

Household Enterprises in Mozambique

Key to Poverty Reduction but Not on the Development Agenda?

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Abstract

Household enterprises—usually one-person-operated tiny informal enterprises—are a rapidly growing source of employment in Sub-Saharan Africa, especially in lower-income countries. Household enterprises tend to operate with limited interest or support from governments. This is the case in Mozambique, where neither the poverty reduction strategy nor small and medium enterprise development policies include household enterprises.

Using multiple household surveys, including a recent panel data set, this paper identifies the characteristics of the sector and its development during the period in which Mozambique experienced rapid economic growth. The analysis finds that household enterprises

in Mozambique are associated with higher household consumption, lower rural poverty, as well as upward mobility, particularly for rural and poorly educated households. But if the Mozambican government wants to tap this potential, it will need a different strategy than one designed to support small and medium enterprises, because creation and survival in this sector seems to depend on a set of factors related to the human capital in the household and development in the location, not the soft business environment constraints, such as licensing and permitting and corruption, which are cited by larger business.

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Household Enterprises in Mozambique: Key to poverty reduction but not on the development agenda?

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Sector Board: PREM Poverty

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Introduction

Mozambique has recorded steady economic growth in the post-civil-war period. During the first decade, growth based on rehabilitation of the economy, especially in rural areas, brought inclusive growth, including the expansion of the share of the economy, employment, and household livelihoods in non-farm activities. This inclusive growth was widely credited with poverty reduction (Fox et al, 2009; World Bank 2011). Since 2003, available data suggest that subsequent growth has been based primarily on natural resource extraction, energy intensive manufacturing such as bauxite processing, and public sector investment projects (e.g. building and staffing schools, expanding economic infrastructure), not on investment and productivity gains in the sectors where the majority of the population is employed (agriculture, small scale services; see World Bank, 2012). This is reflected in a slowdown in the movement of labor out of agriculture since 2003 and limited diversification of household sources of income.

Recognizing the limits posed by a growth model based on mineral extraction and energy intensive manufacturing, the Government of Mozambique developed a new Poverty Reduction Strategy (PRSP) in 2011 (GoM, 2011), placing more focus on agricultural output and productivity, and the creation of jobs in micro, small and medium-sized enterprises (MSMEs). Agriculture is where the majority of the poor spend much of their working hours, so productivity improvements in the family farming sector could certainly help alleviate poverty. Another activity of poor and near-poor households, often complementary to agriculture in rural areas, is self-employment in household non-farm enterprises (HEs). Though the HE sector is much less developed in Mozambique than in other SSA countries, 40 percent of jobs outside of agriculture were in HEs in 2009, and over 30 percent of households reported income from HEs. Self-employment in HEs is much more common than wage and salary jobs in SMEs. Yet this sector was virtually ignored in the PRSP, and has also been ignored in the PRSP follow-on programs and projects.

One reason the HE sector may be ignored is that it is under analyzed in Mozambique, and the contribution to income growth and poverty alleviation under appreciated. The few microeconomic studies which have analyzed this sector at the household level have found evidence that the sector could have the potential to make a significant contribution to poverty reduction in rural and urban areas (Cunguara et al., 2011; Fox, et al., 2008). But a detailed analysis of the sector, including the potential for upward mobility for households which are able to create and sustain such an enterprise is lacking. Likewise, policy makers are mostly unaware of the challenges people face in trying to start and sustain their enterprises, and how they could possibly release them. The purpose of this paper is to fill that gap.

Mozambique is fortunate to have a number of household surveys which could contain data on HEs, including a unique national panel, and two surveys of informal household enterprises. We utilize these surveys to tease out the determinants of household enterprise creation, the relationship of HE creation and sustainability with household welfare levels and mobility, and the factors supporting creation and survival as well as the constraints as reflected by both those who started an enterprise and those who did not. This combined cross section and panel data analysis allows us to reach a more robust set of conclusions on the sector and provide insights for development strategy in Mozambique.

The main conclusions of the analysis are that evidence from multiple data sources strongly suggests that HEs in Mozambique are associated with higher household consumption, lower rural poverty, as well as upward mobility particularly for rural and poorly educated households. But if the Mozambican government wants to tap this potential, it will need a different strategy than one designed to support SMEs, as creation and survival in this sector seem to depend on a set of factors related to the human capital in the household and development in the location, not the soft business environment constraints such as licensing/permitting and corruption often cited by larger business.

The outline of this paper is as follows. The first section is a description of the data sources. Next is a section on Mozambique - the economy, the demographics, the labor force and the structure of employment, and in particular, the HE sector and what it means for employment and livelihoods in Mozambique. The paper then turns to the relationship between the HE sector and household welfare, including a dynamic analysis of start-ups, upward mobility, and poverty reduction. The fourth section analyzes constraints household face in starting and sustaining HEs. The final section concludes with the implications for development policy in Mozambique.

Data sources and definitions

This paper focuses on household enterprises (HEs) in Mozambique. HEs are *unincorporated nonfarm enterprises owned by households*². From an employment perspective, HEs include self-employed business owners and members of their families working in the business. Paid employees working in enterprises from outside of the family are classified in a separate category, as wage employees.³

Data Sources

Mozambique has several recent data sources with information on HEs which are utilized for this analysis - national multipurpose household surveys (IAF/IOF/NPS) and specialized enterprise surveys (INFOR and RICs). Below is a brief description of the data sets.

IAF for 1996–97 and 2002–03. The *Inquérito aos Agregados Familiares* (IAF) are national household income and expenditure surveys conducted over a 12 month period. The questions on employment cover only primary activity but they do allow identification of individuals working as self-employed and contributing family members in the nonfarm sector. IAF 2002-03 also has a few questions administered at the household level on income and expenditures from non-farm enterprises.

² We include enterprises in the study *regardless of registration status*. In classifying an enterprise as *informal*, standard practice (ILO, 2011) requires that it meet (i) an ownership criteria (unincorporated, owned by household members) and *either* (ii) a size criteria (below a specified level of employment, e.g. 5 or 10 employees depending on the country), and/or (iii) a legal status criteria (non-registration of the enterprise or its employees). We ignore the legal status because “registration” in Mozambique is not a unique identifier. There are several levels of registration - national as well as subnational, with the district government or the municipality. In our experience, the “registration” variable adds little value to the analysis (See Fox and Sohnesen, 2012).

³ We can not distinguish between wage employees who work for an HE owner and those who work for a larger firm (e.g. SME).

IOF 2008-09. The *Inquérito aos Orcamentos Familiares* (IOF) is the third national household income and expenditure survey, conducted from October 2008 to July 2009. It contains information similar to the IAF surveys on income and expenditures. In this survey, the employment questions cover both primary and secondary employment with no specified recall period. It also has a small section on non-farm enterprises providing more detail. Unfortunately, in the IOF, only about 3/4 of eligible households (i.e. households in which someone reported owning an enterprise) actually filled out the enterprise module of the questionnaire, implying that the sample in the enterprise module has a potential bias.⁴

NPS 2008. The National Panel Survey was designed as a longitudinal survey based on a subsample of the IAF 2002–03. The 2008 NPS data was collected with the purpose of analyzing children and education and therefore sampled households that had children 17 years of age or younger in 2002–03. At the national level the NPS sample represents about 20 percent of the 2003 households. The quarter from March to May 2003 of IAF was chosen as the base period and the resurvey should have surveyed the same households in those same three months in 2008 to avoid problems of seasonality. Unfortunately, due to delays in implementation, the resurvey took place from September 2008 to February 2009. Attrition was estimated at about 21% of households. Despite this special sampling frame focused on children and the non-marginal attrition, the final sample of households available in both periods is very similar in key aspects of employment and wealth to the entire sample in 2002/03 (the attrition analysis showing this is available from authors by request). Full documentation and data can be downloaded at microdata.worldbank.org.

Inquerito ao Sector Informal (INFOR 2005) - a special national household survey conducted using a national sample but focused on small scale enterprises. The INFOR has a detailed enterprise module on each enterprise reported by the household, and some broad questions on perceptions.

Rural Investment Climate Survey (RICS 2010), a special household survey administered in selected rural and peri urban areas in two provinces (Sofala and Manica). This survey covered household economic activities, contained an enterprise module, and perception questions for both households with an enterprise and without. The sample is not random and not nationally representative.

None of these data sets by itself is either ideal or even adequate for a full analysis of HEs in Mozambique. However the multiple surveys do provide more available information about the sector than what is available in many other SSA countries. The 2009 IOF, 2005 INFOR and NPS are all national representative samples of households operating informal enterprises. Comparison of the survey samples reveals a number of differences between them that should be kept in mind. Compared to 2008 IOF, the 2005 INFOR seems to have more urban enterprises. The INFOR sample also includes more older enterprises compared to the 2008 IOF and 2010 RICS. The 2010 RICS survey is by design not nationally representative. But even so, the sampling strategy employed seems quite distinct, resulting in a different set of enterprises from the other surveys. RICS sampled enterprises are much more likely to be male-operated enterprises, enterprises in market places, and larger enterprises, compared with the

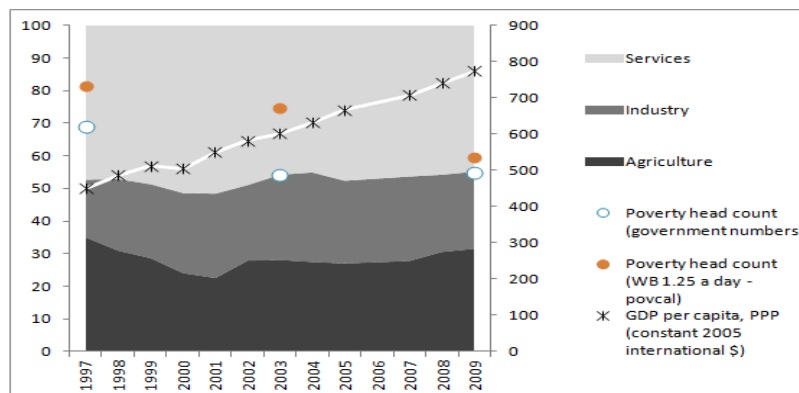
⁴ We don't know the bias associated with this undersampling of household enterprises. Any possible bias only applies to the analysis of the characteristics of enterprises. The core household level analysis is not affected.

other data sources. Table A1 in the appendix provides more information on the characteristics of the sampled enterprises in each survey.

