

Economic Crisis and its impact on Households from a Microeconomic Perspective: the case of a Small Trade-dependent Island.

Abstract

Mauritius a small open island economy known as the 'tiger' of the Indian Ocean, has achieved much in terms of development and poverty reduction partly due to its trade performance. However poverty in the country goes much beyond going to bed hungry, it reflects more the lack of opportunity to undertake economic and human development and as such the provision of a social safety is crucial. The global economic crisis which started in U.S. represents a major threat to the provision of a social safety net given that taxes on international trade provide a major share of government revenue and the island's main export markets are the U.S. and Europe. This study therefore assesses the impact of the global economic crisis on the poor households using household level data from Household Budget Surveys as well as the absolute national and food poverty line and binary choice models. The main results reveal that the worst victims of the economic crisis tend to be households which are headed by aged and unskilled single female. The results also show that the impact on poverty depends on how poverty is modeled. In terms of policy implications the findings point out the crucial role of education and skill enhancement policies and also place importance on redistribution policies as well as policies aimed at reducing labour market rigidities.

Introduction

Mauritius has been transformed from a poor, state dominated and a mono-crop economy, entirely dependent on sugar, into a private sector led upper-middle income country, mainly due to its brilliant trade performance (the high ratio of merchandise trade to GDP -around 90% on average since 1995, indicates the importance of external trade to the country). The 2001/02 household budget survey (HBS) shows that, after the deterioration in the distribution of income as measured by the Gini coefficient, from 0.379 in 1991/92 to 0.387 in 1996/97, 2001/02 recorded an improvement to 0.371 (though it increased again in 2006/07 to 0.389). In the 2008 Human Development Report (HDR) prepared by the UNDP, Mauritius was ranked 74th among 179 countries with a Human Development Index (HDI) of 0.802, a life expectancy at birth of 72.6 years (based on 2006 data) compared to 63 years in 1970, and an adult literacy rate of 87% (based on 2006 data).

Though the island has achieved much in terms of development, it still has its share of poor people for instance the Human Poverty Index (HPI) as reported by the Asian Development Bank (2008) showed a more or less constant figure of 11.3 % in 2000 and 11.4% in 2007. Moreover based on the half median household income adjusted for demographic characteristics, the Central Statistics Office (CSO) reports that 12% people were found to be below this line (CSO, 2007). Pockets of poverty are spread across the island and are found in the outskirts of main cities. The global economic crisis which originated in the United States in 2007 is likely to put more pressure on poverty for the following reasons. First by affecting the economy of the island's main export markets for textile products (U.S. and Europe), the crisis is likely to reduce exports receipts and this will impact on the provision of a social safety net given that taxes on international trade provide a major share of government revenue. In addition,

Secondly given that most poor people tend to be unskilled and as such many of them (mainly women) work in the textile and manufacturing sector. For instance manufacturing provides the livelihoods of over 73% of households. Due to the global economic crisis thousands of workers in the textile and manufacturing industry in Mauritius have been forced into unemployment and poverty within the last few months, as factories announced multiple rounds of job cuts due to lack of orders from the main markets.

Other sectors also have been affected such as the tourism industry, which counted one million visitors in 2007, has also taken a huge dip. For example, tourist arrivals have declined by 20 percent since January, according to the Bank of Mauritius. This has had a negative bearing on the island's hospitality industry, which includes restaurants, handcraft shops as well as transportation and inland travel. With the above background in mind, this paper examines the impact of the economic crisis on the poor households using binary choice models, namely Probit and Logit models and also makes use of a continuous dependent variable namely real per capita consumption as a proxy for poverty to allow comparative analysis and hence confirms whether the results differ significantly from those obtained via the binary models. The analysis is conducted using two HBS namely 2001/02 and 2006/07 to compare the results prior the economic crisis with those during the crisis.

The rest of the paper is organised as follows: section II over overview the methodology and the empirical model, the next part discusses the results, followed by the policy implications. The paper ends with a conclusion.

