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**The rural labour market and livelihood diversification under crisis conditions in Zimbabwe:
Evidence from three districts**

This paper examines the structure and performance of the rural labour market under crisis in Zimbabwe. Like other African countries, Zimbabwe's rural economy is largely agricultural. Since 1997, the economy has been experiencing various challenges which justify the classification of the period 1995-2005 as a crisis period. The paper examines employment relations and activities and skills structure in the rural economy. It argues that unemployment is low and short term. It also argues that extreme poverty has been increasing, a situation made worse by the prevalence of diseases. Further, the paper analyses the determinants of household demand for labour and concludes that non-farm income, some household characteristics, and geography have significant impact on labour demand. These factors can be used as instruments to revitalise the labour market and hence to fight extreme poverty.

1. Introduction

The rural economy is an integral and important part of the economy in many African countries. It is intricately inter-linked with the urban economy in production and consumption both through market and non-market channels (Jackson and Collier, 1988; Chiripanhura, 2008). It is home to the majority of the people, and is less productive than the urban economy. In fact, African economies are segmented and dualistic with an enclaved advanced urban (formal) sector existing in juxtaposition to a vast and largely subsistence rural sector (Mhone, 2000; ANSA, 2006). The dualism and enclavity also pervades the labour market where the urban labour force is more skilled and earns higher wages than the rural labour force. Rural-urban linkages are dominated by the urban sector which has potential to be the engine for economic growth because of its high gross value added and integration into the global economy. The main problem for most economies is the small size of the formal economy in relation to growth and development requirements. This structure of the African economy entails particular conduct and performance of markets therein. This paper focuses on the labour market, principally because of its importance both as a household endowment that is difficult to insure against risks, and in its role in transmitting policy impacts and outcomes.

Despite the growth in the rate of urbanisation following independence, African economies remain largely rural and agricultural. It therefore follows that African labour markets are predominantly agricultural, with the demand and supply of labour dependent on the performance of the agricultural season. Some rural economies exist outside the monetised economy, hence their labour market relationships are largely informal. In these circumstances, the application of conventional labour market analytical tools is largely impossible due to the uniqueness of the structure, conduct and performance of these labour markets as well as due to lack of data. Many African labour market studies have thus tended to focus on the formal and urban sector (Velenchik, 1997; Mazumdar, 1983; Mazumdar with Mazaheri, 2000; Kingdon *et al*, 2005; Potts, 2000; among others) because of the applicability of conventional analytical methods. The unexplained rural labour markets have been lumped as informal, yet in Fafchamps' (1997: 733) words, and correctly so, "the truth is that market activity in (*rural*) Africa is not without form, it is only without economic formalisation". This paper explains the rural labour market in its current form based on data collected from three districts in Zimbabwe in 2001/2002. During this period, the economy was in a recession which started manifesting itself from 1997 onwards.

In Zimbabwe, 68% of the population lives in the rural economy (World Bank, 2006), and its main form of livelihood is subsistence agriculture where own-farm employment is the main household occupation. The rural labour market is therefore a very important and large part of the economy which, to a large extent, is also characterised by unconventional employment relations whose dynamism is determined by changing economic circumstances. The rural labour market consists of a non-formal component (consisting of uncompensated labour supply to the household's farm and non-farm

enterprises) and a formal component (consisting of wage employment on commercial farms, mines and in households). Under crisis conditions, the latter increasingly thins out but never completely disappears. This paper focuses on the non-formal rural labour market. It argues that this labour market is enduring and mutates to take different forms that reflect changing social and economic circumstances. Households may thus contemporaneously engage in different forms of labour market activities to diversify their livelihoods and to cope with risks. The possible options may assist households to exit from poverty.

This paper has four objectives. The first objective is to examine the structure and performance of the rural labour market. The second is to analyse one of the most recent datasets to come out of Zimbabwe in order to enhance our understanding of the rural economy. The third is to examine the links between agriculture, employment and livelihood diversification and how the links can be fortified in the fight against poverty. The fourth is to examine the determinants of labour demand and how it impacts on household livelihood diversification strategies.

The structure of the paper is as follows. Next section explains why the period studied (2001-2002) is called the crisis period. This is followed by an examination of the structure of the rural labour market in Section 3. Section 4 describes the data and characteristics of the case study districts. Section 5 uses an econometric approach to explore the data, and Section 6 concludes.

2. Why the period 1997 onwards is called the crisis period

The state of the economy in 2001/2002 was premised on developments experienced from 1997 onwards. I choose 1997 as the breakpoint because that year was two years after the end of the structural adjustment programme, and there was no comprehensive economic policy in implementation. Further, the dollar lost over 45% of its value that year, and the government also awarded unbudgeted for gratuities and pensions to war veterans, pushing up the budget deficit and inflation. The ensuing instability resulted in failure of two IMF-funded stabilisation programmes because the government failed to achieve set targets. The deteriorating economic circumstances resulted in the 1998 food riots, and the same year the president committed the country's troops to a war in the Democratic Republic of the Congo to support that country's beleaguered regime. Together with the withdrawal of IMF balance of payment support that year, the foreign currency situation in the economy became dire, first manifesting itself through fuel shortages, and through the resurgence of the black market for foreign currency. Faced with growing unpopularity at home and the lack of tangible progress from the 1998 UNDP dialogue on the land issue, the government sanctioned the invasion of commercial farms from 2000 onwards, arguing that it wanted to re-distribute land to the landless. The invasions followed the rejection of a draft constitution which the government sold out to people as the basis for future land redistribution.

The poor performance of the economy during this period merits the period being called the crisis period. Table 1 shows that overall and sectoral economic growth was largely negative during the crisis period.

Table 1: Economic growth and inflation, 1997-2002¹

	1997	1998	1999	2000	2001	2002
Growth	0.25	-0.8	-2.13	-6.06	-3.57	-6.18
-manufacturing	-0.8	-3.36	-4.55	-11.4	-5.36	-
-agriculture	3.24	5.06	4.29	-0.13	-3.37	-
-mining	-0.54	8.12	-4.94	-8.59	-	2.22
Annual average inflation	18.8	31.7	58.5	55.9	71.9	87.5

Source: Quarterly Digest of Statistics, various issues

The table shows economic recession from 1998 onwards. There was massive manufacturing sector decline, resulting in retrenchments and loss of income. Formal sector decline affected the flow of remittances into the rural economy. Inflation also increased towards three digit level thereby reducing disposable incomes in the economy. The formerly vibrant rural-urban linkages were adversely affected by the crisis. The rural economy lost a source of inputs and a market for its products.

The poor economic performance affected household livelihoods and livelihood diversification strategies and in consequence, poverty increased in both rural and urban areas (CSO, 1998). In the rural economy, the labour market is a fundamental livelihood in the form of own-farm production and off-farm employment. Thus apart from working on own-farm, households may engage in non-farm income generating activities (Bryceson, 2002; Reardon *et al*, 2001). They may also seek employment on other households' farms or in other households' non-farm businesses. These employment activities can best be understood through examining the structure of the rural labour market.