Growth and employment transformation in Mozambique

Mozambique today still ranks among the poorest countries in the world, but economic growth has been high for more than a decade. GDP per capita increased 5 percent annually from 1997 to 2009. Sound macroeconomic economic policies have contributed to Mozambique’s strong economic growth in the last two decades. Broad-based, labor-intensive private-sector growth was efficient at poverty reduction until 2003 (Fox et al. 2008). Service sector development has been driven by the expansion of the public sector and other sectors such as trade and transport which support the foreign-funded activities in both the public and private sectors. These investments in social and economic infrastructure extended access to public services and reduced welfare inequalities. However, the economy remains dependent on natural resources; much of the value added of the industrial sector recorded in the last decade has been from investments in mining, energy, and foreign-owned plants which take advantage of Mozambique’s plentiful energy to process raw materials for export, the majority to South Africa (World Bank, 2011). After a dip in the early part of the decade, caused in part by historically low prices, agriculture’s share in GDP has remained at about 30 percent (figure 1). The poverty numbers, and in particular the distribution of poverty within Mozambique, are debated (see Alfini et al., 2012).

Figure 1 Distribution of GDP, trend in poverty and GDP per capita



Source: World Bank Indicators

The current population is 22 million, 46 percent of which is under 14 years of age, as Mozambique is at an early stage of its demographic transition. The labor force is young and growing rapidly. Sixty percent of the population lives in rural areas. Agriculture is still the primary economic activity of the overwhelming majority. Income growth in rural areas has been sluggish since 2003. Mozambican farmers use very low technology for mostly rain fed agriculture, and have not been able to increase labor or land productivity. The key development challenge for Mozambique is to further accelerate the country’s economic development by reshaping its growth patterns to benefit a larger segment of the population. This will involve income growth through improvements in productivity in both the agriculture and non-agricultural sectors of the economy outside of natural resource extraction. It also

involves increased job creation in the non-agricultural sectors of the economy, where productivity tends to be higher.

Employment

The first decade after the end of the civil war saw quick growth in non-farm employment, especially in urban areas, but since then, the structure of primary employment has changed very little –primary employment growth in each segment has just kept up with labor force growth (table 1). In 2009 only 8 percent of the primary employment was in non-farm enterprises. This is substantially lower than other SSA countries (figure 2). Mozambique even lags behind countries with similar income levels (Fox and Sohnesen, 2012).

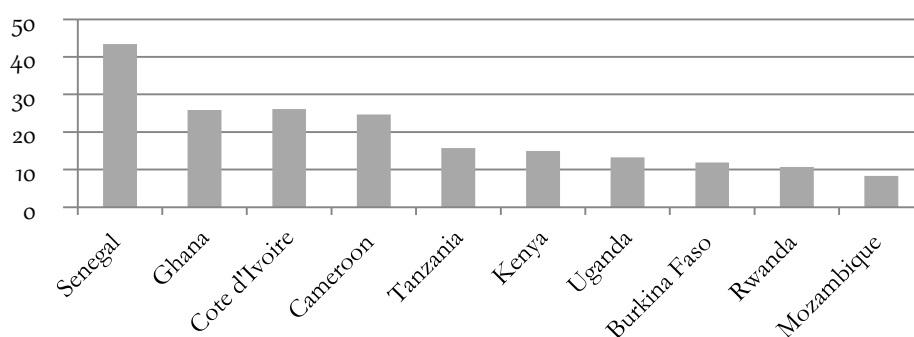
Table 1 Structure of primary employment by area (age 20+), 1997-2009

Type of Employment	Urban			Rural			National		
	1997	2003	2009	1997	2003	2009	1997	2003	2009
Agriculture	66.7	46.7	44.7	94.0	92.3	93.2	86.8	78.2	79.6
HEs	10.1	19.0	22.7	2.3	3.8	2.8	4.4	8.1	8.4
Non-farm Wage Employment:	23.2	34.3	32.7	3.7	3.9	3.9	8.9	12.6	12.0
Private sector	7.6	21.9	22.5	1.3	2.2	2.1	3.0	7.8	7.8
Public sector	15.6	12.5	10.2	2.4	1.7	1.8	5.9	4.7	4.2
Total	100	100	100	100	100	100	100	100	100

Source: Authors calculations based on IAF 1996/97, 2002/03, and IOF 2008/09.

Owing to the lack of educational opportunities during the twenty-year civil war and its aftermath, Mozambique’s labor force is poorly educated with 69 percent of the labor force having less than completed lower primary (table A2), despite the impressive gains in access to education realized in the last decade. This represents a huge challenge to improving employment outcomes and household incomes. Low education levels could be one reason why primary employment in the HE sector in Mozambique is undeveloped compared with other SSA countries (figure 2).

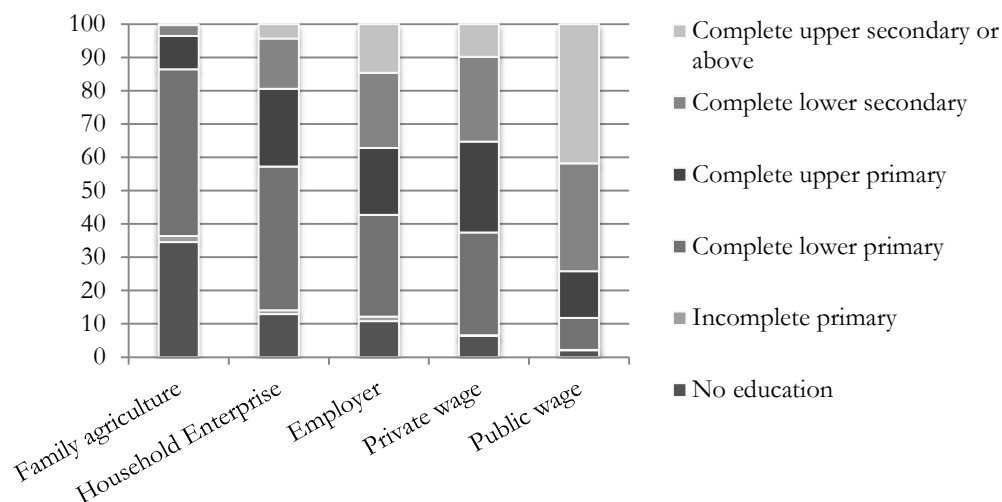
Figure 2 Employment in HEs as share of total primary employment in SSA countries



Source: Fox and Sohnesen 2012

In Mozambique, as in other places, there is segmentation along educational levels and type of employment. Those employed in the public sector are generally the best educated, with the private sector and owners of micro enterprises being the second most educated, while family farmers are the least educated. Those working in the HE sector are usually situated between family farmers and the private wage sector (figure 3).

Figure 3 Type of employment and distribution of education, 2009



Source Authors' calculations, IOF 2008 /09

Characteristics of the HE sector

Although Mozambique is still primarily a rural country, nationally representative surveys report that about half of HEs were located in urban areas in 2008. The majority of HE owners report that they operate their enterprises from their own home, with public markets being the second most common location (about 30%). Urban HE owners usually report that the enterprise is their primary income earning activity; 65 percent of urban HEs report operating their business around the year, compared with 50 percent in rural areas. Most are traders or providing services such as hair dressing or making and producing low cost items needed by other households such as bricks, furniture, beer, or charcoal. According to the RICs 2010 data on rural and peri-urban HEs, almost all HEs sell their goods and services to households (table A3), and buy their inputs from small traders. Most HEs had been created in the last five years, and one-quarter of HEs were less than one year old (table A1).

Although HEs do generate many new jobs, it is mainly through establishment of new HEs as oppose to new hiring within HEs. Over 80 percent of HEs are operated by owners by themselves (table A1), without even a family member assisting. Ninety-six percent are operated by a single individual with or without family help, while only 4 percent of HEs reported hiring any help outside the family (IOF 2008/09). This is consistent with evidence from other low-income countries, which also shows that most HEs start as a small one-person enterprise and stay that way. Few HEs expand into employment beyond the household, growing into micro or even small enterprises. This is the experience from Ethiopia (Loening and Imru, 2009), Tanzania (Kinda and Loening, 2008), Madagascar (Grimm 2011), and other

countries outside SSA (Fajnzylber et al, 2006, Schoar, 2009). Though we have no evidence on this point based on panels for Mozambique, attitudes of HE owners do indicate that this is also the case in Mozambique. Eighty-five percent of HEs in 2005 reported that they have no plans of expanding their enterprise (INFOR 2005).

Data from RICs and INFOR show that most households started their enterprise because it was their only option to enter the non-farm sector - in other words, “push” reasons.⁵ Roughly six out of ten entrepreneurs surveyed in the INFOR 2005 cite push reasons for starting up, including lack of access to a wage job (table A4). This is not surprising given that most of the labor force – HE owners included - do not even have 7 complete years of primary education, and will usually not qualify for any wage and salary job in medium or large enterprises, even if such jobs were plentiful. There is no systematic difference in the level of education for those reporting a push reason compared to those that report a pull reason. In the RICS 2010 data, both primary and secondary motivations were queried. Among those that report a push reason as the primary motivating factor for starting an HE, two-thirds give a pull reason as a secondary factor. Those that give a pull reasons as a primary reason generally also give a push reason as a secondary factor. This suggests that a combination of push and pull factors propels households into this sector in Mozambique.