3.0 Methodology

In line with the work of Anderson and Martin (2005) we classify the determinants of poverty in terms of factors of production, characteristics of households, characteristics of head of households, geographic and environmental characteristics. In other words we use both the "individual" and "structural" approaches to capture the multi-dimensional aspects of poverty. It must be further noted that our selection of potential determinants has also been partly guided by the results of the Mauritian poverty profile from chapter four. The choice of variables has also been governed by an effort to minimise the danger of including variables that are simultaneously determined with welfare, in other words to exclude endogenous variables. The latter are jointly determined variables, having values which are determined through the joint interaction of other variables within the specified system (Judge, et al. 1988, p. 601). The issue of endogeneity is discussed in details at a later stage.

3.1 Explanatory variables

Under factors of production¹ we include human capital proxied by the years of schooling of head of household given that education level of children, young adults and the household's expenditures on education do not determine present welfare. The expected sign on this variable is negative. In the case of characteristics of households we take into account household size as well as square of household size given the U-shaped relationship between household size and consumption per capita as hypothesised by Datt et al. (2000). We also bring in dependency ratio (calculated as the number of dependents -below 16 and above 60-divided by household size) as an explanatory variable given that many authors (see for example, Lanjouw and Ravallion 1995; Deaton and Paxson, 1998) point out that a higher dependency ratio leads to lower per capita consumption and hence higher poverty.

In terms of head of household characteristics we include a dummy which takes the value of 1 if head of household is male and 0 otherwise to represent gender as a regressor, since researchers have pointed out is that women-headed households constitute a disproportionate number of the poor, and second, that they experience greater extremes of poverty than male-headed units (see BRIDGE, 2001; Buvinic and Gupta, 1994; González de la Rocha, 1994b; Moghadam,1997; Paolisso and Gammage,1996). The expected sign on this dummy is negative. Another head of household characteristic is the age factor. As age increases productivity falls, thereby having a negative impact on income particularly in the case of the poor as they have few savings to compensate for this loss of productivity. Nevertheless it must be noted that the relationship between age and poverty might not be linear since as hypothesised by the life-cycle theory, incomes tend to be low at relatively young age, increase at middle age and then decrease again and as such we would expect to find that poverty is relatively high at young ages, decreases during middle age

¹ Other factors of production such as physical capital, technology and houses are not included, since first in the Mauritian context the poor are not engaged in the agriculture sector as in most developing African economies (on the other hand they are employed in the manufacturing or informal sector) and sugar producers in the island tend to be non-poor and as such we do not account for physical capital. Secondly as far as technology is concerned, the variables falling under this category are expected to capture the choice of activity (agriculture or business) as well as the household choice of agricultural methods. As mentioned earlier, given the dominant activity in which the poor are engaged is not agriculture, the only variable which would have been relevant in the Mauritian context is the whether a household runs a business. However such a data is not available for HBS 2001/2002. Thirdly in Mauritius land on which home is constructed is viewed as a historical or family asset on which additional construction can be expected as each generation reaches maturity, marries and requires personal space for the new family unit and hence is not viewed as an asset which can impact on the state of being poor or not.

and then increases again at old age. Given the above analysis we include both age and age square of head of household as explanatory variables.

Marital status of head of household is considered to be another determining factor since from the poverty incidence analysis done by the Central statistics Office, it could be noted that single member household were more likely to be poor and as such we include a dummy takes value 1 if head of household married/in a union, 0 otherwise and expect the coefficient of this variable to be negative. At the same time given that it is the conventional wisdom that employment is one of the surest way out of poverty, and that the head of the household is the most influential member of a household and thus having the greatest impact on the welfare of the household, we include a dummy taking the value 1 if head of household is an employee, self-employed or contributing family worker, 0 otherwise.

Given that our main interest is how global economic crisis has affected poverty at the micro level, we augment our poverty equation to include some further dummy variables. More precisely the additional regressors are the occupation of the head of household and the industry in which he/she is employed. In case of data on occupation of the head of household, from the HBS occupation data are available based on 2 digit code only and hence to re-classify occupation according to skill level, we have had recourse to the National Classification of Occupations (NCO 2003) of the country. The NCO classifies and gives codes to all occupations appearing on the Mauritian labour market in alignment with the International Standard Classification of Occupations (ISCO-88), compiled by the International Labour Office, ILO Geneva. In NCO-2003 and ISCO-88 occupations are classified in terms of kind of task performed and skill requirement of the concerned occupation. As far as skill requirement is concerned, occupations are grouped according to four skill levels namely 1, 2, 3 and 4, with 1 associated with lowest skill requirement and 4 with highest skill requirement. For the purpose of this study, all occupations associated with skill level 3 and 4 are termed as skilled occupation, those with skill level 2 as semi-skilled and the remaining with skill level 1 are termed as unskilled occupations. Then 3 dummies are used to correspond to whether the head of the household is engaged in unskilled, semi-skilled or skilled occupation. The expected sign on these dummies are ambiguous given the adjustment process associated with trade reforms.