3. Structure of the labour market

Rural employment is seasonal, hence has production-covariant peaks and troughs. During good years, households may be net buyers of labour, and during bad years, net sellers. If households simultaneously become net sellers, the labour supply expands, resulting in very low wages that may prevent some households from participating in the employment market altogether (Hoddinott, 2006; Fafchamps and Gavian, 1997). The uncertainty over labour demand makes the poor and those lacking food self-sufficiency more vulnerable as their principal exit route (wage employment) becomes less rewarding. If all households become buyers, labour shortages push up wages. However, labour supply may be unresponsive to higher wages due to household risk aversion (preference for food security), further reducing available labour. Under these circumstances, even households that can afford the high

¹ These statistics are based on the formal sector which produced the biggest portion of valued added in the economy. There are no statistics for the rural sector.

wages would still suffer from labour shortages. This view is supported by de Janvry *et al* (1991) and by Hoddinott's (2006) findings that rural households are susceptible to labour shortage shocks during peak seasons.

Labour is demanded mainly for weeding and harvesting, and the predominant employment relation is casual and short-term due to the seasonality of production and weather uncertainty. In consequence, many households do not commit themselves into contracting labour before they are sure in their expectations about the season's performance. Task-based employment reflects households' risk aversion. Thus, although rural labour markets may be deemed vibrant (Adams, 1991), activity depends on the timing of the study and the type of employment considered. The predominance of casual employment increases activity in the labour market but it creates less employment in terms of days of employment per year and, concomitantly, yields less income. As such, wage employment cannot be relied upon as the sole livelihood source. There are four basic types of employment relationships found in the rural economy.

3.1 Types of employment relationships

The four forms of labour relationships may exist individually and/or concurrently in any one area. Studies elsewhere in Africa (Kevane, 1994; Hill, 1986; White, 2002) also confirm the existence of these forms. These are market-based labour relationships, reciprocal labour exchange, interlocking markets and labour exchange, and endogenous household labour expansion.

(a) Market-based relationships

Market-based labour relationships occur where there is a pure employer-employee relationship. The relationships usually command cash transactions, although payment may also be in kind. With rising inflation, preference in communal areas is for payment in kind (e.g. soap, sugar, maize etc). Market-based employment relationships are predominant on large-scale commercial farms and estates. The contracts may be written or verbal, and the workers are unionised to varying degrees.

The extent of employment far from the homestead is reduced by risk arising from market imperfections and transaction costs. However, some commercial farms and estates reduce the transaction costs by offering transport to workers living far away from the farms or estates, especially during peak production periods. Most of the full-time employees are accommodated in farm compounds in shelter built by the farmers, although in some cases the workers build their own pole-and-dagga houses.

(b) Reciprocal labour exchanges

Reciprocal labour exchange, locally called *chigumwe* or *humwe*, is a basic and common labour relationship that can be organised between individuals or households on reciprocal terms in accordance with each other's requirements. Such arrangements help to loosen households' labour supply constraints. Reciprocity requires that the participants perform similar tasks hence the exchanges are

common for activities like land preparation, weeding and harvesting. The exchanges can also be applied to any other activities like watering gardens, carrying firewood, and pounding grain. The participants may or may not require the host to provide food. *Chigumwe* is a sign of community which breeds trust and cooperation beyond the normal labour exchange e.g. participants may offer each other soft loans and childcare services too. It is a form of social capital which can be tapped on by members of the group in the event of idiosyncratic shocks.

Work parties are an old form of labour market relationship with many variants across rural Africa. What Kevane (1994) and White (2002) called ‘beer parties’ are in essence work parties. Unlike *chigumwe*, they are not built on reciprocity although it can easily be incorporated. The parties are hosted by households or individuals requiring extra labour on their farms. The host provides food, usually including traditional beer (hence beer parties), for the participants. The participants may be whole households and/or individuals. The participants work until the required tasks are completed. The parties provide opportunities for socialisation, networking and strengthening of social capital. However, poor households usually do not host work parties because of the cost of providing food. Instead, they may opt to interlock their labour market participation with other markets.

(c) Interlocking markets and labour exchange

Interlocking markets and labour exchange occur where labour, land and credit markets are interlinked such that within any one contract, many transactions are entered at the same time. Bardhan (1980) observed that interlocking markets are a result of fragmentation in rural markets which causes households to have unequal contemporaneous access to markets. In consequence, households rely on each other for credit, labour and land requirements. An example of the inter-lock is where one household lends draught power to another in exchange for current or future planting or weeding labour. The complexity of these transactions can be extended to incorporate input purchasing, consumption and marketing arrangements in the same contract. Social capital plays an important role in the formulation, implementation and enforcement of the contracts. At a higher and formal level, interlocking markets occur in contract farming or outgrower schemes where smallholder agriculture is interlocked with industry (Raynolds, 2002). Outgrower schemes involve small-scale farmers around large-scale commercial farms and estates being contracted to produce crops for which the farms and estates offer a guaranteed market. It may also be companies contracting farmers to produce certain crops.

Small and/or poor farmers may be excluded from such schemes because of quality and size considerations. The farmers bear the risk if rains fail, or if the large farmers or companies fail to provide inputs in good time. In fact, the main problem with the contracts involving small-scale farmers is that they are usually verbal and do not spell out the rights and obligations of the farmers. Even

where they are written, the companies have been known to manipulate terms to the disadvantage of the farmers.²

(d) Endogenous household labour expansion

Endogenous household labour expansion involves two choices to ease the household labour supply constraint: hiring in extra labour (in the short-term), or expanding household size (in the long-term). The household can also meet short-term labour requirements by marrying in more wives. This is because labour demand and supply are centred on the household hence they influence household formation (White, 2002). The process of labour supply expansion is linked to intra-household decision making and the division of labour between household members in accordance with cultural and social norms. Children are an important source of labour. They also have to be socialised to learn to perform tasks that they will do in adulthood.

Household expansion through marriage is a process guided by the patrilineal nature of society that requires that, by custom, the woman joins her spouse's family. The general dominance of men in intra-household decision making gives them leeway to marry many wives and/or bear many children to expand household labour with limited or no women's contribution. This is a common phenomenon in areas that produce labour intensive crops and where contract farming is prevalent. Cotton producing areas of Chisumbanje in the south-east and Gokwe in the north-west have a high frequency of this phenomenon whereby men marry many wives as a way of mobilising labour supply.

The impact of endogenous labour supply expansion on poverty is likely to be ambiguous. Households with a high initial capital endowment are likely to exit poverty if they expand their labour supply. Households that expand labour supply but are resource poor are likely to get trapped in a poverty cycle. Therefore, one can not say *a priori* if endogenous expansion of labour supply provides an effective exit strategy from poverty or not. Intra-household relations and income distribution are more important in determining the poverty outcomes of the strategy (Sen, 1990; Wolf, 1992). Suffice to say that the rate of female suicides is high in cotton producing areas due to husbands squandering and/or using cotton proceeds to marry more wives.

3.2 Skills structure and employment activities

The rural labour force can largely be classified as unskilled or semi-skilled and is not well educated. The educated are attracted by the expectation of higher urban wages hence they migrate out of the rural economy (Harris and Todaro, 1970). The low skill level contributes to low productivity, especially given that most rural dwellers are classified as own account workers who do not receive

² During the data collection, it was established that in Mutoko, one cotton company delayed supplying cotton fertiliser to growers and by the time it did, there were heavy rains which washed away the fertiliser, resulting in significant yield reduction. Although the company was partly to blame for the disaster, especially that it commanded that the fertilisers be applied immediately, it demanded full payment of its input costs, causing some of farmers to sink into poverty.

wages for the work they do on their farms and in households, usually with limited outlays of capital. Rural employment is characterised by the simultaneous performance of activities like farm work, childcare, and home production. The simultaneity of activities results in increasing work intensity, especially for women.