HEs are generally not required to be nationally registered. The INFOR survey shows that none of the sampled enterprises fulfill the INE (the national statistical agency) criteria for a formal registered enterprise. Sixteen percent of them were however registered with the local authorities in 2005. Further, as of 2009 (when tax codes were changed) only enterprises that have a turnover above 36 times the highest minimum wage in force are required to register and pay any kind of taxes, including VAT (Byiers, 2009). Based on this threshold, 88 percent of HEs observed in IOF 2009 are exempt from VAT and income taxes. Those required to pay VAT and incomes taxes are more frequent in urban areas, are more established, and are unlikely to be found among HEs operating at home or in the streets.

HEs and household welfare

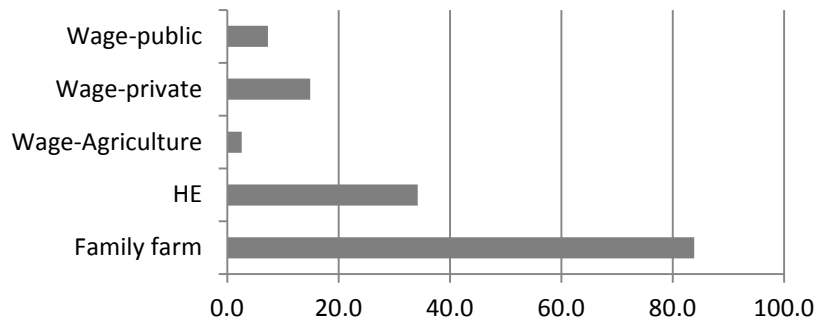
Many individuals in low-income countries are active in several sectors (owing to seasonality or other factors). HEs in these countries are common as both primary and secondary employment, and by not considering secondary employment a large share of HE employment is not counted, and the sector may be underestimated as a household income source. This is true in Mozambique. Although the structure of reported primary employment changed very little between 2003 and 2008, the livelihood structure did. Many households still had only farm income in 2008 (figure 4), but increasingly, rural and urban households are trying to increase total income through livelihood diversification into non-farm sectors while maintaining a farm income as well. Twenty percent of households reported having HE income in 2003, compared to 33 percent in 2009. This diversification trend was first observed in Mozambique in

⁵ Barrett et al (2001) defined push factors as risk reduction, diminishing factor returns, or response to crisis while pull factors are strategic complementarities, or superior technologies, skills or endowments which convey an advantage. Push factors may be enhanced by market failures such as lack of finance to stabilize consumption or income flows, while pull factors can be enhanced by local engines of growth.

the 2002 data (Fox et al, 2008) and was also seen in the 2005 rural household income data (Cunguara, 2011).

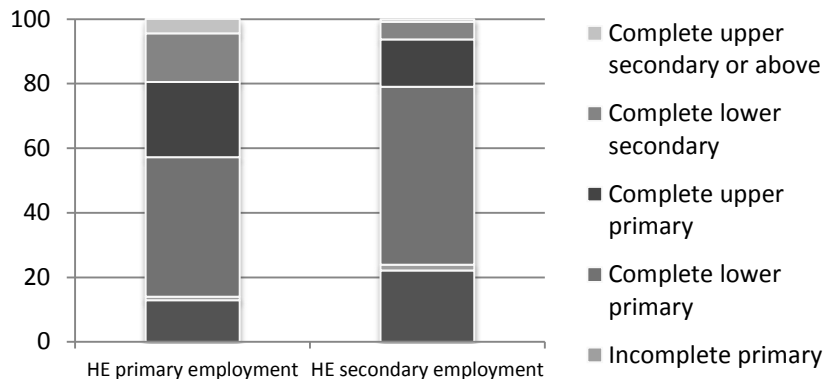
The status of HEs as primary or secondary employment is defined by households themselves, and not determined by any objective measure. The reporting therefore very likely depended on identity and status considerations, as well as the success of the enterprise. Hence, the impact on welfare from an HE being reported as primary or secondary employment is very likely endogenous. Of interest from a policy point of view is if there are systematic differences between HEs reported by the owner as primary or secondary employment. The IOF 2008/09 shows that owners of primary HEs have a higher education level than those owners reporting their HE as secondary employment (figure 5). As would be expected, HE activity is lower among owners reporting their HE as secondary, though they are in fact both very active. But urban and rural primary HEs are on average open about one month more a year, 7 days more a month and 42 minutes more a day than secondary employment HEs (table A5).

Figure 4 Household livelihoods, 2009 (percent of households with income from source)



Source: Authors calculations, IOF 2008 /09

Figure 5 Education level among primary and secondary HEs

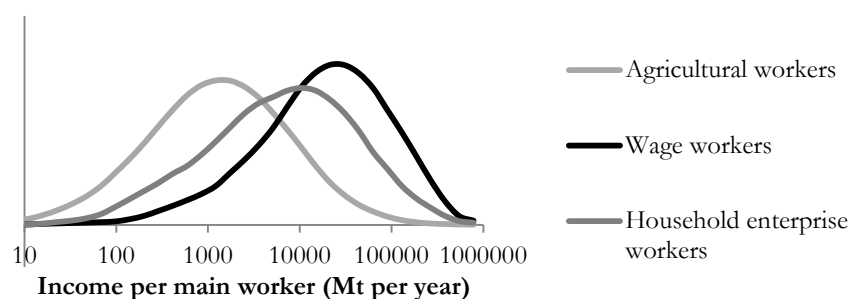


Source: Authors calculations, IOF 2008 /09

HE as income source

Median yearly earnings for HE owners are higher than in agriculture and lower than wage employment. Within each income source there is large variation and the income distributions for each source overlap, even if the medians are higher (figure 6). These earnings distributions reflect, among other things, average level of education in each segment of employment (see figure 2), as well as opportunities for more hours worked. Nonetheless, they do suggest that average labor productivity is higher in the HE sector than in agriculture, even though the HEs are very small businesses.⁶ To analyze this further, we start with a cross section analysis, which shows the associations between HE earnings and household welfare in 2008. Then we move to the two-period panel where we can see the dynamics – whether given household characteristics, adding a HE improves welfare faster than not adding a HE.

Figure 6 Yearly earnings (Meticais) from income type, 2008



Source: NPS panel. Notes: Scale is logarithmic. Income is from primary employment. Series are smoothed by kernel estimates

A simple way of analyzing the relationship between having an HE and household standard of living is to run an OLS regressions of log consumption per capita on education, demographics, location and sources of income. We estimate the standard model with a small addition. Our formulation is

$$Y_i = a + B_1 X_i + B_2 Z_i + e_i$$

where:

Y is the log of household consumption per capita,

X is a vector of individual and household characteristics such as age, education, location, etc. used here as controls,

Z is a dummy variable which takes the value of 1 if an income source, or portfolio of income sources is present, and

e is the error term.

⁶ Data are yearly earnings, so they do not control for hours worked. Controlling for hours worked might result in higher relative earnings for agriculture and HEs compared to wages, because these activities are less likely to be performed year around. But to the extent that doing these non-wage activities results in underemployment, yearly earnings are the relevant outcome comparison.

The coefficients of interest are the B_2 s, which, using the log-linear specification, can be interpreted as the marginal effect of presence of HE income, agriculture, wage income or unearned income (mostly remittances) on household consumption, controlling for the observed variables known to affect consumption such as human capital, experience, location (access to markets), and demographics of the household.⁷ A summary of the estimation results for the B_2 s is shown in Table 2; Table A6 shows the full regressions and Table A7 the variable means. Expecting differences in the B_1 s owing to different opportunities and constraints, separate regressions were run for rural and urban areas.

The regressions show that even when controlling for education and other household characteristics, having HE income was significantly correlated with higher consumption in 2008. All types of income variables are significant, indicating that type of income appears to have an independent effect on household consumption. Not surprisingly, HE reported as primary employment has a stronger marginal effect on household welfare than HE as secondary employment. Conditional on household characteristics, urban and rural households that have an HE as a primary income source have 10 and 15 percent higher consumption on average. Even HEs as a secondary employment are significantly correlated with higher consumption (7 percent in urban areas and 13 percent in rural). Indeed, having an HE is largely equivalent to having private wage employment (almost all wage employment is reported as primary activity). Surprisingly, micro enterprises (where the owners employ labor outside the household) are the income source that has the strongest association to consumption (even higher than public wages), with 70 and 54 percent higher consumption than average given education and demographics. But there are very few of these – only 2 percent of households in rural areas have a micro enterprise and 4 percent in urban areas.

As Barrett, et al (2001) noted, a household might create an HE to take advantage of complementarities between farm or and nonfarm activities, or because the presence of a wage income offers advantages in terms of consumption smoothing or access to the finance sector that facilitates HE start-up and survivorship. To show this explicitly, we combined household income sources into combinations of income portfolios or livelihood strategies, and ran the regression above with dummies for specific livelihood portfolios (table 2 panel b).⁸ The main finding is after controlling for education, if a household is able to specialize entirely in non-farm income sources consumption is higher. In urban areas, it does not matter whether the non-farm source is wage or HE, the advantage is the same - on average 30 percent higher than urban households that specialize in farming. Urban households that combine farming and non-farm sources also do worse than those specialized in non-farm sources, but better than those urban households specialized in farming. In rural areas, few households specialize in non-farm income sources, but these also have the highest earnings compared with just farming. However, specializing in HEs in rural areas does not yield as high a premium compared to farming as in

⁷ The type of income variable may be picking up the individual unobserved characteristics associated with this type of income, or it may reflect inherent productivity advantages to the type of organization (in the same way that a positive coefficient on firm size does in a wage regression).

