

# **Understanding poverty in Zimbabwe: A sample survey in 16 Districts<sup>1</sup>**

**By**

**Jeanette Manjengwa**

Institute of Environmental Studies, University of Zimbabwe

**Ibrahim Kasirye**

Economic Policy Research Centre

**and**

**Collen Matema**

University of Zimbabwe

**March 2012**

**Paper prepared for presentation at the Centre for the Study of African Economies  
Conference 2012 “Economic Development in Africa”,  
Oxford, United Kingdom, March 18-20, 2012**

## **Abstract**

Using a poverty and well being survey for 16 districts in Zimbabwe—a country engulfed by an economic crisis during the past decade, this paper explores the profile of poverty in Zimbabwe. We find that poverty remains very high in Zimbabwe with four out of every five persons classified as poor. Although the changes since 2009 in the macroeconomic environment have improved the economic prospects of Zimbabwean, most households perceive to be as poor as they were five years ago. Apart from access to permanent employment, we show that the poverty status in Zimbabwe is linked to the agro-ecological regions of the country. Areas in Region IV and V experience agricultural shocks routinely. Our results have major implications for government and other stakeholders. In particular, households expect shocks to occur on an annual basis and as such, households especially in region IV and V will continue to depend on social assistance in order to deal with the regular occurrence of shocks.

**Key Words: Economic Crisis, Zimbabwe**

**JEL Categories: I32 O55 F52**

---

<sup>1</sup> We thank the International Development Research Centre (IDRC) for the support to undertake the Moving Zimbabwe Forward Survey. In addition, we thank the Zimbabwe Statistics Agency (ZIMSTAT) for the support in designing and implementing the survey. Any errors and omissions are our own.

## **1. Introduction**

During the last 20 years, Zimbabwe has undergone an era of economic and political disruptions with adverse consequences on the wellbeing of Zimbabweans. For instance, the Zimbabwean agricultural sector—previously the second leading food producer in Southern African after South Africa—averaged 0.6% per annum during 1990-2005, compared to an averaged of over 3% for the rest of Southern Africa (World Bank, 2008)<sup>2</sup>. Zimbabwe's economic decline can be traced back to the early 1990s with the introduction of the Economic Structural Adjustment Programme (ESAP) which wiped out the post-independence gains of the 1980s. This economic decline culminated in a socio-economic crisis beginning in 2000 that was mainly characterised by hyperinflation, which peaked at 500 billion per cent in December 2008. Alongside this decline in productivity came a huge decline in disposable incomes and employment (Chimhowu *et al* 2010). By March 2009 unemployment was estimated at 80 % and a large population of highly skilled Zimbabweans had migrated to neighbouring countries. The formation of the transitional Government of National Unity in 2009 and the dollarization of the national currency has stabilised the economy. Between 2008 and 2009, the growth in the Gross Domestic Product (GDP) changed from minus 14.8 % to 5.4 % and by 2010 it was estimated at 8.1%. In 2012, it is projected that GDP growth will reach 9.4% (Ministry of Economic Planning and Investment Promotion).

Due to the economic disruptions, there is very limited up-to-date information on the well-being of Zimbabweans. The last national—the Poverty Assessment Study Survey (PASS)—was undertaken in 2003 and it revealed that 72% of the population was below the poverty line (Ministry of Public Service, Labour and Social Welfare, 2006). An Income Consumption and Expenditure Survey was conducted in 2007/8; however, information on poverty status was not released mainly due to the problems of dealing with validity of figures obtained in the hyper-inflationary environment that existed at the time. Consequently, since the 2003 PASS survey, there has not been any official survey on the levels of poverty in Zimbabwe, but some estimates

---

<sup>2</sup> However, not all areas in Zimbabwe are suitable for agriculture. Indeed, the three Mashonaland provinces remain the bread basket for the rest of the country—due to relatively higher rainfall and well developed intensive agriculture.

suggest that, by the time the economic crisis reached its high point in November 2008, up to 80% of the population survived on less than US\$2 a day (Chimhowu *et al* 2010).

In order to contribute to the generation of new poverty knowledge, a sample survey on poverty, well-being and inequity in Zimbabwe was carried out by the Institute of Environmental Studies, University of Zimbabwe, in collaboration with the Zimbabwe National Statistics Agency (ZIMSTAT), the Department of Social Services and the Ministry of Economic Planning and Investment Promotion. The survey is a component of a larger initiative, the '*Moving Zimbabwe Forward: An Evidence-Based Policy Dialogue Initiative*' which aims to enhance poverty-focused stabilisation, recovery and growth in Zimbabwe through sound policy judgements, through encouraging policy dialogue and debate, and by generating and disseminating policy-relevant information. One of the objectives of the Moving Zimbabwe Forward policy dialogue initiative is to generate policy information on poverty and well-being in Zimbabwe through a sample survey.

The aim of the sample survey was to provide a snapshot to help understand the current multidimensional nature of poverty to enhance formulation and implementation of effective policies and development programmes. A Q-squared approach was used with a combination of quantitative and qualitative research methodologies. Quantitative data was collected through 3,448 household questionnaires, together with institutional questionnaires for health and education institutions and business centres. Qualitative data was collected through Focus Group Discussions with community groups and interviews with key informants. This paper presents some of the findings of the sample survey and discusses the relevance of the findings and policy implications.

The paper is organized as follows—the next section provides a brief background on the causes and manifestations of the economic crisis in Zimbabwe. In section three, we describe the dataset used in the study. The results for the incidence and correlate of poverty appear in section four. Section five provides the conclusions of the study.

## **2. Background to Zimbabwe**

Land reforms have been a defining characteristic of post independence Zimbabwe (Kinsey, 1999; 2004). During the colonial period there had been a systematic dispossession and alienation of the land from black indigenous people and land was arguably the single most important reason leading to Zimbabwe's liberation war. In 1980, 6,000 large-scale white commercial farmers owned 15.5 million hectares, more than half of which lay in the high rainfall agro-ecological regions where the potential for agricultural production is greatest, while over 700,000 black, mostly smallholder farmers held 17.8 million hectares of land located mainly in the drier agro-ecological regions where the soils are also poor (Moyo *et al.*, 2009). After independence, the new government announced the Resettlement Programme, which resettled 73,000 families on land bought by the government on a 'willing buyer – willing seller' basis. Various authors' show that the first attempts at land reform achieved some of the intended objectives—with resettled households attaining a higher welfare status compared to households that remained settled on communal land (Deininger *et al.*, 2000; Kinsey, 2000).