In addition to farming, households with relevant skills engage in non-farming activities like blacksmithing and making soap, cooking oil, and peanut butter. Brewing beer, poultry projects, wood carving, gold and diamond panning are other important activities. The prevalence of unregulated mineral extraction results in serious environmental damage and loss of revenue to the state. However, the upsurge in illegal mining activities is a direct response to the crisis. The non-farm activities constitute the rural informal economy which has been reported to be gaining precedence over agriculture in some countries (Reardon *et al*, 2001; Bryceson, 2002). The scope of the activities is limited by the existence of various market failures (e.g. credit market, infrastructural bottlenecks, and information asymmetry) which inhibit expansion and efficiency improvements. Initial wealth plays an important role in determining who undertakes these activities. Poor households tend to engage in activities that require little start-up capital (like selling fruits and vegetables along major roads) while richer households engage in more capital-intensive and more profitable activities.

Faced with market failures, households may rely on surrogate markets (like money lenders for credit). However, some households, especially the very poor ones, may still not be able to tap on such alternatives, resulting in them remaining trapped in a perpetual poverty cycle.

3.3 Unemployment

Rural unemployment is usually lower than urban unemployment. In 1999, rural unemployment was reported as only 1.4% against an urban rate of 15.5% (CSO, 2000). In 2004, broadly defined rural unemployment was 2.02%, compared to 22.9% for urban unemployment (CSO, 2006). Rural unemployment remains very low, and a possible explanation of this is the existence of a lot of unpaid activities that are classified as work. Also, the seasonality of production means that rural unemployment is less long-term than urban unemployment. Seasonality of activities thus makes the timing of labour market surveys very important. Youths are usually thinly represented among the rural unemployed (CSO, 2006) because they are highly mobile and after attaining a certain level of education or dropping out of school, they migrate out of the economy.

Unemployment may also be linked to household poverty and susceptibility to disease. Some households may not participate in wage employment because of poor health and lack of access to health services (Marquette, 1997; Lennock, 1994)³. For others, agricultural employment may be unsuitable. Others may not seek wage employment because of transport and infrastructural

³ Three heads of household in Mutoko confirmed being unable to participate in the labour market because of illness. One in Chivi stated that she was spending more time tending her sick husband than in work.

bottlenecks. Because of differences in infrastructure and services between regions, the structure and performance of labour markets differ in the same country. Such heterogeneity calls for micro rather than macro analysis in order to formulate effective policies relating to the labour market.

3.4 *Poverty, disease (malaria and HIV/AIDS) and the labour market*

(a) *Poverty*

Rural poverty increased significantly in the 1990s, especially following the introduction of structural adjustment policies. Poverty is defined as the percentage of households whose income falls below a specified income threshold or poverty line. Taking the income threshold to be the adult equivalent consumption expenditure, Alwang *et al* (2002) found that the prevalence of poverty increased from 35.8% in 1990 to 48% in 1995. Further, the CSO (1998)'s study confirmed the high prevalence and severity of poverty in the rural economy. The study defined poverty as household consumption expenditure per capita that falls below a given cut off point. It found that 76.2% of poor households lived in rural areas, and 50.4% of households that could not meet their minimum needs (extreme poverty) were also in rural areas. The study stated that 86.4% of poor people in the country live in rural areas, and 62.8% of the extremely poor people live in the rural economy too. In addition, the Zimbabwe Human Development Report (ZHDR) (2003), defining human poverty as the measure of deprivation of a decent standard of living, long healthy life and knowledge, found that poverty was high in rural areas (31.1%) compared to urban areas (26.4%). Although there is no agreed poverty figure after 2000, it is apparent that the level of impoverishment consistently increased to 2005. Some researchers and practitioners put it at over 70% during this period (ICG, 2007).

The existence of poverty on such a large scale affects the functioning of the labour market in two ways. First, households that suffer from poor health due to disease and malnutrition because they are poor, hence they may withdraw from the labour market. Hungry households are unable to put maximum effort in labour market participation. Secondly, there is likely to be a glut of poor people seeking employment, which drives down rural wages, making the labour market a weak instrument to fight poverty. Poverty also compromises human capital formation as poor households find it difficult to send their members to school. Thus, poverty makes it difficult for households to use education as a ladder to climb out of poverty. This creates a vicious circle for the poor.

(b) *Malaria and HIV/AIDS*

The rural labour market is afflicted by the prevalence of malaria and HIV/AIDS. The whole country is vulnerable to outbreaks of malaria during the rainy season, although recorded cases are lowest in urban and high altitude areas. Annually, over a million cases are recorded, with a significant number of fatalities. The combined of poor nutrition and high HIV infections reduces immunity against malaria, making it one of the major killers. In fact, UNICEF (2005) reported that malaria was the second highest killer of children under five years after HIV/AIDS. Although malaria can be treated, the economic recession caused many rural health institutions to go without anti-malarial drugs, causing

fatalities to increase. Apart from drug shortages, ZHDR (2003) reported that many rural areas experienced significant reductions in healthcare access between 1995 and 2001. The situation is made complex by the emerging resistance of the disease to ordinary treatment, thus calling for stronger drug combinations in the face of significant declining health expenditure in real terms.

Malaria affects the functioning of the labour market by increasing the number of work days lost due to illness. Together with poverty-induced malnutrition and HIV/AIDS, they reduce rural economic growth. HIV/AIDS is intricately linked with poverty, under-development and illiteracy, all of which have high frequency in rural areas. Although cases of HIV/AIDS are comparatively concentrated in urban areas, the rural-urban linkages where men temporarily migrate to take up urban formal employment while their wives remain in the rural economy constitute a major transmission channel of the disease. This process feminises rural agriculture and hence poverty. It also makes women more vulnerable to sexual diseases prevalent in urban areas where the commercialisation of sex is prevalent.

With the worsening economic crisis, the commercialisation of sex has also pervaded the rural economy resulting in fast spreading of the disease, especially on commercial farms, at mines, and at and around growth points. Based on reported cases at clinics, the Ministry of Health (2000) reported the prevalence of HIV/AIDS to be 50.5% on commercial farms and 38.7% at growth points, although the rural average (26.1%) was lower than the urban one (27%). On commercial farms, the 'compound system' where all workers and their families are housed in shack-like structures may be to blame for the high prevalence of the disease (ZHDR, 2003). In consequence, commercial farms and mines are increasingly suffering from lost work days due to illness. Further, there is also an increase in the number of orphaned children as some orphans get moved from towns, farms and mines to rural homes where the cost of living is lower. This process raises dependency rates and hence impoverishment.