⁸ In this analysis, we do not control for whether the HE was reported as primary or secondary because there would be too many combinations.

urban areas. Adding an HE to farming in the rural livelihood strategy has about the same effect on the margin as adding a non-farm wage income.

Table 2 Log consumption and household income sources, 2009

Panel A :Household income source (dummy for income source)	Urban	Rural
Agricultural wage	-0.31*** (0.07)	-0.08** (0.05)
Family farming	-0.08*** (0.02)	0.02 (0.04)
Remittances	0.23*** (0.04)	0.20*** (0.04)
Household enterprise:		
Primary Employment	0.10*** (0.02)	0.15*** (0.04)
Secondary Employment	0.07*** (0.03)	0.13*** (0.02)
Micro enterprise	0.70*** (0.05)	0.54*** (0.06)
Private wage	0.09*** (0.02)	0.16*** (0.04)
Public wage	0.15*** (0.03)	0.35*** (0.06)
Additional variables included but not shown: demographics, location, and education	x	x
R square	0.43	0.28
Observations	5219	5600
Panel B :Household income portfolios (<i>family farm only is excluded category</i>)	Urban	Rural
Household Enterprise only	0.30*** (0.04)	0.20** (0.08)
Private or public wage only	0.31*** (0.04)	0.36*** (0.07)
Family farm and household enterprise	0.15*** (0.04)	0.14*** (0.02)
Family farm and private or public wage	0.18*** (0.04)	0.17*** (0.04)
Household enterprise and private or public wage	0.30*** (0.04)	0.27** (0.12)
Other	0.23*** (0.04)	0.11*** (0.03)
Additional variables included but not shown: demographics, location, and education	x	x
R square	0.41	0.27
Observations	5219	5600

Source: IOF 2008/09. *Notes:* Table 2 show coefficients of most interest, full regressions can be found in the appendix. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Standard errors take clusters into account, weights are not used

NPS Panel Data analysis

The regressions in table two might suffer from both omitted variables and endogeneity, as higher consumption in the first place may be what allows the household to develop a better livelihood strategy. But they do provide suggestive evidence on the role of HEs in raising household welfare. By using panel data, observing the same households over time, we are better able to control for initial conditions in the household such as location, assets, and human capital. This allows us to dig deeper into the dynamic questions on how livelihood change affects household welfare – Does adding an HE actually help raise welfare, or do households have to be better off first to benefit from starting a HE? Even with the panel data, we are not able to fully control for the selectivity into the HE sector, but we are able to see whether *adding* an HE (or other non-farm income) improves consumption growth relative to those that did not add this type of income. This is a start on the question of whether having an HE makes a household rich in Mozambique or vice versa.

The NPS Panel data set consists of households that were interviewed in the 2002/03 multipurpose household survey (IAF) and resurveyed in 2008 (NPS). The questionnaires were the same in the two surveys on topics such as demography, living conditions, and household assets; but on consumption and employment, the 2008 questionnaire was substantially different. In order to develop a panel data set with comparable variables in these areas, special variables were created.

- Consumption data are not directly comparable between the two surveys as a 7 day diary was used in IAF2003, while 7 day recall was used in NPS2008. Our solution was to temporally and spatially deflate both variables, compute household expenditure per capita, and then assign households a ranking. Our mobility variable or welfare growth variable is the change per adult equivalent rankings in each year⁹.
- HE activity as primary employment is asked in similar, though not in identical ways in the two survey years, so we have no problem identifying HE as primary employment. But there are *no data on secondary employment in 2003*, while there are data for this in the 2008 NPS questionnaire (as well as a separate module to collect HE income). For 2003, we can only capture HE activity as secondary employment in the sources of income section. Our solution to this problem was to define HE as a secondary activity at the household level only in both years. A household has someone with HE as a secondary employment when the household reports HE activity in the income module, but no one reports HE activity as primary employment.¹⁰ Though this definition is imperfect and not 100 percent comparable, we find it the best way to capture all HE activity in both surveys.

⁹ There is a risk that the change in consumption measure could lead to a systematically different ranking in each year. However, both mean comparisons and regression analysis on observable variables indicate that households that added HEs to their income portfolio between 2002/3 and 2008/9 are not significantly different than those that did not. We therefore do not believe that the different consumption measures have a systematic bias in regards to our main interest: households starting up HEs versus those that did not start a HE.

¹⁰ Problems remain with this approach. In 2003, the recall period for having HE income was only 30 days, while in the NPS the recall period for having HE income was 12 months. As a result, we have overstated the number of household who created an NFE over the 5 year period. We also see a slight positive trend in NFE as primary

To explore the dynamics of HEs and the relationship to welfare, we have classified households into four groups:

- 1) *Never HE* - households that did not report HE activity in either 2003 or 2008
- 2) *HE Start-up* - households that reported an HE in 2008 but not in 2003
- 3) *HE Survivor* - households that reported an HE in both 2003 and 2008, and
- 4) *HE Closer* - households that reported an HE in 2003, but not in 2008.

Descriptive analysis of these four groups shows that a large number of households started up an HE between 2003 and 2005. Start-up of HEs took place in all consumption terciles, and in urban and rural areas in more or less equal proportions (table 3). This type of entrepreneurship is not confined only to better off or urban households. In total 40 percent of households were engaged in HEs in either 2003 or 2008. Among HE active households roughly one-quarter of HEs were present in both time periods, while one-quarter closed and half were start-ups. This shows that about half of all HEs reported in 2003 had closed by 2008. The actual mortality rate of for HEs may be even higher, as some of the survivors may have closed one enterprise and started another, and some identified as never having an HE may have started and closed an HE over the period. But others may have been missed in 2003. Start-ups took place in all regions, but a higher share of households started up an HE in Maputo City and Province.

Table 3 Sample distribution households engaged in HEs

	Never HE	HE Survivor	HE Start-up	HE Closer	
National	60	10	22	9	100
Location					
Rural	66	6	21	7	100
Urban	45	18	25	12	100
Consumption terciles in 2003					
Poorer	64	9	19	8	100
Middle	64	7	25	4	100
Richer	51	13	21	15	100
Observations in sample	697	186	290	151	1324

Source: NPS Panel

HEs and upward mobility

Table 4 shows the results of interest for a first difference regression of consumption ranking in each year on changes in income sources (HE, wages and agriculture) and demographic composition of the

employment in the NPS panel but not in the national data (table A7). This can be explained the different timing of the surveys IOF 2008/09 show two percentage point higher NFE activity reported as primary employment during the period of the NPS survey, which was post harvest.

household. The regression explains relative movements in consumption by changes in income sources, while also controlling for change in household size (which would directly impact consumption per capita). The model implicitly controls for time invariant aspects of the household and community, and the separate impact on consumption ranking coming from changes in each type of income source. Separate regressions are done for all HEs and HEs reported as primary or secondary, in urban/rural areas, across consumption terciles in 2003, and across education level of head in 2003. The separate regressions are done to capture the total impact for all HEs, and for households that consider HEs their primary or secondary occupation separately. We run the regression across location, consumption levels and education level of head of household to see if any of these types of households are disproportionately able or unable to increase their relative consumption.

The first difference regression shows that successfully opening an HE is related to substantial upward mobility (column 1). This is true at the national level (7.3 percentiles higher relative consumption), but this is particular driven by rural households and households with low education. Households from all consumption terciles seem able to utilize HE for upward mobility. HE start-ups are not the average effect of a start-up, however. The observed start-up effects exclude those households that tried and failed over the five year period between surveys. Twenty-five percent of HEs were less than one year old in 2008/9, so we can expect that many HE start-ups and closures are not included in the observed effect over five years. Further, the data do not allow a disaggregation by age of enterprise; hence HE start-ups could have been operational between 1 day and just over 5 years and it is not possible to look at growth in consumption as a function of time and age of enterprise.

As discussed earlier the distinction between HEs as primary and secondary employment in the NPS panel could be mostly a reflection of the success of the enterprise. Households that start-up a new HE and consider it their primary employment on average moved up 18 percentiles. Again the improvement in relative wealth was more pronounced for rural households that on average moved up 23 percentiles, compared to urban households that moved up upward 10 percentiles. The substantial upward mobility for primary employment HEs is found in all terciles. Secondary employment HEs on the other hand are not related to upward mobility. The pattern confirms that successful HEs are more likely to be reported as primary employment, with less successful ones being reported as secondary employment. Further indication of the presence of a reporting bias is found among the 20 percent of households with a secondary HE in 2003 that “upgraded” to a primary HE in 2008. These “up-graders” on average moved up 33 percentiles. Though based on few observations this indicates that even though starting an HE as a secondary activity by itself is not associated with upward mobility, it can be a stepping stone to success and upward mobility if the enterprise becomes successful enough to be considered as a primary activity for the owner.

Losing HE employment (primary or secondary) was not significantly related to a change in relative consumption except for those who started in the middle tercile. Most households (55%) just closed their enterprise without any other changes to the income portfolio, so it’s not because they found a better income source. Presumably, HEs that were closed were not doing well, so the lack of significance here might be expected. The very low level of investment made in most HEs could also be a reason why a negative effect from closure is not observed.