As part of the conditions for continued receipt of donor aid, Zimbabwe adopted market reforms in the early 1990s through the implementation of the Economic Structural Adjustment Programme (ESAP). ESAP involved the devaluation and abolition of exchange rate controls on the Zimbabwean dollar; liberalization of trade and investment, reducing the size of civil service; ending subsidies, and privatisation of many government-owned businesses. Agricultural marketing was deregulated, and controls on domestic prices were removed except for a few commodities. Market liberalization reforms led to a tremendous increase in agricultural production costs particularly for stock feeds, fertilizer, transport costs and agricultural equipment (Tekere, 2003). Furthermore, Zimbabwe had to abandon its import substitution industrialisation strategy, support for black farmers, land reform, and other socialist policies adopted after independence.

The land invasions that occurred in the late 1990s and ensuing international isolation of Zimbabwe are highlighted as the catalysts for the economic crisis experienced during the past decade (Chimhowu *et al.*, 2010). Frustration over the slow pace of land redistribution and increasing political tensions precipitated the land invasions of the late 1990s. The invasions,

mobilised at the local level, popularly known as *jambanja*, were primarily conducted by frustrated peasant farmers, war veterans, and youth. The situation became formalised by the Fast Track Land Reform Programme launched by the government in July 2000. In particular, the government undertook compulsory acquisition of about five million hectares as means to speed up the pace land resettlement. The legal framework guiding the fast-track land reforms was revised several times, culminating in the 17<sup>th</sup> Constitutional Amendment in August 2005 which nationalised all commercial farming land in Zimbabwe. More than 141 000 families benefited from the Fast Track Land Reform. The last ten years have seen an agrarian revolution where the agricultural system now consists of a large smallholder sector occupying two-thirds of all agricultural land (Chimhowu *et al.*, 2010).

As result of fast-track land reforms and subsequent collapse of large scale commercial agriculture, Zimbabwe registered one of the highest inflation rates recorded in history. The Zimbabwe dollar, which had been exchanging at the rate of Z\$19 to the US\$ in 1997, fell to Z\$ 55 = US \$ 1 by 2000. By 2002, the exchange rate was Z\$ 1000 = US \$1. The adopted policy stance of the Reserve Bank of Zimbabwe to expand the economy by printing money and subsidising local production—as means to control inflation and speculation—failed. Instead, the printing of money led to corruption and hyperinflation. By January 2006 the exchange rate had reached Z\$ 100,000 to US \$ 1 and by mid-2007 it was Z\$ 100 million to US\$1 (Hanlon *et al.*, forthcoming). By mid-2008 the US \$ was equivalent to the Z\$ 1,400 trillion and prices were doubling daily; by the end of 2008, the US\$ was equivalent to Z\$2,100 trillion. The hyper inflation fuelled corruption as elites exchanged money at meaningless official rates and by mid 2007 the parallel exchange rate was 1000 times the official rate (Hanlon *et al.*, forthcoming).

One of the major results of the economic crisis was the massive migration of highly skilled workers to neighbouring countries in Southern Africa. It is estimated that by 2007, two million people had left Zimbabwe, half of them for South Africa – continuing a migration that had started under ESAP (Dore *et al.*, 2008). Most of these migrants were of the able bodied working age groups and many were skilled professionals, causing a major human capital loss for Zimbabwe which in part is responsible for the decline in productivity and service delivery. Although the migrants send back an estimated \$500 million per year (Makina, 2007), most of the

remittances are used for regular household consumption, rather than being for national development.

The formation of a unity government in 2009 dramatically reversed the socio-economic decline registered since the late 1990s. The signing of Global Political Agreement (GPA) in late 2008 between the ruling ZANU-PF and opposition MDC initiated the start of relative economic stability. Furthermore, the dollarization of the Zimbabwean currency in January 2009 prompted a remarkably rapid economic turnaround, which included restoration of local markets. Nonetheless, political tensions remain and international hostility, represented by sanctions, continues. A huge amount of reconstruction is still required – to finish redressing the heritage of minority rule, to replace lost migrant labour, and to repair the damage done to the economy by hyperinflation.

Another major factor affecting livelihoods in Zimbabwe is the recurrence of drought. Rainfall is highly variable in Zimbabwe, both from one year to another, but also between different parts of the country (Kinsey *et al.*, 1998). Zimbabwe is divided into five Agro-ecological Regions with rainfall and agricultural potential decreasing from Region I to Region V. Regions IV and V, with rainfall of below 650 mm per annum, deemed suitable for livestock, rather than cultivation, are characterized by infrequent heavy rain and severe dry spells. Droughts in Zimbabwe can have serious political and economic implications. The first three years after independence were all drought years which led Zimbabwe to borrow causing debt problems later (Hanlon *et al.*, forthcoming). In 1991/92, Zimbabwe witnessed the worst drought in the country's history with rainfall 77% below normal (Unganai, 2011). This pushed the country into accepting the ESAP. The drought years of 1993/94 and 1994/95 worsened the economic problems caused by adjustment and fed into the strikes and disruptions. Then 2001/02 drought occurred in the first year that farmers had land under the Fast Track Land Reform, making it harder for new farmers to become established.

### 3. The Data and methods

Our main data source is the 2011 Moving Zimbabwe Forward (MZF) Survey conducted by the Institute of Environmental Studies at the University of Zimbabwe. The survey covered all the 10 provinces of Zimbabwe and the households were interviewed over the period April-May 2011. The objective of the survey was collect information on a wide range of poverty and well being indicators in Zimbabwe. In addition, the survey was meant to provide an up-to-date of the status of well being in Zimbabwe given that the most recent poverty survey was undertaken in 2003 before the economic crisis intensified. The survey was designed to provide representative estimates at the rural-urban level. Data was collected from 16 districts and the selected districts are representative of livelihood zones and agro-ecological regions in Zimbabwe (Table 1).

The survey was based on a two-stage sampling procedure. In the first stage, enumeration areas (EAs) were primary sampling units and these were selected based on the 2002 Zimbabwe Master Sample (ZMS02) developed by the Zimbabwe National Statistics Agency (ZIMSTAT). The EAs were chosen using the probability proportional to size (PPS) procedure. In the second stage, households were selected from the EAs using systematic random procedure. A total of 3,448 households comprising 15,430 individuals were surveyed. The questionnaire covered a wide range of issues including: demographic characteristics; access and use of education and health services; incomes; employment; business enterprises; agricultural and other incomes; food security and coping strategies; access to land; household food and non-food expenditures; assets holdings; perceptions about poverty status; and exposure to shocks.<sup>3</sup>

Following earlier studies analysing welfare status in Zimbabwe (e.g. Kinsey, 2010; Horell and Krishnan, 2007), we construct poverty estimates based on MZF. Three poverty measures of the Foster-Greer-Thorbecke class were used to characterize the level of poverty in Zimbabwe. These include head count index (P0), which measures the incidence of poverty; poverty gap index (P1),