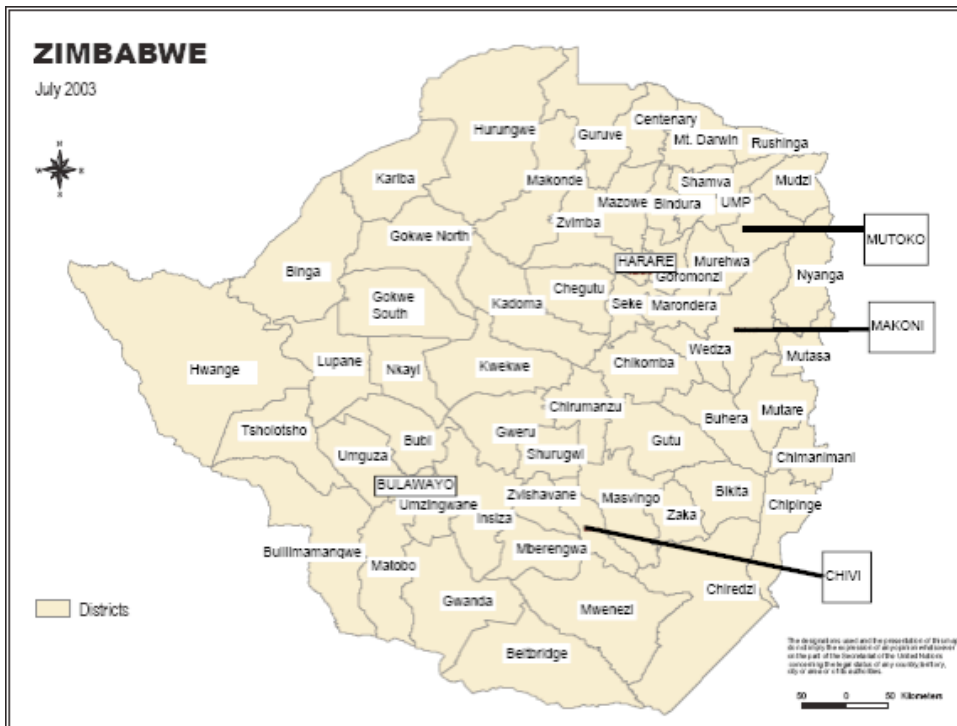
The general overview of the structure of the labour market above shows that despite the existence of multiple livelihood options, households face many challenges to accessing these options, and this is common across all rural communities in the country. Household positions deteriorate when, as discussed in section 2, the performance of the economy is poor. The following section takes a further look at the rural labour market and livelihoods by examining data from Mutoko, Makoni and Chivi districts.

4. Description of the study areas

4.1 The geography

The districts of Mutoko, Chivi and Makoni are used as a vehicle for the analysis of the rural labour market and livelihood dynamics under crisis conditions. The data, collected in 2001/2002 by Paul Mosley and Sarah Horrell for a separate study on poverty in Zimbabwe. The location of the districts is illustrated in Figure 1 below.

Figure 1: Rural districts map, showing survey areas



Mutoko district lies in Agro-ecological Region IV and is in Mashonaland East Province. It is 140 km north-east of Harare along the Harare-Nyamapanda highway. The villages surveyed are Chitekwe, Nyamakope, Katsukunya, Chimurenga and Zvidozvevanhu. The latter two lie in Agro-ecological Region II which receives high annual rainfalls and are resettlement areas. The first three lie within a 40 km radius of Mutoko Business Centre which is the nucleus of economic activity offering shopping, banking and health services. The centre also has a grain marketing depot and a good transport network linking it to Harare where households sell their produce. Mutoko and Makoni districts are generally rain-sufficient and can support crop farming.

Makoni district is in Manicaland Province and lies east of Harare. It is in Agro-ecological Region III which receives an average 700-850 mm of rainfall annually. The villages surveyed are Nerwande, St. Theresa and St. Luke.⁴ They are located approximately 50 km west of the district's major town of Rusape. They lie along the highway to Wedza and are surrounded by large-scale commercial farms. The villages have good road and transport networks and like other rural areas, they have experienced a decline in transport services due to economic crisis. The villages have good access to schools and health facilities. The main crops produced, like in Mutoko, are maize, groundnuts, sweet potatoes, yams, sunflowers and a range of vegetables. Very few households produce cotton.

⁴ The identification of the latter two villages is based on the schools that the households use.

Chivi district is in Masvingo province and lies 70 km West/Southwest of Masvingo town. One third of the district lies in Agro-ecological Region IV which receives 450-600 mm of rainfall annually and is prone to mid-season dry spells. The rest lies in Region V which is the driest part of the country that receives less than 500 mm of rainfall annually. The district is largely suitable for cattle ranching, but such type of farming is hindered by households' small land holdings averaging a few acres. In addition, cattle ranching is hindered by the frequent outbreaks of anthrax. The main crops produced are sorghum, millet, rapoko, maize and ground nuts. Better-off households produce cotton.

The villages studied are Zvamapere, Chisenga, Hlanga and Taru which are within a 20 km radius of Chivi Growth Point and fall in Agro-ecological Region V; and Madzivire and Neruvanga, which lie along the Masvingo-Beitbridge highway and fall in Region IV. The latter are approximately 100 km away from Masvingo and 60km from Chivi Growth Point respectively. The villages close to Chivi Growth Point have limited accessibility because of lack of and/or poor state of bridges and roads, a situation that worsened during the crisis period. In consequence, there is scarcity of public transport because buses withdrew from the areas. Madzivire and Neruvanga have good access to private and public transport. They are 5 km from Ngundu Growth Point, and they are proximate to schools and a clinic. Production is subsistence-based, but some households have contracts to grow cotton for Cottco (The Cotton Company of Zimbabwe). The two villages managed to retain the bulk of their livestock during the drought years of 2002-2004 while the others lost their livestock to drought.

The survey covered 300 randomly selected households distributed equally between the three districts, and with 1,472 members. Structured interviews were conducted with household heads to collect data on household and individual characteristics, time budgets, relationships, age and educational attainment. Data on crops produced, their quantities, size of land and type of ownership, farm inputs, including ownership of draught power, livestock, and types of farm equipment owned, was also collected. The data is described below.

4.2 Main economic activity

The households' main economic activity was own-farm production. 96.3% of household heads and their spouses reported being fully engaged in own-farm production. Less than 1% of the heads were engaged in own non-farm productive activities. There were no unemployed household heads, but 12% of their spouses were reported as unemployed. Of all household heads and their spouses, 4.7% were unemployed, which is higher than the reported 2.02% national rural unemployment rate (CSO, 2006). The economic activities of the total population surveyed are shown in Table 2.

Table 2: Main economic activities

Economic activity	Percentage engaged
No economic activity	9.7
Farm-based own-farm production	48.6
Farm-based livestock production	1.7
Waged work on-farm	0.3
Waged work off-farm	1.0
Other paid work	0.2
Own non-agriculture business	0.5
Childcare	0.9
House work	2.6
School	34.4
Total	100

Source: Mosley and Horrell survey data

The table shows that 9.7% of the people surveyed were not engaged in any economic activity either because of age, ill-health or personal choice. 50.3% of those surveyed were in full-time own-farm production, and 34.4% were in education. Only 1.5% was engaged in full-time paid employment, and 2.6% in house work. The figures show that rural household activity rate is very high, especially if we consider the abundant existence of multiple occupations.