Another set of dummies is used to categorise the industries in which the head of the household works in terms of traditional exportables, non-traditional exportables, importables, services tradeable sector, non-tradeable sector. It must be noted that to classify industries in terms of importables and exportables first the SITC code for each commodity is mapped onto its respective ISIC-2digit code (as per CSO classification) so that each commodity category could be associated with an industry 2-digit code. It is easy to distinguish between tradeable and non-tradeable sector, however within the tradeable sector the difficult task is to distinguish the exportable sector from that of the importable sector, more so given that exports are measured in terms of f.o.b values while imports are measured in terms of c.i.f. To deal with this task we apply a 10% discount which is subtracted from the c.i.f values to obtain the f.o.b values and such a methodology is a conventional approach of conversion used by, for example, the International Monetary Fund (for discussions of these adjustments and measurements of transport costs, see Fung and Lau (2001), Amjadi and Yeats (1995) and Yeats (1981). Once the conversion is done, industries whose exports value exceeded imports are classified as exportables and vice-versa. The next step is then classifying industries as traditional exportables, non-traditional exportables, importables, services tradeable sector, non-tradeable sector and assigning a dummy for each industry classification so that in all we have 5 industry dummies.

3.2 Data Sources

Poverty is fundamentally a phenomenon arising at the level of households and unlike earnings, poverty is a characteristic of households rather than individuals. So its measurement and characterisation ideally require the use of household's budget surveys. For the purpose of this study two Household Budget Surveys (HBS) are used (2001/02 and 2006/07). The HBS studies the consumption pattern of the Mauritian population with a view to update the basket of goods and services used for the computation of the monthly Consumer Price Index (CPI). The sample selected is representative of all households in the country through a stratified two-stage design with probability proportional to size.

3.3 Approaches to Modelling the Determinants of Poverty

The literature comes up with two approaches to modelling the determinants of poverty. The first approach is a direct approach that has often been used in the literature (see, for example, Bardhan 1984; Ghali 1988; World Bank 1994, 1995a, 1995b, 1996; Grootaert 1997), where the incidence of poverty is regressed on a number of explanatory variables using the family of discrete choice model (see for

example, Greene, 1997; Grootaert, 1997). According to basic principles of discrete choice models, econometric modeling consists in confronting two alternative and mutually exclusive situations, being considered as poor or not. Indeed, the observed sample is composed of two categories of households: on the one hand, the households who record an income inferior to the poverty line are considered as poor and the rest as non-poor. In our case we thus define a binary variable $P_i = 1$ if $y_i/z < 1$ and $P_i = 0$ otherwise where z is the poverty line. So the binary variable measures whether a household is poor or not. The probability that a household will be poor is $P = \text{Prob} [y/z < 1 | x] = \text{Prob}[\varepsilon < 1 - \beta | x] = F(1 - \beta)$, where x the matrix of explanatory variables, β is a vector of coefficients, ε , is an error term, and F is the cumulative density function applied to that error term. When a normal distribution is chosen for F , a Probit model results; when a logistic distribution is used, a Logit model is estimated. Various authors such as Escobal (2001), Gibson and Rozelle (2003) and Bokosi (2006) have used Probit and Logit specifications to model poverty. The Maximum Likelihood Estimation (MLE) procedure is applied to estimate such models and the resulting advantage is that they do not assume that the parameters are constant across the whole distribution and are more resistant to outliers and measurement error than the linear regressions (Grootaert and Braithwaite 1998). For robustness purposes we apply both the Probit and Logit models on data available for each of the two HBS.