---

<sup>3</sup> In Zimbabwe detailed poverty analysis has been previously conducted; the most important surveys were the Poverty Assessment Study Surveys (PASS) in 1995 and 2003 by the Ministry of Public Service Labour and Social Welfare (MPSLSW). The 2003 PASS looked at both income and human poverty. Nonetheless, metric measures in some instances ignore the 'condition of life'. Recognizing the limitations and disadvantages of relying only on metric measures of well being, the MZF survey, following the 2003 PASS, also incorporated other criteria and aspects to understand the nature of human well being and poverty, such as: exposure to shocks and perceptions about well being.

which indicates the depth of poverty and reflects the extent to which the well being of the poor falls below the poverty line; and poverty severity (P2), which measures the severity of poverty. For all measures, the greater the index the higher the poverty level of a given population. These statistics are based on comparisons of monthly consumption expenditure with the official total and food poverty lines.<sup>4</sup>

## **4. Results**

### **4.1 Incidence of poverty**

Table 2 presents the three poverty estimates based on the total and food poverty lines by spatial location. It is indicated that 81.6 % of population in 16 surveyed districts were below the total poverty line in 2011. As expected, the majority of the poor are in rural areas—where 95 % are below the total poverty line. Compared to previous national figures of a poverty incidence of 72% in 2003 (Ministry of Public Service, Labour and Social Welfare, 2006), the figures reported in Table 2 suggest a decline in the welfare status of households in Zimbabwe in 2011—probably due to effects of the economic crisis witnessed during the past decade. Furthermore, previous authors attribute the increase in poverty status in the past decade to the devastating effects of HIV/AIDS (Kinsey, 2010)<sup>5</sup>.

Furthermore, Table 2 shows that about 44 % of the surveyed population have consumption expenditures below the food poverty line i.e. the total household monthly expenditures are unable to meet even the minimum food requirements. Based on the ZIMSTAT definition, these are classified as very poor. Based on this criterion, we observe that the majority of the rural population is very poor (i.e. 68%). For the depth of poverty, the poverty gap measure—which can be considered to be the cost of eliminating poverty—shows that Zimbabwe requires to spend more than twice more resources in rural areas compared to urban areas if poverty is to be

---

<sup>4</sup> The total poverty line is the minimum amount of consumption required to meet the basic food and non-food requirements of Zimbabweans. We used the total poverty line provided by ZIMSTAT based on May 2011 prices. On average, the poverty line is US\$ 100 per person per month while the food poverty line is about US\$ 30 per month (ZIMSTAT, 2011).

<sup>5</sup> The 2005/06 Zimbabwe Demographic and Health Survey found that 18% of adults tested positive for HIV/AIDS—with the highest rate in the Matebeleland South province (21%) and lowest incidence in Masvingo province at 15% (Central Statistical Office and Macro International, 2007).

eliminated. Given that rural areas account for only 60% of the population, the poverty depth figures suggest that poverty is much more severe in rural than urban areas. That is the poor in rural areas are relatively far away from the poverty line compared to their urban counterparts. The rural-urban divide in welfare status has long been recognized in Zimbabwe. For example, Kinsey (2010) notes that the 1995 Poverty assessment survey showed that poverty was very high in the rural areas compared to the urban areas and the incidence particularly much higher in the communal lands; the 2003 PASS found similarly large differences in urban and rural poverty levels.

Table 3 shows the characteristics of the poor in 16 districts surveyed by rural-urban location. It is indicated that on average households spend US\$ 54 per month for the urban poor compared to US\$ 25 for the rural poor. On the other hand, average expenditures of the non-poor are about US\$ 200 in urban and rural areas. The table also shows that average expenditures on food account for 40% of the total household expenditures among the poor and only 25% among the non-poor from both rural and urban areas. With regard to demographics, poor households on average have 4.8 persons compared to 3.5 and 2.8 persons for the non-poor urban and rural residents respectively. Furthermore, urban households have relatively younger household heads compared to the rural counterparts. Given that Zimbabwe has a relatively large urban population—compared to other SSA countries—employment is a very important source of livelihood. In the survey, individuals in employment were asked if they were in permanent or temporary employment. Table 3 shows that there are relatively more persons in permanent employment among the non-poor compared to their poor counterparts. Overall, households with at least a permanent employee have a lower incidence of poverty compared to those with temporary employees. However, both categories have considerably less individuals under the very poor category highlighting the importance of permanent as a driver out of poverty.

Table 4 also shows the distribution of poverty by key household characteristics in rural and urban areas. As expected the incidence of poverty reduces with higher education attainment of the household head. Nonetheless, there are wide differences between rural and urban areas with household heads in rural areas who have attained at least Form 6 education having a very high incidence of poverty (85.4%) compared to their urban counterparts (39.1%). However, the poverty incidence for the first three categories of education attainment (i.e. Grade Zero, Grade 7,

and Form 2) are relatively similar suggesting that lower education attainment may not be enough to push households out of poverty. On the other hand, there are limited variations in poverty status by age of the household head. It is only for the very poor criterion that older household heads have considerably higher incidence of very poor status—51.5% compared to heads aged less than 30 years (40%).

Given the importance of agro-ecological regions in Zimbabwe—especially regarding the experience of droughts (Kinsey *et al.*, 1998), we group our 16 districts into four broad categories based on their location in the natural/agro-ecological regions of Zimbabwe.<sup>6</sup> Table 4 shows that districts in Group C which corresponds to areas in natural region IV have the highest incidence of poverty (94.4%), followed by Group D districts (Region V). Districts in Group A (Region I and II) and Group B (Region III) have relatively lower incidences of poverty compared to either Group C or D districts. Indeed, the rates of the very poor status in Group C and D districts are about double the rates of Group A and B districts. The results relating to district groups suggest that the natural/agro-ecological regions of Zimbabwe are a key factor in the welfare status of households.<sup>7</sup>

The bottom part of Table 4 shows the incidence of poverty based on economic activities and it is indicated that households without permanent employees have a lower poverty status compared to households with at least a permanent employee. Indeed, households with permanent employees are less likely to be very poor even in rural areas. Households that have a business enterprise have a poverty incidence that is higher by about 10 percentage points compared to permanent employees, while households that depend on land (i.e. agriculture and livestock) have the highest rates of poverty—about 90% of individuals in the surveyed districts dependent on land are poor and the corresponding rate for the very poor is over 60%. The table also suggests that ownership of a business enterprise does not confer any advantages. Indeed, business enterprise rural areas are mainly low values e.g. weaving baskets, making brooms which are sold for 10 for a dollar.

---

<sup>6</sup> See Table 1 for details of natural regions for the surveyed districts.