Although the data does not reflect the rate of multiple activity, generally women work very hard in farming, household production, and childcare, sometimes performing these activities simultaneously. Households usually double up with occasional part-time paid employment to generate income for food, school fees and grinding mill services. They also engage in trading activities to raise cash. Such trade takes place along major roads, at business centres and growth points, and in urban areas. Mutoko and Makoni households reported increasingly engaging in trading activities in response to poor agricultural outcomes. Apart from non-farm activities that are complementary to agriculture, households also engage in activities that substitute for agriculture (e.g. border trading). Complementarity was found to be common in Makoni and Mutoko, and substitutability in Chivi, showing the importance of weather conditions on determining livelihood options.

4.3 *Income structure*

The average annual household income in the three districts was \$41,602 (US\$756.20). Mutoko district accounted for 51.7% of the income, followed by Makoni and Chivi at 24.4% and 23.9% respectively. The structure of the income is shown in Table 3.

Table 3: Structure of rural income

	Mutoko	Makoni	Chivi	Overall proportion
Labour income	18.8	9.6	15.6	14.7
Remittance income	7.1	7.9	20.5	11.8
Other income ¹	3.4	11.2	47	20.5
Agricultural income	70.7	71.3	16.9	53
Total income	100	100	100	100

Source: Mosley and Horrell Survey data

¹ Other income consists of business and rent incomes and other undesignated income sources.

The table shows the proportion of three income sources in total income. It shows that the proportion of labour income was highest in Mutoko and Chivi. The case of Mutoko indicates the importance of agricultural employment, while that of Chivi indicates the effectiveness of donor funded non-farm income generating activities. The proportion of remittance income was highest in Chivi, a rain-deficient area where agricultural employment opportunities were also scarce. Actually, households in Chivi received the largest amount of remittance income from their members working in towns and in South Africa. They also received the highest proportion of profits and other incomes.

At national level, remittances from the urban sector have always been a significant source of rural income. With the crisis deepening, households found themselves with declining remittance income from the urban sector, as reported by those in Mutoko. Notwithstanding this, since the late 1990s, international remittances increased for some households, thus helping them to maintain their living standards in the face of economic crisis (Bracking, 2003). While remittance incomes significantly reinforced income inequality in the economy (Bracking, 2003), they also helped loosen household credit constraints thereby allowing households to invest in non-farm activities. In some instances, they have facilitated social mobility out of poverty.

The statistics show that geography is very important in determining the effectiveness of agriculture in generating employment and in reducing poverty. The proportion of agricultural income in total income was highest in Makoni and Mutoko respectively, both of which are rain-sufficient areas. Although the average agricultural income (sum of crop, animal and animal products incomes) was \$29,000, households in Mutoko earned 55.2% more, while Chivi households earned 31% less than the average. Thus, the use of agriculture as an instrument to fight poverty or to create employment has differential impacts across the country (Mosley, *et al*, 2006). Mutoko households can potentially increase employment through agriculture, but the strategy may not work for Chivi and Makoni. It should be noted, though, that the Mutoko figures are pushed up by production in the two resettlement villages. The statistics show that non-farm activities increasingly gained importance in the household livelihood portfolio in areas like Chivi.

Overall, non-farm income constituted 47% of household income. This statistic is comparable to those found in Latin American countries as illustrated by Reardon *et al* (2001). Although we don't have information on the change in the distribution over time, the analysis gives credence to Bryceson (2002) and Reardon *et al*, (2001)'s assertion that non-farm employment is growing across developing countries. The growth may, however, be inhibited by declining agricultural productivity since agricultural income usually constitutes the main source of start-up capital for non-farm income generating activities (Whiteside, 2000; Iliya, 1999; Bryceson, 2002). In this regard, agricultural productivity and land size are important in determining future diversification of livelihoods. The structure of land holdings is examined below.

4.4 Land holdings

Farming in the survey areas was found to be extensive rather than intensive because of the risk of drought. Apart from households in Mutoko's resettlement areas, most households cultivated all the land they owned. The average household cultivated land was 4.56 acres, as shown in Table 4.

Table 4: Average cultivated land in surveyed areas

Variable	Number of acres
Average household acreage	4.56
Average acreage in:	
Mutoko: communal	4.2
Mutoko: resettlement	9.95
Makoni	4.14
Chivi	3.91

Source: 2001 survey data

The table shows that the cultivated land holdings ranged from 3.91 acres in Chivi to 9.95 acres in Mutoko resettlement areas. Of the 300 households, only one (in Mutoko) was landless. Thus, rural poverty and food insecurity are not problems of access to land per se, but of low productivity and risk associated with rain-fed agriculture. Given developments in the economy from 2000 onwards, it is anticipated that the number of landless households increased dramatically when commercial farm workers, most of whom completely relied on their wage income for sustenance, were driven off commercial farms that had become their homes.

The variation in household land ownership within and between villages is a national phenomenon. In most communal areas, households do not usually leave some land fallow. Table 4 shows that on average, households in Mutoko and Makoni cultivated more land than their counterparts in Chivi who also, on average, owned less land than the other districts. The low average land holding in Chivi has a historical explanation. It was created as an area for African settlement by the colonial settlers and over time, it became densely populated. As of 2003, the population density for Mutoko was 32 persons/km², that for Makoni was 35 persons/km² and 43 persons/km² for Chivi (CSO, 2004). High rural population density is associated with land fragmentation between household members as young men marry and

establish their own households. Land scarcity in Chivi is further illustrated by the low land per capita ratio (1.4 acres) compared to Makoni (1.8 acres) and Mutoko (2.4 acres)⁵. Such variability is common across all rural areas and it has adverse impact on employment and productivity.

Small cultivated areas, reduced fertiliser and hybrid seeds usage due to economic crisis, and erratic rainfall make communal agricultural production risky and an unsustainable source of jobs. From the sample, there was more usage of fertiliser in Mutoko (94%) than in Makoni (81%). Only 26% of households in Chivi ever applied fertiliser to any of their crops. Although significant numbers of households in the two areas used fertilisers, the quantities used per acre decreased significantly from the late 1990s due to high costs of procurement and transportation to farms. The usage of fertilisers and hybrid seeds decreased further during the 2002-2004 drought period. It is not surprising that few households in Chivi used fertilisers since fertiliser usage is correlated with rainfall adequacy and reliability. This point is supported by Goldman and Smith (1995)'s finding in Nigeria and India that the use of fertilisers without irrigation is very risky because without adequate water, fertiliser burns crops and farmers lose crops and the fertiliser.

Apart from crop farming, the surveyed households also reared livestock, some of which was used for draught power. The commonest types of livestock were chicken, cattle and goats respectively. Cattle are the most important type of livestock. They are sold in extreme cases, hence very few households in the survey reported selling their cattle. They are also a source of draught power. Donkeys are also used for draught power but because they do not provide meat and/or milk, few households own them. In the sample, the average number of livestock units that could be used as draught power per household was 6 animals (both cattle and donkeys). This implies that on average each household could have at least one span (of two animals) for draught power. Nevertheless, 34.3% of the households did not own any draught power livestock. Another 3.3% had only one animal which was inadequate to pull a plough. 10.7% had at least two animals. Households with own draught power were able to plough bigger portions of their land, hence could use their labour more effectively and had potential to hire labour too. Almost an equal number of households owned draught power in the three districts. Households in Chivi owned more cattle than those in the other districts since it is unsuitable for crop farming.