In the case of the second approach \ln real per capita consumption is used as the dependent variable which is continuous in nature and given that the dependent variable is in log form, the estimated regression coefficients measure the percentage change in per capita consumption within the household from a unit change in the independent variable. It must be noted that household weights has been used to weight all the regressions.

The model to be regressed by OLS is given by:

$$\ln \text{ real per capita consumption}_i = \alpha + \gamma_1 'fop_i + \gamma_2 'h_i + \gamma_3 'hh_i + u_i \quad (1)$$

where fop_i is a vector of factors of production characteristics, h_i is a vector of household characteristics, hh_i represents the vector of head of household characteristics and u_i is the error term.

While the Probit is given by:

$$Pov^*_i = \delta + \eta_1 'fop_i + \eta_2 'h_i + \eta_3 'hh_i + e_i \quad (2)$$

$$\Pr (Pov = 1 | fop, h, hh) = \Pr (Pov^* > 0 | fop, h, hh)$$

where Pov^*_i is an unobserved vulnerability to poverty. Within a Probit framework, the dependent variable is an indicator variable that relates to the underlying Pov^* such that $Pov=1$ (a household is poor) if $Pov^* > 0$ and $Pov = 0$ (household is non-poor) otherwise.

Equations 1 and 2 can also be rewritten as:

$$\ln \text{ real per capita consumption}_i = X_i' B_0 + u_i \quad (3)$$

$$Pov^*_i = X_i' \mu_0 + e_i \quad (4)$$

where $X_i = (1, fop_i, h_i, hh_i)$

3.4 Interactive Terms

It is a well known fact that there is heterogeneity across households and as such we expect poverty or consumption level for a household to in turn be a function of household characteristics or head of household characteristics. In such a case to account for heterogeneity interactive terms may be useful. As argued by Datt et al. (2000) the main issue has to do with potential over-parameterisation of the model. With the full set of interaction terms, there is a veritable explosion of parameters which may in turn lead to multicollinearity problem and also problem of imprecise parameters which may feed into any simulation exercise. In view of these challenges, and given that we are interested in the impact of the global economic crisis, we allow for only 8 interaction terms namely: occupation dummies with age as well as industry dummies with age. Another interesting interaction would be with gender but given we also run the equations separately for male and female-headed households, this option is not explored.

3.5 Endogeneity Problem

As argued by Judge, et al. (1988, pp: 601) “*endogenous, or jointly determined variables, have values which are determined through the joint interaction of other variables within the specified system.*”

Endogeneity is a particular problem in studies of poverty particularly at the micro-level, which results in biased estimates. In our particular context the explanatory variables such as age, gender, marital status of head of household are obviously exogenous in nature. As far as head of household years of schooling is concerned it must be noted that this variable is likely to be the result of the past welfare status of the heads’ parents and thus not dependent on the current welfare status of the households and in turn is

exogenous. As far as the remaining explanatory variables are concerned, as argued by Okwi et al (2006), given that we are estimating the determinants of poverty at one point in time (one poverty equation for each of the three HBS), the remaining independent variables can be assumed to be exogenous in the short term. Hence the problem of endogeneity does not represent an acute problem in the present context.

4.0 Findings

In this section we report and discuss the results first where the dependent variable is a continuous one namely ln real per capita household consumption and in the second case where the discrete choice models- Probit and Logit models- are used and the dependent variable (headcount poverty index based on the half median income poverty line) is a binary one.

4.1 Continuous Dependent Variable

It must be noted that since in this context the dependent variable (real per capita consumption), is in natural log form, the estimated regression coefficients measure the percentage change in per capita consumption within the household from a unit change in the independent variable. At the same time recognising that the causes and impacts of poverty are different for men and women so that they are each affected differently by poverty alleviating/reducing measures, due to that fact that they have different constraints, opportunities, incentives and have different needs (Paci, 2004), the regressions are also carried out separately for male-headed as well as female-headed households and the results are reported in appendices (A1a and A1b respectively). As noted above given that endogeneity is not of main concern in our case, the regressions are run using OLS procedure and the results are reported in table 1.1.