<sup>7</sup> From the MZF survey, the following districts are in Region 4: Mbire, Gokwe South and Bulawayo and some Enumeration Areas in Gwanda, Gokwe North and Mutoko.

## 4.2 Experience of shocks

A variety of questions in the MZF allow for the estimation of the probability that a community or household suffers different shocks during the last 12 months. The questionnaire includes questions about the occurrence of various kinds of shocks ranging from drought to HIV/AIDS and loss of government or donor support. In addition, information is collected on the severity of the shock based on three categories (i.e. low-minor, medium-moderate, and high-major) as well as likelihood of occurring in the next 12 months. Table 5 shows the probability that a community suffered a food shortages, inflation, or drought is at least 43%. The probability that a household suffered health related shocks is about 33% while the probability that the community suffered from decrease in either government or donor support is 30%. The latter reflects declining public resources available to fund social protection as well as donor withdrawals associated with sanctions placed on Zimbabwe and declining donor funding due to the financial crisis in the Western world. Other important shocks include crop pests and labour shortages—with about 21 and 13% of households reporting experiencing these respective shocks. With regard to severity, Table 5 shows that weather related shocks are most severe (i.e. droughts and floods) followed closely by food shortages and spiralling commodity prices.

Table 6 investigates the probability of shocks by geographical location and it is indicated that droughts are most likely shocks in rural areas (64%) while inflation is mostly in urban areas (50%). Nonetheless, the probability of food shortages and inflation occurring in rural areas is also very high at 54% and 40% respectively. It is worth noting the potentially high correlations among the specified shocks. It is possible that food shortages in rural areas are related to droughts while in urban areas, food shortages are related to inflation. Related, the relatively high probability of food shortages in urban areas may be driven by high density suburbs in urban areas—characterized by high rates of unemployment and patronized by pensioners with families.

Based on the broad district grouping, the probability of drought occurring is highest among Group C districts (agro-ecological region IV) at 73% followed by Group D districts (Region V).<sup>8</sup> The table further shows that it is Group C districts that have the highest probability of crop pests occurring (48%). Climatic conditions are favourable for pest breeding in Region IV; indeed, the types of crops cultivated in the region i.e. small grains and drought resistant crops (e.g. sorghum, millet, and rapoko) invite quelea birds.<sup>9</sup> Furthermore, Group C and D districts have the highest probability of experiencing decreasing government and donor support. This particular result may be explained by the fact that agro-ecological regions IV and V experience more or less perennial food shortages and as such are heavily dependent on external support to cope with such shocks. Finally, labour shortages are also likely to occur in Regions IV and V due to their relative proximity to South Africa—a leading destination for Zimbabwean migrants.

The survey also inquires about the shocks recurring during the next year and the results indicate (not shown in table) that households in Group C districts expect that shocks like drought and food shortages are more likely than not to reoccur. Furthermore, the likelihood of droughts and food shortages reoccurring decreases with movements from agro-ecological regions having higher average rainfall and agricultural potential. In Region II, which is characterised by regular rainfall between 700 and 1,050 mm per year, and regarded as suitable for intensive farming and crop production, the likelihood of having food shortages is 67%, while for droughts it is 55%. The comparable figures for food shortages and drought are 95% for Region IV and 75% for Region V. The districts from Region 2 in the MZF survey are Harare and Mazowe Districts and in some Enumeration Areas of Hurungwe and Mutoko Districts. Consequently, the relatively higher incidence of poverty observed in Table 4 among households in Group C districts may be partly linked to experience of numerous weather and agricultural shocks.<sup>10</sup>

---

<sup>8</sup> The district covered from Region V are Chiredzi, Kariba, Hwange and parts of Gwanda, Chimanimani and Gokwe North, and they tend to have more complex and diverse livelihood strategies, such as cattle ranching in Chiredzi, tourism and fishing in Kariba, and irrigation schemes in Chiredzi and Chimanimani.

<sup>9</sup> It should be pointed out there is less cultivation of the main staple maize in Regions IV and V as these areas experience severe droughts 3 times every 10 years. Because maize does not perform well in drought conditions; households resort to small grain which on the other hand are attacked by quelea birds.

<sup>10</sup> Region IV is characterised by low rainfall of between 450 and 600 mm a year, with frequent droughts and relatively high temperatures. The agricultural potential for this region is semi-intensive farming with livestock and drought tolerant crops (Vincent and Thomas 1961).

### 4.3 Subjective poverty status

Apart from the metrics of household consumption and income, the MZF survey collected information on subjective well being and poverty. In particular, the following “economic ladder questions” were presented to all household surveyed. *Imagine a ten step ladder, where the bottom step, the first step (1) represents the worst possible life for you and the top step (10) represents the best possible life for you. Where on the ladder do you feel you personally stand at the present time? Where were you five years ago?; Where do you think you will stand on the ladder in five years time?; and What would help to move up the ladder?* Previous authors (e.g. Ravallion, 2012; Kingdon and Knight, 2006; Bertrand and Mullainathan, 2001) show that such self-assessed welfare can help in the recognition of the importance of non-market goods as determinants of welfare—despite the drawback of self-assessment data being affected by personality traits.

Table 7 shows the average stated steps for households based on key background characteristics. It is indicated that households in Zimbabwe on average perceive to be at the third step and also believe there has not been any change in their welfare status compared to five years ago. The general perception is that nothing has changed, although the non-poor actually perceive that they were slightly better off 5 years ago. The above results suggest that the up-turn in the macro economic environment registered since 2009 is yet to trickle down and benefit the masses. It is worth noting that households are more optimistic about the future. Households on average think that they will move two steps higher in next five years, with the perception of the urban sector being slightly more optimistic. Indeed, the expected movement by two steps is consistent regardless of current welfare status—as measured by household consumption, employment status or experience of shocks during the past 12 months.

As earlier mentioned, the survey inquires about the factors that may help move households up the welfare ladder. The results (not shown in table) indicated that increased earning and spiritual blessings are the most frequently cited reasons that may help move households forward—at least 25% of households in both rural and urban areas cite these as the most important reasons for any possible future movement up the welfare ladder. In urban areas, receiving a better job or job security is the second most cited reason for possible welfare movements.

#### 4.4 Econometric analysis

As mentioned earlier, the various characteristics of well being may be correlated. For instance, it is possible that a household is very poor because it is in rural area and in an agro-ecological region that routinely faces droughts. To better understand whether the correlations are genuinely explanatory, we run the regression of the form:

$$\log Y_i = \beta X_i + \varepsilon_i \quad (1)$$

Where  $Y_i$  is household monthly consumption expenditure,  $\beta$  is a vector of coefficients, and  $X_i$  is a vector of all of the variables measuring education attainment, shocks, geographic location, and other household characteristics. In this case, a regression coefficient is a conditional correlation, i.e. the correlation of the regressor (say, an indicator for living in a district in region IV) after controlling for the other regressors (e.g., exposure to shocks). To continue with the example, if exposure to shocks is what really causes lower incomes, then regressing household consumption on both regional indicators and exposure to shocks measure will show a significant correlation for the latter, but not the former. Table 8 shows the results of three regressions. The first model regresses household consumption on all sets. The next two models run separate regressions for rural and urban households.