4.5 Labour supply, incomes and child labour

In the rural economy, both children and adults engage in economic activities. Since rural workers do not have old age pensions, they do not retire from work. They may stop working only as a result of death, poor health or other forms of incapacitation. There are differences in labour market participation and allocation of time between men and women and children. After controlling for persons under 15 years, the labour force has more women (54%) than men (46%). Women on average provided more labour hours per day than men, as shown in Table 5.

⁵ The land per capita ratio has been adjusted for children.

Table 5: Prime household members' time allocation to productive activities

	Average hours per day	Male hours	Female hours
Average household	19.5	8.9	10.6
Mutoko households	17.8	8.8	8.9
Makoni households	20	8.9	11.1
Chivi households	21	8.9	11.9

Source: 2001 survey data

The table shows that male labour supply is almost similar across districts, and is consistently less than female supply. The variability in female labour supply may be a result of differences in household size, composition and economic activities. The difference in labour supply across districts is thus driven by female labour. It is striking that, on average, women in Mutoko worked fewer hours than their contemporaries on Makoni and Chivi. This might have been a result of under-reporting of economic activities, especially household production. It may also be because many of them engaged in trading activities along the Harare-Nyamapanda highway and at Mutoko centre - activities which are restricted to daylight hours.

The rural labour market is also characterised by usage of child labour. Child labour is defined as the exploitative employment of children younger than 15 years for long hours in activities that may jeopardise their intellectual, health and physical development. The CSO (2004) applied a liberal definition that defines child labour as the engagement of children in production for 3 or more hours, and 5 or more hours for those engaged in housekeeping activities. Applying the same definition to the sample shows that 64 children in 51 households were engaged as child workers. 19% of households in the sample used child labour, and on average, the children worked 7.9 hours a day. Of the households using child labour, 45.6% were in Mutoko, 31.6% in Makoni, and 22.8% in Chivi. The statistics indicate that the phenomenon of child labour is highest in areas with high agricultural potential. This is confirmed by the CSO (2000) labour force report which reported that most working children are employed in (commercial) agriculture. The incidence of child labour increased during the crisis period as the young and the old increased labour market participation in order to make ends meet. The increase in child labour was also associated with withdrawal from school.

Despite the statements above, the phenomenon of child labour in the rural economy may be controversial and difficult to measure. Although the statistics show significant existence of child labour, it takes good understanding of social processes to understand the true story of working children. While strictly called child labour, some of the activities that children perform in the home constitute a socialisation process through which they are taught how to perform life skills in the home like weeding, cooking, and livestock rearing. Child activities reflect the gender separation of activities: while male children look after livestock, female children perform house work. As they grow older, children's activities become more diversified with more time spent in farm production. Much of the

socialisation process is through learning-by-doing and/or direct observation. This socialisation process is an important channel through which cultural and social skills are passed down through generations but can be mistakenly labelled child labour.

Nonetheless, not all child work can be classified as socialisation. The intensity of the work that children may be tasked to perform delineates socialisation from child labour. Hard physical work that may hamper children's physical development and long working hours clearly constitute child labour. Using children to care for their siblings or elderly members of the household at the expense of the former's educational development is indeed child labour. From the data, clear cases of child labour are the ones where under age children engaged in paid work.

We have seen that women work longer hours than men, and that some households use child labour. We know that for household production to take place, members have to provide their own labour or hire labour. We also know that apart from agriculture, households engage in non-farm activities, and that economic crisis causes reduced usage of hybrid seeds and fertilisers, thus reducing productivity. This causes more reliance on non-farm activities while other households increasingly offer their labour for cash. Such employment depends on other households' demand for labour. Thus, what determines the demand for labour in the rural economy? This is important for policy, and is empirically examined in the following section.

5. Empirical labour market analysis

5.1 What determines household demand for labour?

Household demand for labour is met from two sources: internal labour supply by household members and external labour supply where the household hires labour, whether paid for in cash or in kind. For households offering their labour to other households, this is an important livelihood diversification strategy. Actually, expanding rural labour demand can be an invaluable instrument in fighting poverty. Expanding agricultural labour demand increases production and incomes, and the incomes can be used for job creation in the non-farm sector. The significance of rural labour demand expansion lies in the fact that it largely does not require additional physical capital for it to be productive, thus creating an opportunity for poor households to engage in employment. Since employers are usually the better-off households, they can provide physical capital like ploughs, hoes and axes. Although it sounds easy to functionalise the labour market, the existence of market failures especially in the credit markets imposes inefficiencies on it. Notwithstanding the limitations, rural labour demand was sizeable in the studied districts.

In the sample, 33.7% of the households reported hiring labour, employing a total of 677 people at different time periods. Ranking the households' crops production decisions shows that maize was their main crop (98%) followed by groundnuts (73%), roundnuts (36%), rapoko (16.98%) and vegetables (22%), although the combination of crops varied between households. 30% of the households hired

labour in the production of their main crop. 17%, 11.2% and 4% of the households also hired labour to produce their second, third and fourth crops respectively. 8.3% of the households hired labour to produce their three main crops. The data also shows that 60% of the households used reciprocal labour exchange in the production of their main crop. Such reciprocity indicates a form of social capital, which increasingly became very important during the crisis period as markets receded. Nonetheless, the main limitations to employment were reported to be the seasonality of production, short-term nature of employment, and various other market failures.

The statistics show the extent of household demand for labour, but do not tell us the factors that influence the hiring decision. This requires the estimation of a labour demand function. Although the data has the number of people that were employed, it does not have the wage rates (daily or otherwise) nor the number of hours worked. Further, although it indicates the number of people that were employed, this data is unlikely to be correct because the majority of households do not keep written records hence are likely to under-estimate the numbers they employed in a given season, especially given the task-based nature of the employment. The reported dichotomous data (on whether or not households hired labour) is thus subjected to the detailed analysis possible. I therefore estimate a probit labour demand model to establish the probability that a household hires in labour (whether paid for in cash, kind or under reciprocal arrangements). Since I do not have wage data, I have to estimate implicit wages first and then use these to estimate the demand function.

5.2 Determination of implicit wages

The procedure for determining implicit wages is to estimate a household production function and then use the marginal product of labour to recover wages. A Cobb Douglas production function is used in this instance because it has superior qualities over other formulations (e.g. it is easy to estimate and the results are directly interpretable as elasticities). Moreover, some formulations used in similar studies (e.g. the translog), have been found to produce inconclusive results (Abdulai and Regmi, 2000), and as reported by Jacoby (1993), the results of a Cobb Douglas function and other functional forms are qualitatively similar.

The estimated production function is as follows:

$$\ln Y_j = \sum_{a=1}^n \alpha_a \ln X_{ja} + \sum_{b=1}^m \gamma_b Z_{jb} + \sum_{c=1}^l \lambda_c D_{jc} + e_j \quad (1)$$

Y_j is the value of household agricultural output. X_{ja} is a vector of farm inputs ranging from a to n ; Z_{jb} is a vector of household characteristics ranging from b to m ; and D_{jc} is a vector of dummy variables ranging from c to l . Farm inputs include land, fertilisers, pesticides and seeds. The cost of transport is not available in the data hence it is excluded from the analysis. Z_{jb} includes labour hours and

education. Hired labour is captured by a dummy without distinguishing between male and female labourers because of data limitations. A household's ability to hire in labour depends on its initial wealth as well as social capital. The impact of geography is also captured by dummies. Input quantities (except transport) are expected to cause output to increase.