Table 1.1: OLS results of Poverty Equation-All Households

Dependent variable: Ln per capita household consumption ²		
	HBS 2001/02	HBS 2006/07
Years of schooling	-0.3322*** (-13.89)	0.00364 (0.24)
Size of household	0.51021 (36.27)***	0.3305*** (16.53)
Size of household ²	-0.2615*** (-17.95)	-0.1575*** (-7.03)
Dummarried	0.2939*** (2.66)	0.140*** (3.73)
Age	-0.520*** (-8.31)	-0.045*** (-3.09)
Age ²	0.00398 (8.77)***	0.00031*** (8.04)
Dumgender	-0.1582*** (-4.91)	-0.098*** (-3.09)
Dumemp	0.0888 (1.36)	0.1051 (1.51)
Dumsk	-0.292* (-1.93)	-0.670* (-1.72)
Dumsemisk	-0.0804 (-0.68)	1.197*** (3.19)
Dumunsk	-0.1144 (-0.91)	1.321*** (3.51)
Dumsk*age	-0.0059* (-1.94)	-0.0191** (-1.98)

² It must be note that since real per capita consumption is negatively related to the incidence of being poor, the coefficients are multiplied by -1 to report the impact on poverty.

Dumsemisk*age	-0.00133 (-0.58)	-0.0164* (-1.74)
Dumunsk*age	-0.00050 (-0.20)	0.0174* (1.85)
Dumtradexp	0.1258 (1.09)	-0.712 (1.24)
Dumimp	-0.1766 (-0.2084)	-1.419** (-2.43)
Dumnontradexp	-0.2306 (-1.28)	-1.468** (-2.55)
Dumservtrade	-0.142 (-0.65)	-1.632*** (-2.82)
Dumsernontrade	-0.1978 (-1.28)	-1.322** (-2.33)
Dumtradexp *age	0.0067 (1.04)	0.0137 (1.23)
Dumimp*age	-0.432 (-0.34)	0.0267** (2.35)
Dumnontradexp*age	-0.041 (-0.0040)	0.0297*** (2.66)
Dumservtrade*age	0.00218 (-0.47)	0.0305*** (2.71)
Dumsernontrade*age	0.0052 (2.17)*	-0.0241** (-2.21)
Constant	-6.94*** (-28.13)	-7.654*** (-11.29)
R ²	0.4777	0.3133
Number of observations	6718 F(23,6694)=266.24	6720 F(24,6695)=116.39

Note: values in parentheses are the t-ratios

Given that the dependent variable is in log form, each estimated coefficient represents the percentage change in the dependent variable resulting from one unit change in the respective explanatory variable. The very first eye-catching results are the low R^2 in the case of all the three HBS. However it must be noted that similar results were obtained by other authors for example, in the case of Egypt Datt & Jolliffe (1999) studying the determinants of poverty got a R^2 of 0.40 and another study by IFPRI on poverty in Malawi lead to a R^2 of 0.3282. The low R^2 is usually due to the errors inherent in HBS data. As far as the determinants are concerned, the results show that years schooling of head of household proves to be statistically significant in the case of HBS 2001/02. Yet this impact is not statistically significant in the case of female-headed households. This may be partly because female-headed households represent a low proportion of the total sample of households (16.5% for HBS2001/02 and 18% for HBS 2006/07). Another reason maybe that most of the female heads have only primary education or lower secondary education and education starts affecting welfare at higher levels. Dependency ratio was used as an explanatory variable but due to multicollinearity problem (high correlation (0.87) between dependency ratio and size of household) it had to be dropped.

From the above table the one determinant of welfare which proves out to be statistically significant across the two HBS (the highest impact being in the case of HBS 2001/02 for the whole sample of households) and from a gender perspective, is household size. Such a result is consistent with theory given the larger the household size, the more mouths to feed and hence the lower will be welfare. Yet the impact of square size of household on poverty reduction is positive thereby confirming nonlinear relationships between household size and welfare, that is, the marginal effect on household welfare of one more person or one less person in the household may not necessarily be linear, but dependent on existing household size.