*Demographics:* The size of the household appears as a significant factor in the welfare status of households. Each additional household member reduces monthly consumption by as much as 73% with the worst effects registered in rural areas (79% reduction). The presence of orphans has a negative impact on the household expenditures—especially in urban areas. In particular, households with orphans in urban areas are on average have 13% less consumption expenditures. Given the HIV/AIDS scourge and the resulting population of parent-less children, the above result suggests that households in Zimbabwe who receive orphans are relatively poorer—unlike the case in other African countries where orphans are taken up by relatively well-to-do households—for instance Evans and Miguel (2007) for Kenya. On the other hand, although being a female household head is negatively correlated with household expenditures; female households are not significantly different from their male counterparts with regard to consumption expenditures. Similar, the age of the household head and marital status have no

appreciable impact on consumption expenditures. Finally, household member migration during the past year has no significant impact.

*Education:* Table 8 also shows that education attainment of the household head has large payoff in terms boosting household expenditures. Attainment of Form 4 and Form 6 education is associated with 19% and 40% increase in household expenditures respectively. However, there are stark rural-urban differences. Whereas in the rural areas, completing form 2 is associated with a 10% increase in monthly consumption, the corresponding effect in urban areas is insignificant. Indeed, in urban areas, it is only attainment of form 4 education that significantly increases household consumption. Given the importance of permanent employment in urban areas as determinants of household well being, the above results suggests that a higher level of minimum education is required to secure permanent employment in urban than rural areas.

*Asset holdings:* As earlier mentioned, land is a key resource in Zimbabwe. Although the MZF survey did collect information on household ownership of land, the information was not detailed enough and as such missed on key parameters such as size of land and the method of acquiring it<sup>11</sup>. Nonetheless, in the regression analysis, we include a variable on the household having access to cultivable land and we register counter-intuitive results for the rural areas i.e. households with access to cultivable land have significantly lower consumption expenditures in rural areas. On the other hand, having a business enterprise boosts consumption expenditures—especially in rural areas by as much as 24%. Similarly, ownership of equipment that can be used in business such as peanut butter machine, and scotch cart—all significantly improve consumption expenditures. On the other hand, the ownership of livestock significantly improves household consumption in rural areas; however, the magnitudes are much lower compared to other covariates. Other important assets relate to access to public goods—especially electricity and water. Having electricity increases consumption by 24% while access to piped water in the dwelling increases consumption by about 30%.

---

<sup>11</sup> However, the survey collects information on whether resettlement under the Land Reform Programme was used as coping strategy for household faced with shocks.

*Livelihood:* The regression results confirm that permanent employment is a key correlate of household well being in Zimbabwe. Specifically, permanent employment is associated with a 29% rise in consumption expenditures in rural areas compared to 13% in urban areas. On the other hand, temporary employment is generally negative except in urban areas where households with at least a temporary employee have consumption expenditure less by about 9%. Being involved in mining activities in rural areas appears to be extremely important—raising monthly household expenditures by about 29%. Small scale gold panning in rural areas may explain the magnitude of this particular variable. At the same time, receiving cash transfers is also important in urban areas where urban receipts on average have 15% higher consumption expenditures.

*Location:* With regard to the spatial location, urban residents have considerably much higher levels of expenditures and this may explain the relatively lower levels of the very poor status observed in Table 1. For the district grouping, Table 8 shows that Group C and D districts (located in Region IV and V respectively) have significantly lower expenditures compared to Group A districts. It is worth mentioning that Group C districts are only significant in rural areas.

*Exposure to shocks:* Tables 5 and 6 showed that shocks—especially agricultural related shocks are of major occurrence in Zimbabwe. Table 8 shows that the only consistently significant shock is experience of food shortage in the past 12 months. Specifically, this reduces current consumption expenditures by 17% in rural and 26% in urban areas—suggesting that food shortages have the worst effects in urban areas. The insignificance of most of the shock variables may be partly explained by the high correlation between shocks, households that experience drought are more likely to be the same that experience food shortages. Furthermore, in an environment characterized by low education attainment e.g. in rural areas, drought may be misconceived as food shortages. Two types of shocks produce counter intuitive results—experience of floods and rising food prices are associated with increased household expenditures. In summary, our results for exposure to shocks suggest that food shortages may account for most of the other shocks experienced by households in Zimbabwe.

## **5. Conclusions and Implications**

This paper profiles the extent of poverty in Zimbabwe—a country that witnessed severe economic challenges in the past decade. We rely on a sample survey of 16 districts that represents the rural-urban demographics as well as the livelihood zones and economic sectors of Zimbabwe. We find that poverty remains very high in Zimbabwe—four of every five persons are below the total poverty line. Furthermore, a very large rural population is classified as very poor—with household expenditures below the minimum recommended food expenditures. We show that the poverty status in Zimbabwe is linked to the agro-ecological regions of the country—a key determinant of exposure to agricultural shocks. We also find that permanent employment is an important source of livelihood especially in urban areas. Our results from the subjective welfare status suggest that households consider their welfare status to be the same like five years ago. However, all households in Zimbabwe are very optimistic about the prospects in the next five years. The regression results show that household demographic characteristics are important in explaining current welfare status as measured by monthly consumption expenditures. Large household sizes and receipt of orphans severely affects household well being. On the other hand, after accounting for the exposure to all other shocks, it is experience of food shortages that negatively affects household consumption. Our results have major implications for government and other stakeholders. In particular, households expect shocks to occur on an annual basis and as such, households especially in region IV and V will continue to depend on social assistance in order to deal with this regular occurrence.

## 6. References

Bertrand, M and S. Mullainathan (2001) "Do People Mean What They Say? Implications for Subjective Survey Data" *American Economic Review, Papers and Proceedings* Vol 91. No. 2: 67-72.

Central Statistical Office and Macro International (2007) *Zimbabwe Demographic and Health Survey 2005-06*. Harare and Calverton.

Chimhowu, A, Manjengwa, J, and S. Feresu (2010) "*Moving Forward in Zimbabwe: Reducing Poverty and Promoting Growth*". IES/BWPI, Harare.

Evans, D and T. Miguel (2007) "Orphans and Schooling in Africa: A longitudinal analysis," *Demography* Vol 44, No.1: 35-57.

