the summary statistics above and here are indicative of the encouraging trends in the city. It has also the higher percent of employer households among all cities. However, these crude percentages are misleading given the different number of households sampled in the different cities covered by our survey.

Table 4: Average percentage of household heads with employment status by city

City	Self-employed	Employer	Entrepreneur
Addis Ababa	14.8	1.9	14.1
Awassa	21.1	5.3	17.6
Bahir Dar	14.0	1.0	16.4
Dessie	18.2	1.3	18.2

Diredawa	12.4	0.6	13.5
Jimma	17.7	0.4	17.9
Mekele	16.9	1.3	17.0

6. Results and discussion

The results in table 5 show that remittances are significantly associated with household consumption and asset accumulation loans are used for investment and employment creation via self-employment and entrepreneurship. The remittance-consumption link we identified suggests that migration/remittance has a consumption risk reduction role (Rosenzweig and Stark, 1989) but not always as argued by Adams Jr. (1998) given the possibility of higher propensity to invest out of transitory income sources such as remittances from abroad unlike those received from domestic sources. Nguyen (2009) found similar results for Vietnamese households. The results might potentially point to the unproductive nature of remittances which might affect the behavior of recipients through lower labour supply by fostering a dependence culture of consumption. On the other hand, the results in relation to credit suggest the importance of provision of credit as a policy tool to households to promote investment and growth via employment creation. Based on research in Ethiopia, SIDA (2004) advocates the important role of credit in business start-ups for women. In addition, it points to the existing challenge of transformation from informal (small) to formal (medium and large) business due to severe constraints to their growth and expansion. Almost all small business start-ups in Africa are locked in a low capital and low size equilibrium.

Our analysis is based on a panel data of 5 rounds over 10 years. Hence our findings can be taken more as a long-run than short-run effects of the control variables on each of the dependent variables listed in tables 1 and 2 below. According to table 1, log of remittances, household size, year of education of the head and the fact that the household head is from Tigre ethnic group are positively and significantly associated with all of the four outcome variable. These factors increase asset accumulation, durable, food and total consumption households. The presence of married households heads is associated only with increased asset accumulation. The composition

of the value of assets is the sum of the value of asset components such as TV, refrigerator, household furniture, motor vehicle and jewelry. Since, married household heads possess these assets relatively more than their unmarried counterparts, the results are intuitive. The age of the household head is negative and significant but only in the case of non-food consumption which consists of household consumption expenditure for items such as clothes, education, furniture, building materials, utility bills, weddings and ceremonies. There is also a significantly negative in relation to households headed by females and this is true only for the food and total consumption equations. Our two key variables of interest are loans and remittances. In all of the equations, loans accessed by household do not feature as important determinants of any of the asset and consumption variables. However, remittances have a strong positive effect on all of them. The marginal effect of remittances on food consumption is the strongest while this effect is the weakest for the asset equation.

Table 5: Fixed Effects Panel model estimates

Variables	Log of Assets	Log of non-food Consumption	Log of Food Consumption	Log of Total Consumption
Log of loan	0.010 (0.008)	0.001 (0.007)	0.004 (0.005)	0.002 (0.005)
Log of remittances	0.009* (0.005)	0.013*** (0.004)	0.017*** (0.003)	0.016*** (0.003)
Female	-0.077 (0.078)	-0.058 (0.069)	-0.159*** (0.049)	-0.130*** (0.048)
Married	0.304*** (0.075)	0.003 (0.067)	0.030 (0.047)	0.016 (0.047)
Log of household size	0.133** (0.060)	0.423*** (0.054)	0.410*** (0.039)	0.401*** (0.038)
Age	-0.003 (0.003)	-0.006*** (0.002)	-0.001 (0.002)	-0.002 (0.002)
Education	0.020*** (0.005)	0.010** (0.005)	0.011*** (0.003)	0.012*** (0.004)
Oromo	-0.023 (0.087)	0.016 (0.076)	0.028 (0.055)	0.023 (0.054)
Tigre	0.403*** (0.162)	0.332** (0.144)	0.215** (0.103)	0.265*** (0.101)
Gurage	-0.141 (0.139)	0.048 (0.123)	0.094 (0.088)	0.038 (0.087)

R-squared	0.12	0.08	0.13	0.07
Sigma_u	1.61	0.88	0.64	0.67
Sigma_e	0.90	0.79	0.57	0.56
rho	0.76	0.56	0.56	0.59
No of observations	5828			

N.B. Based on Hausman test, the fixed effects model was preferred to random effects of model. wave dummies have also been controlled for.