Age has a statistically positive impact on welfare while Age^2 on the other hand has a significant negative impact in the majority cases, confirming the nonlinear relationship between age and welfare as stated by Barrientos et al. (2003). The marital status of the head is statistically negatively associated with household welfare for the whole sample as well as in the case when male headed households, while for female-headed household the marital dummy is statistically insignificant. This is not an unexpected result since usually heads that are single/divorced or separate tend to be poorer. The statistics further disclose that if the head of the household is a male then welfare is enhanced, while if she is a female then the household has a lower welfare. According to the Ministry of Womens' Rights and Child Protection of Mauritius, the main causes leading to lower per capita consumption in female- headed households include lack of

opportunities for employment and education, lack of access to finance, mass illiteracy, food insecurity, malnutrition, human trafficking, powerlessness, no resources, overwork in wage employment and in households, discrimination in the labour market and in work places, and domestic violence.

A surprising result is that when we turn to the activity status of the head of household the findings reveal that the fact that the head of household is employed, is not a statistically significant determinant of per capita consumption, no matter which HBS is used in the case of the whole sample and that of male-headed households. This result may imply that welfare is not only affected by activity status of the head but rather by the activity status of all the other members in the household. Nevertheless securing a job in the case of female-headed households leads to a step away from poverty and this impact is statistically significant.

As far as the dummies relating to whether the head of household is employed as skilled, semi-skilled or unskilled worker, the results show that if the head of household is a skilled worker then his/her household welfare rises in the case of both HBS significantly while the impact of semi-skilled and unskilled workers is significant only in the case of HBS 2006/07 and both dummies prove to be working against poverty reduction. Given data from HBS 2006/07 coincide with the start of the economic crisis, such a result may imply that with economic crisis has a negative impact on households headed by unskilled or semi-skilled heads. However this impact cannot be solely attributed to the economic crisis given that various other reforms were taking place at the same time. For instance trade liberalisation may have caused unskilled and semi-skilled headed households to be worst off in 2006/07.

A brief look at female-headed households reveals a different story in the sense the coefficients on these dummies were statistically significant only in the case of HBS 2006/07 showing that the year coinciding with the global economic crisis of January 2007 did have a positive impact on female headed households irrespective of whether the female heads are skilled, unskilled or semi-skilled. Such A result may be interpreted as the impact of a global economic crisis is not immediately felt more so given the sluggish Mauritian labour market. For instance in Mauritius the labour market operates in an over-regulated environment and industrial relations framework is characterised by excessive government intervention. Rigidities in the labour market are exacerbated by the lack of an appropriate legislative framework for collective bargaining and by the multiplicity of trade unions which constitute the main obstacles to the

development of constructive and positive negotiations. Moreover based on the rigidity of employment index the country had a high value of 30 in 2006 compared to the Asian Tigers. This rigidity in labour market may consequently imply that the negative impact of the economic crisis may need longer time periods to be visible.

Alongside when the skill level was interacted with age the results showed that in the year the economic crisis took place, households with heads who are aged and unskilled faced an almost immediate statistically significant negative impact on welfare in the case of the whole sample as well as male-headed households. Nevertheless in the case of female-headed households the economic crisis did not even spare the households whose heads are aged and semi-skilled. Hence this result point out that households with middle to old aged female heads are the worst immediate losers of the global economic crisis if the skill level of the heads is low to average.

The findings on the next set of dummies related to industry category point out that the dummies were statistically significant, even when interacted with age, only in the case of HBS2006/07 (though in the case of female-headed households none were significant-except in the case of the interactive term between non-traditional exportable sector and age- partly due to the small number of female-headed households sampled compared to male-headed households). For the sample as a whole it could be noted that irrespective of the sector in which the head of household works in 2006/07 these industries dummies have a positive impact on welfare, though this was reversed when the dummies were interacted with age (except in the case of the services non-tradeable sector where when interacted with age has a positive effect on household welfare). Hence this result also is consistent with the above finding that the instantaneous impact of the global crisis on real per capita consumption and hence household welfare depends on the age of the head of household and in turn his/her productivity. In other words workers are less vulnerable to the immediate negative impacts of economic crisis the younger and hence which in turn implies the more productive, flexible and adaptable they are. In the case of female headed households the findings illustrate that if the higher the age of the household coupled with the fact that she is working in the nontraditional exportable sector, the welfare of the household faces a statistically significant decrease both in the year prior to the economic crisis and as well as in the year the economic crisis took place (though the negative impact in the latter year is higher). This is a very important result since it must be noted that many of female heads joined the EPZ when they were in their teenage years in the mid 1970s and now are almost aged in their early 50s and with single skill that they possess this imply that they face

higher elasticity of demand and hence more prone to be unemployable following the economic crisis, thereby negatively impacting on their future welfare.