Deininger, K, van der Brink, R, Hoogeveen, H, and S. Moyo (2000) "How Land Reform can contribute to economic growth and poverty reduction: Empirical evidence from international and Zimbabwean experience". World Bank, Free University Amsterdam and Southern African Regional Institute for Policy Studies, April 2000.

Doré, D, Hawkins, T, Kanyenze, G, Makina, D and D. Ndlela, (2008) "Comprehensive Economic Recovery in Zimbabwe", A discussion document (Harare: UNDP, 2008), 109-112.

Hanlon, J, Manjengwa J, and T. Smart (forthcoming) *Zimbabwe Takes Back its Land*. Kumarian

Horell, S and P. Krishnan (2007) "Poverty and Productivity in female-headed households in Zimbabwe" *The Journal of Development Studies* Vol 43. No. 8: 1351-1380.

Kingdon, G and J. Knight (2006) "Subjective Well-being Poverty vs Income Poverty and Capability Poverty" *Journal of Development Studies* Vol. 42. No. 7: 1199-1124.

Kinsey, B. H. (2010) Poverty Dynamics in Rural Zimbabwe: The 30 Years (Lost) 'War against Poverty'" Paper presented at conference *Ten Years of 'War against Poverty': What Have We Learned since 2000 and What Should We Do 2010-2020?*

Kinsey, B. H. (2004) Zimbabwe's land reform program: Under-investment in post-conflict transformation. *World Development* 32, 10.

Kinsey, B. H. (2000) "The Implication of Land Reform for Rural Welfare": in Bowyer-Bower, T.A.S. and C. Stoneman, (eds), (2000) *Land Reform in Zimbabwe: Constraints and Prospects*. Ashgate, UK.

Kinsey, B. H. (1999) Growth-friendly poverty reduction? Long-term household-level outcomes of land reform in Zimbabwe. *Journal of Southern African Studies* 25, 2, 173-96.

Kinsey, B. H., J. W. Gunning and Kees Burger. 1998. Coping with drought in Zimbabwe: Survey evidence on responses of rural households to risk. *World Development* 26, 1.

Makina, D (2007) “Survey of the Profile of Migrant Zimbabweans in South Africa”, 2 [http://www.idasa.org/our\\_products/resources/output/survey\\_of\\_profile\\_of\\_migrant/?pid=states\\_in\\_transition](http://www.idasa.org/our_products/resources/output/survey_of_profile_of_migrant/?pid=states_in_transition) (accessed 11 Nov 2011).

Ministry of Public Service, Labour And Social Welfare (2006) *Zimbabwe 2003 Poverty Assessment Study Survey Main Report*. Harare: MPSLSW.

Moyo, S, Chambati, W, Murisa, T, Siziba, D, Dangwa, C, Mujeyi, K and N. Nyoni (2009) “*Fast Track Land Reform Baseline Survey in Zimbabwe: Trends and Tendencies*”, 2005/06. An Inter-District report for the African Institute for Agrarian Studies (AIAS).

Ravallion, M (2012) “Poor or Just Feeling Poor? Using Subjective Data in Measuring Poverty” World Bank Policy Research Working Paper No. 5968.

Tekere, M (2003) “Zimbabwe”, Harare: Trade and Development Studies Centre, in Harmon Thomas, *WTO Agreement on agriculture: The implementation experience* (Rome: FAO, 2003). [Tekere, FAO] <http://www.fao.org/docrep/005/y4632e/y4632e01.htm#bm01> (accessed 3 Dec 2011)

Unganai, L (2011) “Climate change and its effects on agricultural productivity and food security: A case of Chiredzi district”, paper prepared for the National Climate Change Workshop, 23 Nov 2011, Harare.

Vincent, V and R.G. Thomas (1961) “*An Agricultural Survey of Southern Rhodesia, Part One – Agro-ecological Survey*”. The Government Printers, Salisbury.

World Bank (2008) *World Development Report 2008: Agriculture for Development* (Washington DC: World Bank).

ZIMSTAT (2011) *Poverty Analysis: Poverty Datum Lines May 2011*. Zimbabwe National Statistics Agency (ZIMSTAT), Harare.

## 1. Appendix: Tables

**Table 1: Livelihood zones for sampled districts in the MZF survey**

Province	District	Natural agro-ecological Region	Livelihood zones
Harare	City	II	Urban
Bulawayo	City	IV	Urban
Matabeleland North	Hwange	V	Kariba Valley and Kariangwe-Jambezi Communal; Urban
Matabeleland South	Gwanda	IV	Beitbridge South Western Lowveld Communal; Urban
		V	
Masvingo	Chiredzi	V	Urban; Irrigated Commercial Sugar and Fruit Farming; Cattle and Cereal Farming
Midlands	Gokwe North	IV	Cereal and High Cotton Communal; Cereal and Low Cotton Communal
		V	
	Gokwe South	IV	Cereal and High Cotton Communal; Lusulu, Lupane and Southern Gokwe Mixed Agriculture
	Gweru city	III	Urban
Mashonaland Central	Mazowe	II	Highveld Prime Communal; Highveld Prime Cereal and Cash Crop Resettlement;
	Mbire	IV	Northern Zambezi Valley Communal
Mashonaland West	Kariba	V	Urban; Agro-fisheries
	Hurungwe	II	Highveld Prime Cereal and Cash Crop Resettlement; Highveld Prime Communal; Cereal and Low Cotton Communal; Central and Northern Semi Intensive Farming
III			
Mashonaland East	Mutoko	IV	Central and Northern Semi Intensive Farming; Highveld Prime Cereal and Cash Crop Resettlement
		III	
		II	
Manicaland	Mutare rural	III	Urban, Highveld Prime Communal,
	Mutare city	III	Urban
	Chimanimani	V	Masvingo Manicaland Middleveld Smallholder; Eastern Highlands Commercial Farming; Urban
I			

**Table 2: Poverty Incidence in Zimbabwe (2011)**

	All Poor			Very Poor		
	All	Urban	Rural	All	Urban	Rural
Poverty Incidence (%)	81.6	62.6	95.1	44.4	8.5	68.3
Poverty Depth (%)	52.8	27.2	71.1	20.6	2.3	33.6
Poverty Severity (%)	39.2	14.9	56.7	21.1	0.9	19.4
<i>Number of households</i>	<i>3,448</i>	<i>1,436</i>	<i>2,012</i>	<i>1,497</i>	<i>122</i>	<i>1,375</i>

Source: MZF Survey

Notes: The indices for the very poor are based on the food poverty line as defined by ZIMSTAT