As argued earlier, one of the main purposes of our study is to assess whether credit accessed and remittances received by household affect the likelihood of self-employment and entrepreneurship. This is a fundamental question because of the potential general equilibrium and growth effects of business expansion or self-employment activities. According to the results reported in table 2, it is interesting to note that household loans received have a positive and significant impact on increasing the likelihood of self-employment and entrepreneurship while remittances are negative and significant.. The results of both table 1 and 2 with regard to remittances suggest that these transfers are important for consumption smoothing and asset accumulation but they are linked with declining probability of making household heads self-employed and entrepreneurial.

Other characteristics

Females household heads are less likely to be self-employed and entrepreneurial as heads who are married. Household size has a significant and positive impact on the likelihood of being self-employed and engaged in own-account working. This may be due to the possibility of a number of individuals within a household working in a family business which is often run as a small business venture. The likelihood of self employment and entrepreneurship is declining with increases in the years of schooling completed by the household head. This suggests the business activities household heads are engaged in are not human capital intensive in nature. This finding can also be interpreted to mean that wage work or another occupation is preferred to self-employment. It is evident that highly educated individuals have competing demands for their labour and might be less inclined to be self-employed Kangasharju and Pekkala (2002). Household heads that are from the Tigre ethnic group are likely to be self employed while the

Gurages (with their reputation of commercial ventures of all sorts) are more likely to be self-employed as well as entrepreneurial.

Table 6: Random Effects Panel Probit model predicting probability of self-employment and entrepreneurship

Variables	Self employed	Entrepreneur (Own account worker and self-employed)
Log of loan	0.057*** (0.017)	0.065*** (0.019)
Log of remittances	-0.072*** (0.014)	-0.075*** (0.015)
Female	-1.181*** (0.178)	-1.500*** (0.191)
Married	-0.569*** (0.181)	-0.795*** (0.187)
Log of household size	0.689*** (0.127)	0.864*** (0.133)
Age	-0.005 (0.004)	-0.004 (0.005)
Education	-0.065*** (0.013)	-0.076*** (0.014)
Oromo	-0.063 (0.172)	-0.324* (0.0179)
Tigre	0.466** (0.215)	0.329 (0.226)
Gurage	1.077*** (0.215)	1.152*** (0.234)
Sigma_u	2.76*** (0.116)	3.25*** (0.127)
LR test of rho=0, chi-square (p-value)	1246.05 (0.000)	1482.28 (0.000)
Number of observations	5832	

N.B. The stability of the quadrature approximation in the RE panel probit model is checked before interpreting the above results. As in the results in table 1, the self –employment and entrepreneurship equations are estimated including wave dummies.

Conclusion and policy implications

Previous studies show that credit is the missing link for poor households/individuals who attempt to make a living by setting up small microenterprises. The conventional view is that lending to poor households is not economically viable due to high default risks. If loans have strong and significant association with entrepreneurship, it is less likely that borrowing households are going to default than households taking out a loan for consumption purposes. This provides a stronger incentive for policy makers to make micro level credit widely available to households. In a buffer model setting, Kaboski and Townsend (2011) showed increased borrowing particularly for consumption can increase the probability of future default. An Indonesian study by Panjaitan-Drioadisuryo and Cloud (1999) finds that default rates are not high among the poor because loans were used to engage in income generating self-employment activities and raise household incomes.

In models of intermediation, entrepreneurship and growth, credit provision leads to improvements in growth via its effect on business expansion (regardless of the size of the firm) and household income. Given the modest average loan amount taken by households in Ethiopia, the self-employment businesses households are most likely small in scale. Despite the scale, our results seem to have strong implications. They suggest that entering into self-employment has a relatively low entry cost and hence can make the policy recommendation of credit provision to households a realistic and affordable one as outlined by McKenzie and Woodruff (2006).

Household finance injection in the form of credit is an essential measure to address alarming levels of unemployment in poor economies such as Ethiopia. According to the empirical evidence presented in this paper, there is a scope for the fund to be used for growth and welfare enhancing purpose by creating self-employment opportunities if loanable funds are made available to households. In Ethiopia, we found that credit is most useful as working capital or for setting up a self-employment business activity while remittances are crucial for household welfare indicators such as consumption and assets. The pervasiveness of self-employment in Ethiopia as in many African countries where the formal sector fail to provide conducive business environment shows its importance and providing credit via different schemes such as micro-

credit and micro-financial institutions is a strong policy tool to improve welfare of millions of households and growth of economies in the long-run. However, the case for government intervention or private intermediation in providing finance to households is not clear cut (Parker, 2004). The entrepreneurial activities that households are engaged in might be less profitable, characterized by volatility of returns and high failure rates. This might be a concern for lenders but not a major worry when the sources are family and friends as in the sample analysed.

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