The use of household hours in a production function is often criticised because of the huge measurement errors associated with self-reported working hours. One suggestion of dealing with this weakness is to use the number of household members adjusted for children plus hired labour as a proxy explanatory variable. In this case, each child is treated as half an adult and those over 65 years are counted individually. However, this variable will be an under-estimation of household labour usage since there is no record of how many people were employed as casual labour, and for how long. Notwithstanding this, the results obtained after using the proxy are not significantly different from those obtained after using household labour hours. As such, the model with labour hours is reported here. Results from the estimation of the production function are shown in Table 6.

Table 6: Household production function results

Dependent Variable	Log Output	Std. Errors
Log of total cultivated acres of land	0.113**	(0.046)
Log quantity of fertilisers	0.112***	(0.025)
Log quantity of seeds	0.400***	(0.051)
Log quantity of pesticides	0.034**	(0.014)
Log household hours	-0.214	(0.148)
Log child hours	0.048	(0.067)
Number of livestock (cattle and donkeys)	0.033***	(0.013)
Number of adults (15-65 years)	0.140***	(0.065)
Number of children (<15 years)	-0.008	(0.028)
Average household years of education	0.005	(0.009)
Log average household age	-0.048	(0.153)
Dummy for ownership of draught power	0.272**	(0.123)
Dummy for cash crop	0.408***	(0.133)
Dummy for plough ownership	0.238*	(0.121)
Dummy for hired labour	0.053	(0.098)
Dummy for Makoni district	-0.019	(0.117)
Dummy for Chivi district	-0.100	(0.157)
Constant	7.160***	(0.559)
Observations = 300	F (16, 281) = 23.33	R ² = 0.57
Econometric package: Stata version 9.2		

The results show farm inputs have significant impact on household agricultural output. Although the use of pesticides significantly affects the level of output, their usage is limited to households producing cash crops, especially cotton. Most households used hybrid seeds for their main crops, and this probably explains the high significance of seeds in influencing output. Households that own draught power produce more than those that do not. Thus, the number of big livestock that households hold significantly determines production. Plough ownership is also an important factor in determining timeliness of production. Land preparation with a plough is faster and less arduous than hand

cultivation. Plough ownership also allows households to earn rent income from renting the ploughs to other households.

The size of household labour force is a significant determinant of productivity. Households dominated by children are likely to offer less productive hours than those with more adults. This is not surprising since agricultural production involves heavy work that children are unlikely to perform to the same extent as adults without jeopardising their physical development. In addition, the presence of very small children in the household reduces overall output through reduced female labour hours, notwithstanding possibilities of simultaneity of childcare with other activities.

The dummy capturing cash crop production is very significant. Cash crops are labour and capital intensive and they fetch high prices on the market thereby rewarding the producers more than those producing maize only. Given the production function results, the next step is to recover the implicit wages and incomes.

5.3 *Recovery of the implicit wages and the estimation of shadow household income*

The marginal productivity of household labour in Table 6 is used to recover the implicit wage rate from the production function using the formula in equation (2):

$$w_j = (\gamma_j \Gamma_j) / h_j \quad (2)$$

Γ_j represents household j 's predicted output. γ_j is the estimated parameter for household labour hours and h_j are the total labour hours. The household shadow income is estimated using equation (3):

$$\Omega_j^* = \Gamma_j + TR_j + \sum w_i h_{ij} - \text{Input costs} \quad (3)$$

$w_i h_{ij}$ is labour income from each individual in the household. Input costs include the cost of fertilisers, seeds, chemicals, hiring of draught power and labour. The cost of transport is not included because the data is not available.

5.4 *The probit labour demand function*

The derived implicit wage and income are used as explanatory variables in a probit labour demand function. The conjecture is that the probability that a household hires labour is dependent on household and district-specific characteristics. The main household characteristic is income. Here I use shadow income which represents net household income after controlling for production expenses. Better-off households are anticipated to have capacity to hire labour either to substitute for or to complement own labour. More importantly, those with higher proportions of non-farm income are anticipated to have greater ability to hire labour. Hiring labour also depends on the recipient household's land per capita (land per labour force person) and the level of the implicit wage.

It is conjectured that households with own draught power may not require outside labour. Yet, by the same token, they are able to cultivate bigger portions of land which, during weeding and harvesting time, may cause them to hire labour. In addition, the production of a cash crop determines whether or not a household should hire labour. Other household characteristics (average age, education, number of persons aged 15 to 65 years and dependency ratio) also have influence on the household's decision to hire in labour.

The specified equation based on the variables above is as follows:

$$y_{ij}^* = x_{1j}\beta + x_{2j}\psi + w_{1j}\lambda + u_j \quad (4)$$

where y_{ij}^* is a dichotomous variable that equals unity if a household hires in labour, zero otherwise;

x_1 is a vector of household characteristics; x_2 is a vector of district characteristics, and w_{1j} is an endogenous income variable, that is,

$$w_{1j} = z_{ij}\Pi + e_j \quad (5)$$

where z_{ij} is a vector of household and district characteristics and other variables that influence shadow income. Household income is the endogenous variable because not only does it determine the probability of hiring labour, it is also determined by the extent to which a household hires labour.

Applying an ordinary least squares estimator to Equation (4) produces inconsistent and biased results. Thus, in addition to the transformation of some variables, if we assume independence and normality of the error terms, we can apply an instrumental probit estimator to the equation. This estimator controls for the endogeneity of income. The estimation technique maximises the following log-likelihood function:

$$\ln L = \sum w_j \ln \phi(x_j \beta) + \sum w_j \ln(1 - \phi(x_j \beta)) \quad (6)$$

Where ϕ is the cumulative standard normal distribution; w_j are weights, x_j are the independent variables, and β the parameters. Maximising Equation (6) gives the results in Table 7, with White's heteroscedasticity corrected standard errors. Instrument validity tests show that livestock and fertiliser can be used as instruments for income, thus reducing the bias inherent in the estimation technique (Murray, 2006). Further, treating the equation as linear, although improper, also proves the instruments to be valid.

Table 7: Instrumental variable probit model for hiring in labour

Dependent = household hires labour(=1)	Instrumental variable probit model		
	Coefficients	S.E	Marginal effects
Constant	-5.895***	(0.887)	
Shadow household income	0.592***	(0.089)	0.224
Log land per capita	-0.172	(0.107)	-0.065
Proportion of non-farm income	1.450***	(0.275)	0.549
Average years of education	0.174	(0.153)	0.066
Log shadow wage	-0.484	(0.454)	-0.183
Number of adults (15-65 years)	-0.993***	(0.256)	-0.376
Dependency ratio	-0.120*	(0.071)	-0.045
Log average household age	0.014*	(0.008)	0.005
Dummies: Draught power ownership	-0.309*	(0.177)	-0.117
Plough ownership	0.095	(0.187)	0.036
Makoni district	0.428**	(0.176)	0.164
Chivi district	0.549***	(0.179)	0.211
Number of observations	300		
Wald Chi-square	89.99		
Wald test of exogeneity	14.94***		
Sargan statistic	6.66		
Log pseudo-likelihood	-665.22		
*** Significance at 1%; ** Significance at 5%; * Significance at 10%.			
Econometric package: Stata version 9.2			

The results show that household income, the proportion of non-farm income, the number of persons in the labour-force, dependency ratio, age, and the dummies for draught power and districts have significant influence on the decision to hire in labour. The marginal effects show how the variables influence the probability of a household hiring outside labour.