4.2 Discrete Choice Model Results

The results of the Probit model are reported in table 1.2 (those for male-headed and female-headed households are reported in appendices A2a and A2b respectively), while that of the Logit one are summarised in appendices A3a-c.

Table 1.3 Probit Estimates of Poverty Equation for all Households

	HBS 2001/02	HBS 2006/07
Years of schooling	-0.0351*** (-4.00)	-0.0015 (-0.32)
Size of household	0.0279** (2.33)	0.152*** (3.41)
Size of household ²	0.00606 (0.72)	0.0068*** (2.54)
Age	-0.11320*** (-2.81)	0.0123 (0.40)
Age ²	0.00066** (2.22)	0.0004*** (3.22)
Dumgender	-0.0217** (-2.07)	-0.0603* (-1.69)
Dummarried	-0.5089*** (-3.74)	-0.2211** (-2.35)
Dumemp	-0.125** (-2.087)	-0.3452** (-2.431)

Dumsk	-0.408* (-1.68)	-0.229** (-2.22)
Dumsemisk	0.909** (2.41)	0.576** (2.55)
Dumunsk	0.6584* (1.93)	1.014** (1.96)
Dumsk*age	-0.0090 (-0.72)	0.00242 (0.27)
Dumsemisk*age	-0.0163 (-1.45)	0.04624* (2.01)
Dumunsk*age	0.00629*** (3.48)	0.02524** (2.01)
Dumtradexp	-0.854 (-0.53)	3.615*** (2.84)
Dumimp	0.0352** (2.72)	2.933 (1.24)
Dumnontradexp	-0.977 (-0.57)	3.007** (2.41)
Dumservtrade	-2.73 (-1.69)	2.738** (2.19)
Dumsernontrade	-1.88 (-1.29)	2.670** (2.30)
Dumtradexp*age	0.0323 (0.92)	-0.0829*** (-3.68)
Dumimp*age	0.0316 (0.83)	-0.0724*** (-3.03)

Dumnontradexp*age	0.0344 (0.90)	-0.0710*** (-3.16)
Dumservtrade*age	0.0682* (1.83)	-0.0679*** (-2.99)
Dumsernontrade*age	0.0530 (1.58)	-0.0685*** (-3.40)
Constant	7.148 (3.94)	-0.0155 (-0.01)
Pseudo R ²	0.2377	0.1387
Number of observations		6720
	Prob > chi2=0.000	Prob > chi2=0.000

For many of the explanatory variables (also in the case of the Logit model), for example years of schooling, household size, age², the results are consistent with those obtained under OLS. Nevertheless, in the case of female-headed households the results show insignificant coefficients on both age and agesquare. This can be partly explained by the fact that in the latter households the nominated head may not be the true decision-maker but rather someone older takes the main decisions. Such a result is consistent with the work of Székely (1998) for Mexico and Goaed and Ghazouani (2001) for Tunisia, who in turn found no relationship between age and household welfare.

Moreover gender proved to be statistically significant in both the Probit and the Logit models it turned out to be a significant determinant of poverty. On the other hand the significant positive impact of years of schooling on welfare confirms that through education people have a decent standard of living and hence make optimal use of available assets. The fact that the head of household is employed significantly reduces poverty and this is true for both the male and female-headed households, showing that employment is one of the surest ways out of poverty and hence labour market impact cannot be ignored in a poverty analysis in the Mauritian context, especially if the poverty measure is based on calorie intake. However such a result is not visible when the continuous dependent variable is used.

As far as occupation is concerned the results are in line with those obtained from the OLS estimates, though the impact of dummies representing unskill and semi-skill levels are statistically significant for the whole sample of households, based on both the Probit and Logit models. In the case of the interaction

between skill level and age the findings show that aged heads of households with unskill and semi-skill jobs face higher probability of falling into poverty, with a more pronounced impact in the year the economic crisis started.