Table 4 First difference OLS regression:

Change in consumption ranking on change in household incomes

		HH added HE			HH stopped HE			HH changed reporting of HE	
		All HE	Prim HE	Sec HE	All HE	Prim HE	Sec HE	Secondary to Primary	Primary to Secondary
National		7.3***			2.50				
Urban		4	17.7***	-0.50	4.20	2.70	5.20	32.7***	11.0*
Rural		8.7***	23.3***	1.00	-3.90	-4.40	-2.00	34.3***	5.90
Consumption tertiles in 2003	1	7.8**	17.8***	-0.10	7.00	6.70	10.90	22.9***	17.0***
	2	11.9***	20.6***	6.20	13.1**	20.4***	-3.70	8.20	9.20
	3	6.6**	16.5***	-0.90	4.70	6.00	5.30	32.6***	12.3**
Education level of HH head in 2003	No completed	7.1**	19.7***	-1.80	6.90	8.00	8.10	37.5***	19.0*
	Lower primary	10.0**	16.7**	3.10	-6.60	-6.60	-6.20	25.0***	-1.70
	Upper primary	7.4	11.30	6.40	0.20	0.30	9.40	6.50	14.4*
	Lower secondary or above	-0.9	17.4**	-14.50	-1.00	3.80	-6.40	12.50	25.3*

Source: NPS panel and authors calculations. * Significant a 1% level, ** at 5% level. Standard errors take survey design and clusters into account. Table shows regressions results for variables on interest. Regressions also control for change in number of adults in household, change in number of children, change in income from agriculture, and change in income from wage. Tertiles are defined based on consumption per capita in 2003. First line within each category shows a combined regression of all HE activity. Second line shows HE activity broken into primary and secondary activity. Means of variables are found in table A8

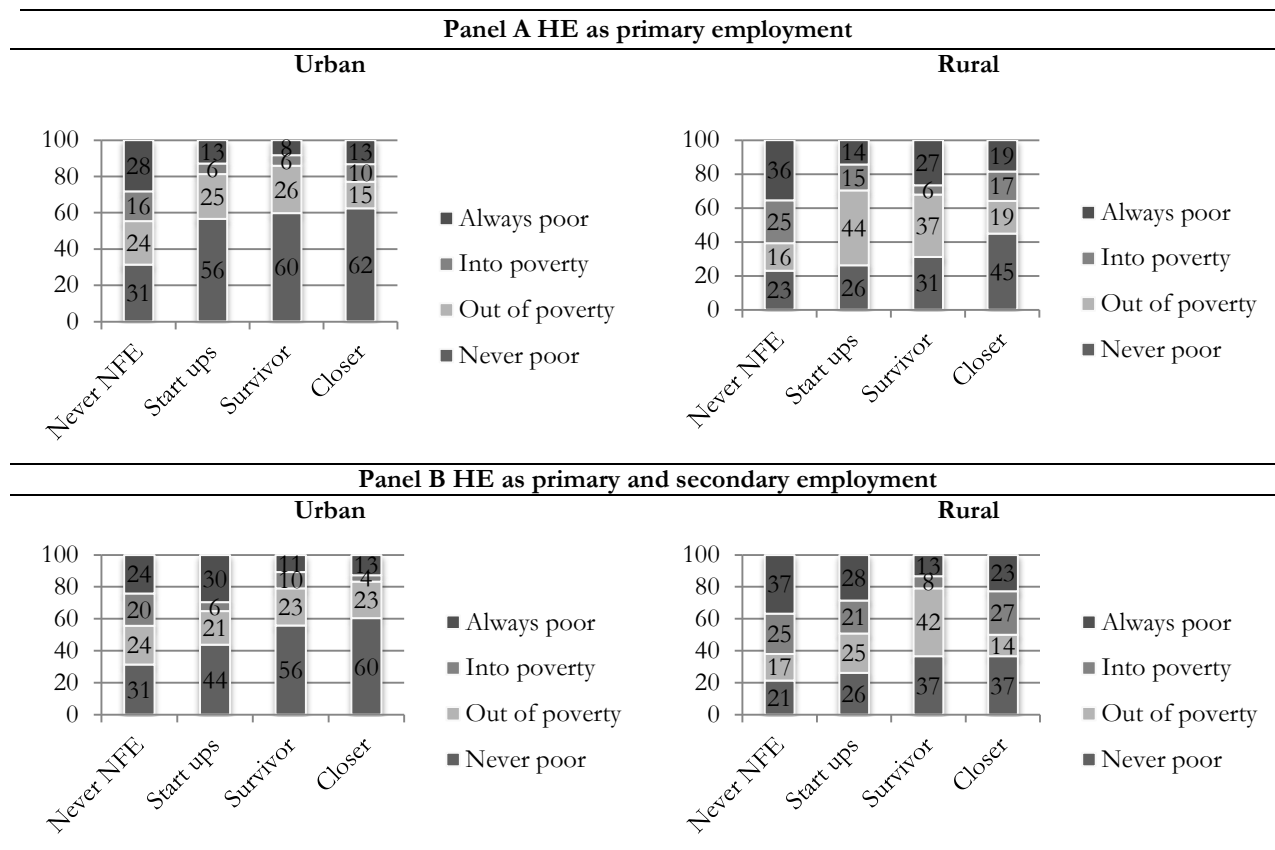
Can HEs alleviate poverty?

This is the question often asked by policy makers. To assess this in more detail we impose a relative poverty line for the bottom 50 percent of the population in each year. The bottom 50 percent roughly corresponds to Mozambique's national poverty estimates in 2003 and 2008 (Ministry of Planning and Rural Development, 2010). With all households defined as poor and non-poor in both 2003 and 2008 the sample can be divided into following four categories representing possible changes in welfare: 1) Always poor, 2) Never poor, 3) Moved out of poverty, and 4) Fell into poverty. We can associate these states in 2008 with whether a household started, sustained or closed an HE.

Considering only HEs as the primary activity for the owner, Figure 7 shows that rural HE start-up households were much more likely to move out of poverty than Never HEs, while there does not seem to be an impact on poverty for urban households. Rural area households that started up an HE were

much more likely to move out poverty, 44 percent of HE start-ups moved out of poverty compared to 18 percent among Never HEs. This very large difference strongly indicates that HE served as a vehicle providing upward mobility, moving rural households out of poverty. Further, among rural HE start-ups only 12 percent fell into poverty compared to 23 percent among Never HEs¹¹. Rural HE Survivors were also more likely to move out of poverty than Closers and Never HEs.

Figure 7 Movement in poverty and HE ownership



Source: NPS panel and authors calculations.

In urban areas there are more opportunities for wage employment, so HE start-up has less of a mobility effect compared to other opportunities. Those households that never had an HE are the most mobile – into poverty and out, but they are also twice as likely to be poor in both periods compared to the other groups. Of the start-ups, survivors, and closers, an equal share was never poor in both periods, reflecting the fact that urban households in general are less likely to be poor, so in any case the scope for poverty reduction is smaller in urban than in rural areas. Comparing urban Never HEs and HE start-ups, an equally large group moved out of poverty, which does indicate some mobility effect of starting an HE since the start-up households were less likely to be poor in the first period. Six percent of urban HE start-up households fell into poverty compared to 16 percent among Never HEs, another signal of the mobility potential.

¹¹ A chi test reject same distributions and a t-test for same share of households moving out of poverty or into poverty for Never NFEs and NFE Start-ups is rejected at the 1 % level.

Including HEs as both primary and secondary employment provides a more complete view of upward mobility related to HE start-ups, as we avoid the reporting bias related to success of the enterprise by including all HEs. Using this definition we still observe significant higher poverty reduction in rural areas from HE start-ups and Survivors than among Never HEs (25 and 42 percent compared to 17 percent for Never HEs), but the difference is smaller than the effect observed when analyzing primary employment. This is consistent with the results observed in the table 4, indicating that a secondary HE by itself does not lead to poverty reduction. Also consistent with table 4 and secondary HEs being a stepping stone out of poverty, we see substantial poverty reduction observed among Survivors that now can be a primary or a secondary HE. In urban areas we still do not observe any poverty reduction associated with HE start-ups, but the smaller likelihood of falling into poverty still persists.

Starting up and sustaining HEs

The evidence thus far shows that adding an HE to the household livelihood leads to relative higher welfare. However, the share of households with HEs is still low. In this section, we use the panel data to try to analyze which factors measured in the survey data supported the creation of HEs. What determines where and which households that are capable of taking advantage of HEs to enhance their livelihood?

Household opportunities for starting up an HE depend on many factors including those of the individual owner (for instance education and skills, other responsibilities such as child care), the household (for instance assets, employment situation of family members and connections) and community aspects (for instance infrastructure, local governance and access to markets and products), not to mention overall demand for goods and services sold. These aspects may vary over time and location, and may be mutually correlated. Some may not be easily measureable (i.e. entrepreneurial interest of household members). This makes identification of the necessary conditions for successful HE start-ups challenging. What the NPS data do allow is multivariate analysis of this question, controlling for initial conditions.