**Table 3: Characteristics of the poor in Zimbabwe**

	Urban		Rural	
	Poor	Non Poor	Poor	Non Poor
Average monthly per capita household expenditures (US\$)	54	225	25	190
Average monthly per capita food expenditures (US\$)	22	54	10	55
Average household size	4.8	3.5	4.8	2.8
Average age of household head (years)	43	42	47	44
Number of persons with permanent employment	0.48	0.70	0.12	0.40
Number of persons with temporary employment	0.24	0.18	0.16	0.21
Number of employed persons	0.72	0.88	0.29	0.61
Average number of children	2.07	1.18	2.41	1.29
Average number of old persons aged 55 and above years	0.32	0.24	0.47	0.38

Source: MZF Survey

**Table 4: Incidence of poverty in Zimbabwe by characteristics of the head (%)**

	All Poor			Very poor			
	All	Rural	Urban	All	Rural	Urban	
<b>Highest Education attainment</b>							
No Education	93.2	96.9	72.8	66.5	74.6	21.4	
Grade Zero	95.7	96.8	87.5	70.1	76.7	18.8	
Grade 7	90.8	96.3	74.2	57.8	72.5	12.6	
Form 2	88.2	95.9	74.2	48.5	67.3	14.1	
Form 4	76	92.5	65	27.3	58.2	6.7	
Form 6 and above	48.7	85.4	39.1	12.2	48.8	2.6	
<b>Age category of household head</b>							
Less than 30 years	79.2	94.7	57.7	39.8	64.7	5.2	
30-35 years	80.5	93.6	65.4	38.2	65.5	6.6	
36-41 years	78.3	94.5	59.6	40.5	69.9	6.3	
42-47 years	81.7	96.2	65.6	39.9	66.7	10	
48-54 years	80.6	95.4	62.4	45.4	72.5	12.4	
55+ years	86.4	95.9	65.5	51.5	70.4	11.6	
<b>District groupings*</b>							
	Group A	74.8	92.8	64.4	25.9	54.2	9.5
	Group B	73.8	96.6	56.2	35.7	73.1	6.9
	Group C	94.4	95.7	76.7	66.7	70.5	16.3
	Group D	89.7	95.6	66.7	60.6	74.4	5.6
<b>Gender of the household head</b>							
Female headed household	83.0	94.9	64.2	47.6	71.7	9.5	
Male headed household	81.0	95.2	62.0	41.7	66.8	8.1	
<b>Marital status of the head</b>							
Never Married	62.3	88.6	45.2	27.8	63.6	4.4	
Married	82.7	95.2	64.7	42.9	67.6	7.6	
Divorced/Separated	79.3	96.4	64.6	32.9	60.2	9.3	
Widowed	84.4	95.4	63.8	51.8	72.3	13.8	
Other	84.9	97.1	60.8	52.9	72.9	13	
<b>Other Key household characteristics</b>							
Household has atleast one permanent employee	62.9	85.3	54.5	13.9	37.4	5.1	
Household has at least one temporary employee	85.5	94.1	69.3	36.5	64.4	9.4	
Household has a business enterprise	72	91.1	62.2	23.6	54.9	7.5	
Household is engaged in agriculture	93.7	96.9	68.1	66.9	74	9.9	
Household keep livestock	91.8	96.2	59.8	64.6	72.3	7.8	
Household own land	89.4	96.1	59.3	59.7	71.3	6.8	
Household has access to cultivable land	90.8	96.3	62.4	61.4	71.9	6.1	

Source: Authors calculation from the MZF survey

Notes: The indices for the very poor are based on the food poverty line as defined by ZIMSTAT

\*Group A districts are founds in agro-ecological regions I and II; Group B districts are found in natural region III; Group C districts are found in region 4; and Group D districts are in Region 5 as illustrated in Table 1.

**Table 5: Probability of experiencing shocks in the community during past 12 months by severity of the shock**

Type of Shock	Prob (X)	Severity of shock (%)			Row total
		Low- minor	Medium - moderate	High - major	
Food shortages	0.452	13.9	35.1	51.0	100

Inflation	0.441	14.3	34.7	51.1	100
Drought	0.429	9.3	32.1	58.7	100
Family sickness	0.350	18.0	37.0	45.0	100
HIV/AIDS	0.332	15.5	34.8	49.7	100
Decreasing donor assistance	0.305	16.5	39.2	44.4	100
Decreasing govt assistance	0.304	13.9	38.1	48.1	100
Chronic illness	0.269	14.6	33.2	52.2	100
Crop pests	0.215	12.9	37.6	49.5	100
Labour shortage	0.127	14.4	46.5	39.2	100
Floods	0.086	19.2	29.1	51.7	100
Fire	0.085	23.3	41.1	35.3	100

Source: Authors calculations from the MZF

**Table 6: Probability of experiencing shocks in the last 12 months by location**

	Residence		District Groupings*			
	Rural	Urban	A	B	C	D
Food shortages	0.54	0.33	0.38	0.49	0.57	0.44
Inflation	0.40	0.50	0.45	0.51	0.41	0.39
Drought	0.64	0.14	0.19	0.47	0.73	0.54
Family sickness	0.38	0.31	0.36	0.37	0.37	0.30
HIV/AIDS	0.39	0.25	0.31	0.30	0.32	0.41
Decreasing donor assistance	0.42	0.15	0.21	0.26	0.44	0.39
Decreasing govt assistance	0.40	0.17	0.25	0.26	0.41	0.35
Chronic illness	0.33	0.19	0.25	0.27	0.24	0.32
Crop pests	0.35	0.03	0.06	0.11	0.48	0.37
Labour shortage	0.19	0.04	0.07	0.06	0.26	0.17
Floods	0.13	0.02	0.01	0.04	0.36	0.03
Fire	0.13	0.02	0.08	0.06	0.12	0.09

Source: Authors calculations from the MZF

Notes: \*Group A districts are found in agro-ecological regions I and II; Group B districts are found in natural region III; Group C districts are found in region 4; and Group D districts are in Region 5 as illustrated in Table 1.