Increasing household income and the proportion of non-farm income positively influence a household's decision to hire labour. The higher these variables are, the higher the probability that the household hires in labour. In the sample, the income elasticity of the labour hiring decision is high. Experiments with the results show that doubling income from the current level increases the probability of hiring labour by 9.3%. Changing the composition of household income by increasing the proportion of non-farm income to 50% increases the probability of hiring by 10.5%. These results confirm the point that transfers and remittances have significant impact on household production and living standards. They also support the conclusion that removing the rural credit constraint may be an important step towards promoting rural employment (Bryceson, 2002; Reardon *et al*, 2001). In this regard, micro-credit schemes may be beneficial to households as a way of loosening the credit constraint.

The results show that increasing household labour force significantly reduces the probability of hiring labour. The crisis forced some people to migrate from urban to rural areas, thus increasing household labour force. It also caused under-employment among some households because of limited inputs (Chiripanhura, 2008). An experiment with the results shows that on average doubling household labour force reduces the probability of a household hiring labour by 22%. This is a logical outcome since, *ceteris paribus*, expanding household labour force increases household self-sufficiency in labour demand. In fact, households generally have preference for working on their own land than seeking local wage employment. The preference for own-farm work over wage employment was mentioned in all three districts. The respondents considered local wage employment to be demeaning when compared with own-farm work. They preferred working on commercial farms compared to local casual work. This type of behaviour was also observed by Sender *et al* (2006) in rural Mozambique where wage work was treated with disdain and was a last resort even for poor households. The implication of all this is that policies promoting rural employment need to take into account that fact that apart from improving wages, people may need to be encouraged to change their perceptions about casual work in their communities.

The age and dependency ratio coefficients have the expected signs and have low significance to the labour hiring decision. A high dependency ratio, high during the crisis period, reduces household labour force. Given the correlation of dependency and poverty, it means that households with high dependency ratios are usually poor, and poor households usually lack the means to hire labour. Instead, they are more likely to sell their own labour. After controlling for dependency ratio and other household characteristics, increasing household age increases the chances of the household hiring in labour. Older households are likely to have accumulated resources that allow them to become more productive and able to hire labour.

The dummies for ownership of draught power and district have expected signs and significant coefficients. Ownership of draught power is very important because it allows households to use modern technology (ploughs, harrows, carts and cultivators) on their farms. Ownership of draught power reduces the drudgery of land preparation, and also reduces labour usage. It also allows timely cultivation and planting. Households lacking draught power use hoes for land preparation which is both time consuming and arduous. The drudgery and uncertainty of farming causes some households to diversify into non-farm activities as witnessed in Mutoko and Makoni.

6. Conclusions and implications

This paper has examined data from three districts to illustrate the state of Zimbabwe's rural labour market under crisis conditions. It has argued that the rural economy is a large and very important segment of the economy. It has been shown that the rural economy is agro-based as well as the employment. The paper has explored the reasons why the period under study is called the crisis period.

The structure of the rural labour market has been examined. It was shown that employment, like agricultural production, has peaks and troughs. Rural wages are low, resulting in low supply of wage labour. This causes labour shortages during peak periods as households seek to achieve food security over employment. Further, it has been shown that rural employment is casual and short-term in nature. This makes wage employment an unreliable livelihood source, thus increasing the vulnerability of households for which labour income constitutes a large proportion of their budgets. Households have thus responded by engaging in other income generating activities.

It emerged that there was little wage employment in the studied districts, implying that households could not absolutely rely on the labour market to exit poverty. This is particularly so because wage employment is mainly driven by agriculture hence is dependent on rainfall patterns. An examination of employment relationships showed that four types exist, of which wage employment was a decreasing type, particularly so because of economic crisis. Other labour market relationships, especially reciprocal labour arrangements, expanded. The main challenge to labour market relationships was found to be the prevalence of diseases and ill-health which reduce participation rates and total number of work days. Vulnerability increased because the crisis resulted in reduced accessibility of health facilities.

It has been shown that rural unemployment is very low, possibly because of the restrictive nature of the definition of unemployment used in the context of rural labour markets where people engage in different types of activities throughout the year, some of which are just but survivalist in nature. Further, it emerged that there is heterogeneity between and within regional rural labour markets and livelihood options such that what may be true in one area may not be so in another. As such, rural labour market policies need to be tailored to reflect these heterogeneities because policies yield different outcomes in different areas.

An exploration of the status of households showed that they suffer from varying degrees of impoverishment and ill-health which adversely affect their livelihood options. Poverty may cause households to seek wage employment prematurely, disadvantaging own-farm production and hence food security. The prevalence of poverty may cause many people to seek wage employment which, in the face of few opportunities, makes employment a non-viable exit route from poverty. It has been shown that related to poverty is disease - especially HIV/AIDS and malaria - which have serious impact on labour market participation. Households fail to build secure dwellings that keep out mosquitoes. They also fail to buy mosquito nets hence they end up catching malaria.

An examination of the structure of household income showed that non-farm income constitutes 47% of household income. Despite this high proportion, non-farm income lacks long-term stability, especially where it is linked to agriculture which is susceptible to adverse weather conditions that have become quite frequent and prolonged in recent years. The absence of credit markets in the rural economy

implies that some non-farm activities are funded from agricultural income which if removed, will result in the activities being stopped. Some non-farm activities also rely on agriculture for their market, hence they fail if agriculture fails.

An examination of land ownership showed that land was unequally distributed, with some households owning small landholdings with poor soils except for those in resettlement areas. Although Asia's Green Revolution was powered by households with equally small landholdings, the case for Africa is peculiar because of water scarcity where households rely on rains, making intensive cultivation impossible. Thus, Africa's green revolution has therefore not been sustainable. Since the mid 1990s, seasons have been changing, most likely because of global warming. Rains are coming late and they stop earlier than normal. They are also increasingly unreliable. This implies that there is need for change to the rural agricultural strategy in order to protect livelihoods. Production should shift more towards irrigated agriculture which guarantees long-term food production and self-sufficiency. The government needs to systematically build dams to harvest run-off water during good seasons. Land reform should also seek to decongest communal areas.

Estimation of a probit household labour demand function has shown that income, especially the proportion of non-farm income, is an important determinant of the probability of hiring labour. The only problem with the positive impact of non-farm income in determining the probability of hiring labour is its lack of a virtuous relationship with other parts of the rural economy. Other results were that increasing household labour force, owning draught power, and high household dependency ratio all negatively impact on the probability that a household hires in labour. Generally households have a tendency to increase work intensity in the face of increased labour demand before they hire in labour.

The results of the paper show that households have a number of livelihood options, and diversification becomes paramount in the face of economic crisis. Although households place a lot of significance on agricultural production, agriculture is increasingly becoming a shaky livelihood option because of changing weather patterns and inaccessibility of important inputs. Nonetheless, the fight against rural poverty can, where ecological factors permit, take the form of agricultural wage employment promotion. But rural people also need to change their perceptions of local wage employment so that they view it in positive light. In areas unsuitable for (rain-fed) agriculture, non-farm income generating activities can be promoted.

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