To identify factors at the household and community level which are correlated with HE start-ups, we ran logit regressions of HE start-ups on household and community characteristics in 2003. We only included the start-ups and the Never HE in this regression so the dummy dependent variable has a value one for an HE start-up household and zero for Never HEs. The household characteristics are the same ones used in previous regressions (age of head, education level of household members, other income sources, assets in 2003). The community level variables for 2003 are available for rural areas only. We include presence of running water and electricity, presence of a market, distance to market (if not present at location), distance to landline phone, subjective questions on direction of the community in general and in terms of employment (is it easier/more difficult to find employment now than in the past etc.), recent infrastructure projects including irrigation, phone lines, and how safe the community is based on theft, burglaries, other crimes, and subjective questions on safety.¹² Safety is included because Kweka and Fox (2011) find in qualitative interviews with HE operators in Tanzania that theft and other

¹² Factor analysis is used to compile these different questions into a safety index.

crimes is an important risk to their business. These variables obviously have endogeneity problems, yet we expect these variables to give a sense of in which households and communities HE start-ups mostly happen. Appendix table A9 show the logit start-up regressions of 2003 characteristics at national level, for urban and rural areas, for primary HE start-ups, for secondary HE start-ups, and for terciles of the consumption distribution in 2003.¹³

Most specifications showed very few significant variables. In the national, urban, and tercile regressions we only had household characteristics as we could not include community variables. These regressions showed almost no significant variables except for in the tercile regressions. In the tercile specification we did find that education in 2003 was positively associated with start-up in the first tercile, but secondary education was negatively associated with start-up in the top tercile. This is not surprising as with those with secondary education have good opportunities in the wage sector so they might never consider starting an HE. Assets in 2003 were only significant for the third tercile, suggesting that this was not an important predictor of who would be able to start an HE. The community variables used in the rural specification were almost universally not significant.

Our findings mirror those of Vijverberg (2008) using rural investment climate surveys in Nicaragua and Sri Lanka. Vijverberg writes about the regressions results: “few explanatory variables matter and the estimated effects are small”. There are several reasons why we might see this. The community variables are a priori ambiguous. Recent infrastructure projects can improve demand, but if connectivity and information flow increase this could also increase competition. The order of events could be different for different locations thereby diluting coefficients. For instance, a road could have been built in year one leading to an increase in number HEs or the road could have been built in year five just before the survey. In the former case a strong positive coefficient is the correct coefficient, while in the second case no impact would be observed, simply because households have not had time to react yet. The HE sector is very heterogeneous in several aspects; at the household level, at the enterprise level, and at the locality level, so potentially more local models of both sectors and locality might be needed to fully understand the sector. Unfortunately, the current data set is inadequate to analyze these aspects fully. The fact that the investment climate surveys, which were designed with HEs in mind, also finds it difficult to predict HE start-ups illustrates that our understanding of the dynamics of the HE sector is inadequate and that more work and data are needed.

What constrains HE growth?

The panel analysis above was not very helpful in explaining the factors which support or constrain HE start-up. The perceptions data in the enterprise surveys (INFOR2005 and RICs 2010) inform us on why households believe they do not start an HE, why they close their HE, and what they believe

¹³ A first difference regression is better suited at identifying dynamic aspects via changes in characteristics that could impact the household’s decision to start-up a NFE. The drawback of a five year panel is that we do not know causality as we do not know the order of events. A community might have a new market in year three, but we do not know if the NFE was started before or after the new market. We only observe that both the new market and the NFE start-up took place between year one and year five. In any case, we tried a first difference regression and could not find a fit.

constraints growth of their business. The RICS data set is especially rich as it contains data on the perceptions of households that have an HE, and those that do not.

A key factor in starting and sustaining a business is managing risk. HEs are unique in that they face two types of risks - business risks and household risks. This is because (a) the finances of the business are often intertwined with the household as it may be the only source of savings for the household in case of need, and (ii) if a household member falls ill or is in any other way incapacitated and cannot work, the labor cannot be replaced so the business suffers. Either type of shock can cause the business to close, and indeed, closure HEs or even small enterprises owing to lack of profits is quite common in all settings. But household risk can even cause a profitable business to close.

Rural and peri-urban households who responded to the RICS 2010 reported that business risk was the most commonly identified cause for closure of the HE, but household risk was not negligible, especially for women. Female heads of households in particular were likely to close their business in response to household risk (table 5). This may be a reflection of female headed households having fewer adult members and that female heads are more likely to be single, limiting the options for keeping the business running while attending to illness or death among family members¹⁴.

Table 5 Reason for closure of HE

	All	Female head	Male head
Illness or death of household member	24%	55%	18%
Household member moved away	13%	14%	13%
Household member found a wage job	9%	5%	9%
It was not profitable	61%	37%	66%
Liquidity problem or lack of working capital	56%	60%	56%
Other	20%	12%	22%

Source: RICS 2010

Both the RICS and INFOR surveys provide some guidance on what HEs see as other main challenges to their enterprise growth or sustainability. RICS only covers rural and peri-urban households, but provides much richer information on challenges as perceived by enterprises. Ranking of challenges to HE survival in both the INFOR and RICS surveys shows that the following areas are major constraints: 1) access to credit, 2) access to technology and inputs, 3) fierce market competition, and 4) access to markets. Rural enterprises also report lack of access to physical infrastructure as roads, cell phones, and electricity among the severe challenges (unfortunately there is no survey for urban areas that look into the importance of infrastructure for urban areas). Fierce market competition is not necessarily a negative as free and fair market competition generally lead to cheaper and better products for the consumer. It also reflects the ease of entry into the sector, leading to limited profit margins. In some cases rural households also report monopoly or oligopoly in the market to be a severe challenge (26 percent), such challenges are generally damaging to market competition. More of a concern to rural HEs

¹⁴ 42 % of female heads of households report to be single compared to 2 % among male heads of households. Average number of adults in female headed households is 2.6 compared to 2.9 in male headed households.

is access to market and market information, which may be related to the isolation of rural households. Thirty-nine percent of rural HEs report distance as a severe challenge, while 24 percent report obtaining market information and access to inputs as a severe challenge. There is a large degree of consistency in reported severe obstacles for male and female operated enterprises and across age groups.

Business concerns and reported obstacles for HEs are different than those of urban SMEs. Table 6 compares the most frequent reported obstacles for peri-urban and rural HEs with those reported by urban SMEs interviewed in 2007. Aspects as taxation, crime, corruption, common obstacles for urban SMEs, are not reported an issue by rural HEs, while infrastructure issues and access to finance are reported as obstacles by both types of enterprises. Loening, Rijkers and Soderbom (2008) also find that Ethiopian HEs report different business obstacles than larger enterprises, and there is also some evidence that they react differently to policy change and economic cycles (Mead and Lindholm, 1998; Schoar, 2009).

Table 6 Highest ranking severe obstacle for HEs

<i>Rank</i>	<i>Urban SMEs in 2007</i>	<i>Rural HEs in 2010</i>
1	Informal competition	Access to financial institutions and borrowing procedures
2	Access to finance	Informal financing
3	Crime	Access to electricity
4	Tax rates	Quality of cell phone
5	Corruption	Road quality
6	Electricity	Transport costs
7	Transport	Distance to markets
8	Tax administration	Road access

Source: Investment climate survey, 2007, Rural Investment Climate survey 2010

The issue of working capital for start-up or sustainability is one of the most commonly reported issues for HEs in SSA (Fox and Sohnesen, 2012), and Mozambique is no exception. Eighty-two percent of rural households that never opened an HE report that access to or lack of capital is the main reason for never trying. The Finscope survey (2009) reports that households' access to formal credit is almost non-existent as less than 2 percent of households have any formal credit. The challenge is not only access to credit for business endeavors, but access to banking in general as only 12 percent of adults use any kind of formal banking product, and only 4 percent of adults in rural areas. In Mozambique, many existing HEs report borrowing procedures, transaction fees and interest as severe challenges to their enterprise (RICS, 2010), which points to the challenge of developing financial products that are relevant to ordinary households. But somehow, households in Mozambique manage. Twenty percent of households report an ability to save in the FINSCOPE data. Many either keep their savings at home or use informal savings mechanisms such ROSCAs to manage to put aside some savings for their business. Although households that did not start an HE in the RICs sample reported lack of capital to be the primary reason, yet those that did succeed in starting up an HE were not significantly wealthier than those that did not in the first

period of the NPS panel (table A5)¹⁵. Thus, while there is clearly scope for policies and programs to increase access to affordable financial services, a better understanding of how households manage to save and invest in their tiny enterprise would also be helpful.

HEs in Mozambique, as in other countries, have low levels of working capital. Thirty-eight percent of HEs report to have no capital invested in equipment or installations at all, and 58 percent of those that do report any equipment or installations, report a value of USD \$10 or less (INFOR 2005)¹⁶. Evidence from urban SSA shows that though HEs operate at very low levels of capital, they also have very high returns to invested capital (Grimm et al, 2011). High returns at low levels of investment do not necessarily indicate that the enterprise would be able utilize loans to significantly scale up the enterprise. The returns to additional capital might rapidly decline with more capital investment as indicated by the few HEs that successfully scale up enterprises. These exceptional low levels of invested capital with likely high returns are therefore both a challenge and opportunity for lenders. The high returns indicate good business opportunities, while the risk and the transactions cost on such low amounts could be too high.

Surprisingly, governance aspects as registration, taxes, permissions and licenses, and conflict are the least severe problems according to existing HEs in both RICs and INFOR.¹⁷ Research in East Africa - Tanzania and Uganda (World Bank 2012 and Kweka and Fox, 2011) - found that the attitude of governments toward enterprises, as well as local conditions including access to workspace - markets stalls or other areas to manufacture and sell products and services - and good governance from local authorities in terms of implementing fair, transparent and consistent rules were reported by owners to be very important for the survival and sustainability of existing HEs. And in Mozambique, Fox et al (2008) found in a survey of households in poor areas that petty corruption from local authorities over basic transactions was a huge irritant and detrimental to livelihoods. However, households in the RICs survey in rural areas of Mozambique very rarely reported any of these aspects to be the reason for not starting up or for continuing. One percent or less of rural households report any of the following as reason to not starting up an HE: corruption and bribes, crime theft and conflict, roads and transportation, lack of cell or fixed phones, water, or technology. Licenses and permits are also barely reported by any households (2 percent) as a reason for not starting up an HE. A reason for the somewhat diverging views on the importance of governance aspects could in fact be that location is important and some communities fare better than others. The RICS surveys is not nationally representative and has a limited sample, hence it might be sensitive to the communities included in the survey.