**Table 7: Perceptions of wellbeing by household poverty:**

	Average well being step for the household		
	Current	5 years ago	next 5 years
All	3.3	3.1	5.3
<i>Poverty status</i>			

	Non Poor	4.4	3.8	6.6
	Poor	3.0	3.0	4.9
	Very Poor	2.6	2.7	4.3
<hr/>				
<i>Location</i>				
	Rural	2.8	2.8	4.6
	Urban	3.9	3.6	6.2
<hr/>				
<i>District groupings*</i>				
	Group A	3.4	3.3	5.7
	Group B	3.6	3.3	5.4
	Group C	3.1	2.8	5.0
	Group D	3.0	2.9	4.6
<hr/>				
<i>Other household characteristics</i>				
	Household has permanent employees	4.1	3.4	6.4
	Household has temporary employees	3.5	3.2	5.7
	Household has business enterprise	3.6	3.6	5.8
<hr/>				
<i>Experience of selected shocks</i>				
	Drought	2.8	2.8	4.4
	Floods	2.9	2.8	4.6
	Pests	2.9	3.0	4.4
	Labour	2.9	3.3	4.4
	Floods	2.9	2.8	4.6
	Fire	2.8	3.0	4.4
	Family sickness	2.9	3.1	4.9
	Food shortage	2.7	2.9	4.6
	Inflation	3.3	3.2	5.4
	Chronic illness	2.7	2.8	4.6
	HIV/AIDS	2.8	2.9	4.7
	Reduction in govt support	2.8	2.8	4.5
	Reduction in donor support	2.8	2.9	4.4

Source: Authors calculations from the MZF

\*Group A districts are found in agro-ecological regions I and II; Group B districts are found in natural region III; Group C districts are found in region 4; and Group D districts are in Region 5 as illustrated in Table 1.

**Table 8: Determinants of household monthly expenditures**

(Dependent variable: Log of per capita monthly household expenditures)

	All	Rural	Urban
<hr/>			
<i>District Grouping*</i>			
	Group B	0.002	0.081
		[0.08]	[1.66]
	Group C	-0.085	-0.093
			-0.064

		[2.10]*	[1.98]*	[0.60]
	Group D	-0.124	-0.191	0.159
		[3.45]**	[4.20]**	[2.47]*
Urban		0.442		
		[10.66]**		
Log of household size		-0.73	-0.795	-0.659
		[33.52]**	[28.60]**	[18.68]**
Household head is female		-0.009	0.054	-0.061
		[0.28]	[1.35]	[1.21]
Log of age of household head		0.024	0.031	0.045
		[0.66]	[0.70]	[0.73]
<i>Highest grade attained by head (cf: No Education)</i>				
Grade Zero		-0.033	-0.012	-0.151
		[0.69]	[0.23]	[1.12]
Grade 7		0.048	0.064	0.001
		[1.17]	[1.39]	[0.01]
Form 2		0.051	0.106	-0.029
		[1.25]	[2.25]*	[0.32]
Form 4		0.191	0.223	0.169
		[4.62]**	[4.41]**	[1.98]*
Form 6 and above		0.402	0.274	0.437
		[8.01]**	[3.52]**	[4.85]**
<i>Marital status (cf: Never Married)</i>				
Married		0.01	0.065	-0.076
		[0.20]	[0.90]	[1.18]
Divorced/Separated		-0.006	0.033	-0.054
		[0.10]	[0.34]	[0.60]
Widowed		-0.007	0.029	-0.082
		[0.12]	[0.34]	[0.98]
Other		-0.078	-0.087	-0.056
		[1.22]	[0.98]	[0.58]
Household has at least one orphan		-0.069	-0.042	-0.136
		[2.38]*	[1.17]	[2.80]**
Log of values of cattle owned		0.011	0.022	-0.008
		[2.38]*	[4.27]**	[0.73]
Household received cash transfers in the last 12 months		0.082	-0.007	0.147
		[2.82]**	[0.17]	[3.61]**
Household received rental income in the last 12 months		0.134	0.103	0.152
		[3.15]**	[1.03]	[3.14]**
Household involved mineral harvesting in the past 12 months		0.271	0.286	0.053
		[4.26]**	[4.46]**	[0.17]
At least one household member moved out in last 12 months		0.023	0.011	0.055
		[0.92]	[0.35]	[1.36]

Household has at least one permanent employee	0.231 [8.02]**	0.294 [6.21]**	0.135 [3.56]**
Household has at least one temporary employee	0.001 [0.03]	0.042 [1.00]	-0.089 [2.00]*
Household operated a business enterprise last year	0.173 [6.12]**	0.244 [5.50]**	0.115 [3.05]**
Household cultivated crops last year	-0.146 [4.31]**	-0.137 [3.35]**	-0.12 [1.94]
Household has access to cult land in Zim	-0.007 [0.21]	-0.085 [1.98]*	0.06 [1.21]
Household has access to electricity	0.244 [7.95]**	0.31 [7.04]**	0.114 [2.51]*
<i>Water sources (cf: Unprotected Well)</i>			
Piped water inside house	0.369 [7.13]**	0.262 [2.84]**	0.279 [2.35]*
Piped water outside house	0.196 [4.31]**	0.201 [3.75]**	0.127 [1.09]
River/stream/dam	0.162 [3.53]**	0.19 [4.08]**	0.41 [0.65]
Protected well/borehole	0.075 [1.98]*	0.097 [2.46]*	-0.104 [0.83]
Other water supply	0.192 [3.52]**	0.173 [3.10]**	0.197 [0.90]
Household water source more than 1km	-0.003 [0.07]	0.011 [0.26]	-0.342 [1.42]
<i>Household ownership of assets</i>			
Household owns a bicycle	0.142 [5.12]**	0.143 [3.93]**	0.142 [3.34]**
Household has a mobile phone	0.162 [5.76]**	0.125 [3.70]**	0.202 [3.95]**
Household has a peanut butter machine	0.335 [3.94]**	0.442 [3.19]**	0.269 [2.48]*
Household has plough	-0.092 [2.50]*	-0.1 [2.56]*	-0.043 [0.41]
Household has scotch cart	0.231 [5.47]**	0.245 [5.45]**	0.19 [1.65]
<i>Experience of shocks at the household level</i>			
Household experienced food shortage in the past 3 months	-0.202 [8.70]**	-0.167 [5.51]**	-0.258 [7.12]**
Household experienced drought in the past 12 months	-0.034 [1.20]	-0.012 [0.36]	0.001 [0.02]
Household experienced floods in the past 12 months	0.11 [2.40]*	0.146 [2.93]**	-0.036 [0.29]

Household experienced pests in the past 12 months	0.035	0.068	0.053
	[1.09]	[2.02]*	[0.49]
Household experienced labour shortages in the past 12 months	-0.045	-0.039	0.004
	[1.27]	[1.02]	[0.04]
Household experienced fires in the past 12 months	0.104	0.105	-0.163
	[2.57]*	[2.44]*	[1.47]
Household experienced rising prices in the past 12 months	0.164	0.129	0.178
	[6.84]**	[4.00]**	[4.81]**
Household experienced reduction in donor assistance in the past 12 months	0.035	0.056	0.002
	[1.30]	[1.70]	[0.03]
Constant	3.833	3.779	4.399
	[25.77]**	[19.57]**	[17.09]**
<hr/>			
Observations	3,354	1,940	1,414
<hr/>			

Absolute value of t statistics in brackets \* significant at 5%; \*\* significant at 1%