Available and reliable infrastructure services appear to be a constraint. A higher start-up rate is observed in areas with a market (39 percent of households in areas with a market started up an HE within the last three years), and an even higher rate in areas that built a market within the last three years (45 percent) compared to a start-up rate of 35 percent in areas that do not have a market (RICS,

¹⁵ Cunguara et al (2011) also finds that wealth is unrelated to start-up of NFEs.

¹⁶ The amount is in USD 2005 values and using the average Metecais –USD exchange rate in august 2005 of 24256 Metecais per dollar.

¹⁷ In INFOR, the only governance response recorded was “too much bureaucracy”, and this one was ranked very low by respondents.

2010). A similar pattern is observed with electrification where rural areas being electrified had a higher share of households starting up HEs (51 % compared to 34 %). Obviously the decision to build markets and electrify rural areas is not random and other reasons that also matter for HE start-up could be highly correlated with the decision to build infrastructure, so a causal inference cannot be made. Households that have access to infrastructure complain about reliability as a constraint. In the RICS survey, among electrical users 56 and 36 percent report problems with outages and costs of electricity, compared to 16 and 25 percent among non-users of electricity. Similarly, 44 percent of non-users report problems of access compared to 32 percent among users. These results can suggest that expansion of public infrastructure can support HE development, but access is not enough if service is unreliable.

Concluding remarks

The recently published plan for poverty reduction (Plano de Acção para Redução da Pobreza–PARP) for 2011 to 2014 acknowledges that the private sector, whether formal or informal, is central to the objective of creating employment opportunities, leading to higher household income and a reduction in poverty rates. MSMS enterprises are considered a key part of this strategy, however its policies focus on improving the business environment through simplifying procedures to obtain business licenses, pay taxes, acquire land use rights, and trade across borders etc. all of which are aspects that are likely to be beneficial in their own right and relevant to some enterprises. However, they do not appear to be central to HE creation or sustainability. Hence HEs are largely ignored in PARP. The government’s SME policy (GoM, 2007) also excludes HEs as only micro enterprises with more than five employees are included in the policy framework.

The lack of an HE policy is unfortunate for a number of reasons. The analysis above shows that HE creation and HE employment is associated with higher consumption in both rural and urban areas, and upward mobility particularly for rural and poorly educated households. This means that encouraging households to create HEs is a good strategy. And with 34 percent of households already relying on HEs, any improvement in income from existing HEs would likely contribute even further to poverty reduction.

Based on the analysis here, a strategic government policy focus on expanding HEs as a potential livelihood option in Mozambique could include (i) efforts to increase access to financial services for households, including encouraging the development of institutions which can offer products suitable to the needs and means of lower income households; (ii) expansion of secondary and linkage roads to insure access to markets for HEs; (iii) development of local market places to create clusters as is found in other SSA countries; and (iv) continued attention to aspects outside the business environment such as access and quality of public services such as education, health services, and water supply which could lower household risk and influence the amount of available labor in the household. The first and most important first step would be to include the HE sector in the policy agenda.

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Appendix

Table A1 Surveys and samples on HEs

	INFOR	IOF	RICS	NPS
Distribution of firm size				
Only HE owner	79	82	48	81
Owner plus 1 worker	14	13	29	10
Owner plus 2 workers	4	3	8	6
Owner plus 3 workers	1	1	3	3
Owner plus 4 to 8 workers	1	1	7	0
Owner plus 9 or more workers	0	0	6	0
	100	100	100	100
Gender of HE owner				
Male	43	59	84	74
Female	57	41	16	26
	100	100	100	100
Point of operation				na
Home	36	48	18	
Permanent building	16	29		
Street - no fixed location	20	11	3	
Market/street fixed location	19	10	63	
Other	8	3	16	
Total	100	100	100	
Location of enterprise				
Urban	72	44	5	53
Rural	28	56	95	47
	100	100	100	100
Enterprise sector				
Mining/Nat.Res./Construction/Energy	13	8	3	18
Manufacturing	16	27	29	11
Wholesale/retail	65	58	57	62
Other services	6	7	10	9
	100	100	100	100
Age of enterprise				na
Less than a year	17	23	9	
1-5 years	40	52	55	
6+	43	25	36	
	100	100	100	
Year of survey	2005	2008/09	2010	2008
Sample size	1150	4943	478	269

Source: IOF 2008/09, INFOR 2005, RICS 2010 enterprise module, NPS 2008. Data is weighted.

Table A2 Level of education of the labor force (age 20+), 1997-2009

<i>Level of Education</i>	<i>1997</i>	<i>2003</i>	<i>2009</i>
No education	51.0	35.4	31.3
Primary 1 incomplete	27.7	41.6	37.4
Primary 1 complete	13.8	13.6	14.9
Primary 2 complete	5.3	5.6	10.5
Secondary 1 complete	1.4	2.3	3.1
Secondary 2 complete or above	0.7	1.5	2.7
Total (%)	100	100	100

Source: IAF/IOF. Primary 1 is grades 1-5, primary 2 is grades 6-7, Secondary 1 is grades 8-10.

Table A3 HEs in the value chain, (%)

	HEs main clients	HEs main supplier
Government	0	0
Public/mixed enterprises	1	2
Private trading enterprises	0	12
Small private traders	1	22
Non-trading enterprises	0	0
Small non-traders	0	1
Families	92	36
Direct importing or exporting	1	3
Other	4	23
	100	100

Source: INFOR 2005

Table A4 Motives for starting a HE

	INFOR 2005		RICS 2010 (rural only)		
	Urban	Rural		Primary reason	Secondary reason
Push total	57	53	Push total	72	21
No jobs in large firms	21	27	Household lost wage earning	25	3
No jobs in small firms	25	21	No access to agricultural land	13	2
Survival reasons	11	5	Low agricultural income	35	15
Pull total	33	40	Pull total	22	73
To Earn More	14	10	Market opportunity	16	19
To be Independent	15	18	Obtained skills	4	20
Family Tradition	4	12	Social/economic independence	1	32
			Availability of seed funding	0	3
Other	9	7	Other	6	6
Total	100	100		100	100

Source: INFOR 2005 and RICS 2010. Data is weighted.

Table A5 Characteristics of HE Start-ups based on primary or secondary employment

	National			Rural			Urban		
	Primary	Secondary	Sig. diff.	Primary	Secondary	Sig. diff.	Primary	Secondary	Sig. diff.
Household Characteristics 2003									
Urban	0.4	0.3							
Asset index	0.1	-0.6	**	-1.2	-1.1		2.2	0.7	
Consumption per capita	10925	8782		7737	7789		16188	11329	
Number of adults	2.7	2.5		2.6	2.4		3.0	2.7	**
Number of children	2.7	2.9		2.7	3.0		2.6	2.8	
Male head of household	0.8	0.9		0.8	0.8		0.7	0.9	
Age of head of household	40.0	43.7		40	41		39	51	**
Share of adults in household with no education	0.7	0.8		0.9	0.8		0.5	0.7	
Share of households with wage income	0.3	0.2	*	0.1	0.1		0.6	0.3	*
Share of households with agricultural income	0.8	0.9	**	1.0	1.0		0.6	0.8	
Enterprise Characteristics 2008									
Months a year HE open	8.6	6.7	***	8.3	6.7	**	9.1	6.7	***
Days a month HE open	22.1	17.5	***	23.1	16.0	***	20.6	21.3	
Hours a day HE open	7.6	6.9	*	7.3	6.6		8.0	7.7	
Observations	142	148		61	97		81	51	

Source: NPS Panel Data is weighted.

Table A6 OLS regression of log consumption per capita on income sources

	Urban		Rural	
Demographics				
Household size	-0.22***	-0.21***	-0.25***	-0.25***
	(0.01)	(0.01)	(0.01)	(0.01)
Household size squared	0.01***	0.01***	0.01***	0.01***
	(0.00)	(0.00)	(0.00)	(0.00)
Household has male head	0.14***	0.13***	0.14***	0.14***
	(0.02)	(0.02)	(0.02)	(0.02)
Age of household head	0.00***	0.00***	-0.00***	-0.00***
	(0.00)	(0.00)	(0.00)	(0.00)
Age of household head squared	-0.00***	-0.00***	0.00***	0.00***
	(0.00)	(0.00)	(0.00)	(0.00)
Education				
Share of pop +15 with complete lower primary	0.15***	0.16***	0.03	0.03
	(0.04)	(0.04)	(0.02)	(0.02)
Share of pop +15 with complete upper primary	0.41***	0.43***	0.25***	0.27***
	(0.05)	(0.05)	(0.04)	(0.04)
Share of pop +15 with complete lower secondary	0.76***	0.77***	0.39***	0.40***
	(0.04)	(0.05)	(0.06)	(0.06)
Share of pop +15 with complete upper secondary or above	1.60***	1.64***	0.67***	0.60***
	(0.05)	(0.05)	(0.11)	(0.12)
Household income source (dummy for income source)				
Agricultural wage			-0.09**	

	(0.07)		(0.05)	
Family farm	-0.09***		0.04	
	(0.02)		(0.04)	
Remittances	0.23***		0.21***	
	(0.04)		(0.04)	
Household enterprise: Primary Employment	0.10***		0.15***	
	(0.02)		(0.04)	
Household enterprise: Secondary Employment	0.07***		0.13***	
	(0.03)		(0.02)	
Micro enterprise	0.66***		0.46***	
	(0.05)		(0.07)	
Private or public wage	0.12***		0.20***	
	(0.02)		(0.03)	
<i>Livelihood category (family farm only is excluded category)</i>				
Household Enterprise only		0.30***		0.20**
		(0.04)		(0.08)
Private or public wage only		0.31***		0.36***
		(0.04)		(0.07)
Family farm and household enterprise		0.15***		0.14***
		(0.04)		(0.02)
Family farm and private or public wage		0.18***		0.17***
		(0.04)		(0.04)
Household enterprise and private or public wage		0.30***		0.27**
		(0.04)		(0.12)
Other		0.23***		0.11***
		(0.04)		(0.03)
Constant	3.38***	3.16***	4.00***	4.01***
	(0.06)	(0.06)	(0.06)	(0.05)
Observations	5219	5219	5600	5600
R-squared	0.43	0.41	0.28	0.27

Source: IOF 2008/09. Notes: Standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1. Regressions include province dummies not shown. Consumption per capita is spatially and temporally deflated.

Table A7 Means of variables for table A6

	Rural	Urban
Log consumption	2.96	3.16
<i>Demographics</i>		
Household size	4.56	4.90
Household size squared	26.43	31.02
Household has male head	0.70	0.69
Age of household head	44.35	43.45
Age of household head squared	38.42	36.66
<i>Education</i>		
Share of hh members +15 with no education	0.36	0.15
Share of hh members +15 with incomplete primary	0.01	0.01
Share of hh members +15 with complete lower primary	0.47	0.32
Share of hh members +15 with complete upper primary	0.10	0.20

Share of hh members +15 with complete lower secondary	0.05	0.21
Share of hh members +15 with complete upper secondary or above	0.01	0.10
<i>Household income source (dummy for income source)</i>		
Agricultural wage	0.03	0.02
Agricultural non-wage	0.95	0.46
Remittances	0.06	0.07
Household enterprise: Primary Employment	0.06	0.32
Household enterprise: Secondary Employment	0.21	0.12
Micro or small enterprise	0.02	0.04
Private or public wage	0.11	0.52
<i>Livelihood categories</i>		
Non-wage agriculture only	0.58	0.17
Household Enterprise only	0.01	0.12
Private or public wage only	0.02	0.23
Nonwage farm and household enterprise	0.22	0.11
Nonwage farm and private or public wage	0.05	0.08
Household enterprise and private or public wage	0.00	0.13
Other household income combinations	0.12	0.16
<i>Observations</i>	5600	5219

Table A8 Means of variables for first difference regression in table 6

	Consumption tercile in 2003					
	National	Urban	Rural	1	2	3
HH added primary HE	0.11	0.14	0.08	0.11	0.10	0.11
HH added Secondary HE	0.11	0.09	0.13	0.09	0.13	0.11
HH lost primary HE	0.07	0.12	0.04	0.05	0.05	0.10
HH lost secondary HE	0.04	0.04	0.04	0.05	0.02	0.05
HH HE changed from secondary to primary	0.01	0.01	0.01	0.02	0.01	0.01
HH HE changed from primary to secondary	0.03	0.05	0.02	0.03	0.03	0.04
HH added wage	0.17	0.17	0.17	0.16	0.16	0.19
HH lostwage	0.14	0.17	0.12	0.13	0.12	0.15
Change number of adults in household	0.29	0.23	0.33	0.18	0.34	0.34
Change in number of children in household	0.25	0.03	0.40	-0.04	0.19	0.51
Urban	0.42			0.37	0.35	0.51
Observations	1310	554	756	423	345	542

Source: NPS Panel

Table A9 Logit regression of HE start-up on HH and community characteristics in 2003

	Primary HE Start-ups				Primary and Secondary HE Start-ups						
	All	Rural	Rural	Urban	All	Rural	Rural	Urban	First Tercile	Second Tercile	Third tercile
<i>HH characteristics in 2003</i>											
Share of HH completed lower primary	0.05 (0.28)	-0.29 (0.40)	-0.24 (0.42)	0.38 (0.45)	0.69** (0.32)	0.64 (0.47)	0.59 (0.50)	0.87* (0.47)	1.42** (0.64)	0.72 (0.74)	-0.01 (0.51)
Share of HH completed upper primary	0.30 (0.42)	0.85 (0.85)	0.80 (0.88)	0.30 (0.53)	0.68 (0.48)	0.22 (1.25)	0.10 (1.34)	0.90 (0.57)	3.45*** (0.99)	0.71 (1.30)	-1.31* (0.79)
Share of HH completed lower secondary	0.08 (0.61)	1.62 (1.76)	2.24 (1.81)	0.30 (0.70)	-0.02 (0.74)	-1.04 (2.91)	-1.83 (3.07)	0.15 (0.82)	4.65* (2.49)	0.05 (2.91)	-1.08 (0.95)
Share of HH completed upper secondary or above	-0.64 (1.21)			-0.37 (1.29)	-1.61 (1.68)			-1.48 (1.73)		0.96 (6.88)	-4.36** (2.09)
Male household head	0.11 (0.19)	0.52** (0.26)	0.53** (0.26)	-0.47 (0.32)	-0.28 (0.22)	-0.21 (0.32)	-0.20 (0.33)	-0.40 (0.33)	-0.29 (0.42)	-0.01 (0.49)	-0.18 (0.38)
Age of HH head	-0.03 (0.03)	-0.03 (0.04)	-0.04 (0.04)	-0.07 (0.06)	-0.01 (0.04)	0.01 (0.05)	0.01 (0.06)	-0.03 (0.07)	-0.06 (0.09)	0.03 (0.09)	0.04 (0.08)
Age of HH head squared	0.02 (0.03)	0.03 (0.04)	0.03 (0.04)	0.06 (0.06)	-0.01 (0.05)	-0.03 (0.06)	-0.03 (0.06)	0.00 (0.08)	0.02 (0.11)	-0.03 (0.09)	-0.08 (0.09)
Number of adults in HH	-0.01 (0.06)	-0.05 (0.09)	-0.01 (0.10)	0.03 (0.09)	0.07 (0.07)	0.08 (0.11)	0.11 (0.12)	0.07 (0.10)	0.11 (0.14)	0.17 (0.14)	-0.01 (0.13)
Number of children in HH	0.03 (0.04)	0.01 (0.06)	0.00 (0.06)	0.12 (0.08)	-0.04 (0.05)	-0.05 (0.08)	-0.05 (0.08)	-0.03 (0.08)	-0.07 (0.12)	-0.10 (0.13)	-0.07 (0.10)
HH has wage income	-0.03 (0.23)	0.35 (0.34)	0.40 (0.35)	-0.33 (0.33)	-0.25 (0.28)	-0.02 (0.48)	-0.24 (0.52)	-0.35 (0.36)	0.30 (0.54)	-1.191* (0.67)	0.03 (0.47)
HH has agricultural income	0.34 (0.32)			0.05 (0.36)	0.43 (0.36)			0.29 (0.39)	0.89 (0.84)	-0.56 (0.85)	0.950* (0.56)
HH asset index	0.02 (0.04)	-0.05 (0.18)	-0.08 (0.19)	0.01 (0.05)	-0.02 (0.05)	-0.25 (0.25)	-0.33 (0.28)	-0.02 (0.05)	-0.18 (0.24)	-0.13 (0.21)	0.108* (0.06)
<i>Community Characteristics in 2003</i>											
Running water (dummy)	0.48 (0.32)	2.06 (1.49)	1.89 (1.55)	0.28 (0.36)	0.2 (0.35)	2.24 (1.62)	2.15 (1.80)	0.06 (0.39)	-1.38* (0.81)	1.29 (0.94)	0.8 (0.57)
Electricity (dummy)	0.11 (0.30)	0.79 (1.55)	0.7 (1.64)	0.31 (0.36)	-0.04 (0.35)			0.15 (0.41)	0.7 (0.68)	-1.68* (0.93)	-0.01 (0.59)
Crime and safety index	-0.02 (0.08)	-0.09 (0.10)	-0.08 (0.11)	0.1 (0.13)	0.07 (0.09)	0.05 (0.14)	0.01 (0.14)	0.11 (0.14)	0.33* (0.17)	0.03 (0.20)	-0.06 (0.16)
Local market (dummy)			0.1 (0.31)				0.35 (0.44)				
Distance to nearest market (km)			0 (0.00)				0 (0.00)				
Distance to nearest land line phone (km)			0 (0.00)				0 (0.00)				
Trend of harder to find employment			0.32 (0.36)				0.04 (0.47)				
Trend of easier to find employment			0.2 (0.44)				0 (0.63)				
Seasonal employment			0.46 (0.32)				0.4 (0.47)				
Post office (dummy)			0.16 (0.39)				0.64 (0.53)				
Recent irrigation project (dummy)			1.70** (0.84)				0.94 (1.30)				
Recent telephone project (dummy)			0.16 (0.81)				0.36 (1.21)				
Recent electrification project (dummy)			-1.13 (1.10)				-0.08 (0.99)				
Trend of situation worsening (dummy)			0.05 (0.29)				0.98* (0.50)				
Trend of situation improving (dummy)			0.08 (0.35)				0.98* (0.58)				
Urban	0.36 (0.25)				0.78*** (0.29)				0.38 (0.57)	1.38** (0.59)	0.46 (0.55)
Constant	-0.77 (0.77)	-0.36 (0.88)	-1 (1.04)	0.44 (1.41)	-2.46** (1.02)	-2.54* (1.32)	-3.52** (1.56)	-1.2 (1.67)	-4.06 (2.52)	-2.04 (2.10)	-2.98* (1.78)
Regional dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	936	609	604	322	1026	661	656	357	344	258	373

Source: NPS Panel.