In the case of industry dummies the results illustrate the fact that a head of household works in the traditional export sector mainly sugar sector in Mauritius increases the probability of the household being poor in 2006/07. However this negative significant impact on welfare cannot be attributed mainly to the global economic crisis of 2007, since the sugar sector has been becoming an increasingly capital intensive sector over time and due to the transitional process of transferring and installing new technologies in the sugar sector the head of households working in that sector has been facing more and more vulnerable to be being laid off.

In the case of the whole sample the results for most of the industry dummies as well as those interacted with age for HBS 2001/02 and 2006/07, are opposite to those postulated by the OLS regression. In the year coinciding with the start of the economic crisis it can be noted that households whose heads work in the non-traditional exportable, services tradeable and services non-tradeable are statistically worst off in terms of welfare while such an impact was not statistically significant in the year 2001/02, that is prior to the start of the economic crisis.

When the industry dummies are interacted with age they reduce the probability of falling into poverty in the case of almost all sectors in 006/07. The positive impact on welfare resulting from the interaction with the age factor demonstrates that given age is usually positively associated with years of experience it can offset the negative that the industry dummies project on welfare and hence gives a signal that economic crisis will have greater immediate negative impacts on young heads and hence the latter's households are more prone to fall into poverty. This is a very interesting finding as it confirms that the impact on poverty depends on how it is measured, since when the continuous dependent variable was used age factor when interacted with industry dummies, was seen as detrimental to household welfare. However in the case of female-heads the age factor proves to be contributing towards a higher probability of drifting the household into poverty in most sectors.

The results further indicate that heads of households working in the importable sector also faced a higher probability of being poor in the survey period 2001/02 though this probability becomes insignificant in 2006/07. This result may give an indication the period 2001/02 may have been a period transition period for the importable sector with those inefficient closing down and by 2006/07 the more efficient ones with higher labour productivity workers, were still operational and thus the welfare of such workers was not affected significantly in a negative way immediately after the start of the economic crisis.

5.0 Policy Implications

Based on the above analysis the main policy implications emerging from the results can be grouped in terms of education and skill enhancement policies, redistribution policies and labour market policies.

5.1 Education and Skill Enhancement Policies

The very eye catching finding from the micro-level analysis is that low level of education is not sufficient to get out of the vicious poverty circle. In Mauritius it must be noted that though education is free (in terms of absence of tuition fees at primary and secondary levels), due to the very competitive system for entrance in secondary schools, a large percentage of the young are unable to access secondary education. For instance, in 2004 CPE exams, the failure rate was 37% and among those who were sitting for the exams for the second and last time, the failure rate was as high as 62.6%. Many of those who fail their CPE exams drop out of the system, and tend to remain unskilled lifetime and earning low returns. It must be noted that the Government has taken measures to deal with this situation, for instance it came up with the ZEP programme in 2001, aimed upgrading the performance level of low achieving primary schools. Yet much remains to be done since in this competitive environment returns to primary and secondary education will be low and not sufficient to enhance welfare. Moreover our education system tends to be highly academic and there is need for more emphasis on teaching of natural science, engineering and vocational subjects to prepare the labour force for the new emerging sectors (though some initiatives have started from the Government in terms of training programmes particularly in ICT).

The results further demonstrate that skill level is crucial in determining the immediate impact of the global economic crisis on labour adjustment costs and it can even outweigh the negative ageing impact on

welfare. As such coupled with expanding secondary and tertiary education there should also be an emphasis on meeting the demand for the new technical skills so that the wage gap between skilled and unskilled workers can be prevented from widening in the aftermath of the economic crisis. A response of government in this direction would be to overcome the liquidity and informational constraints of poor workers (one example of such a measure in Mauritius which has started recently is “choisir ou travail”, a television programme which gives information on available job opportunities in different sectors) so that they can retrain themselves and upgrade their skills through skill-development programmes that are responsive to changes in labour demand and hence move to the expanding sectors where returns are higher.

5.2 Redistribution Policies

As seen from the results the households headed by female tend to have a higher probability of being drifted into poverty and more so if these heads are aged and if they are single/divorced/separated women. For this reason, there is a need for effective distributive policies (taxes, subsidies and transfers), targeted at these types of households. For instance Perry et al. (2005) show that in Latin America due to the absence of effective redistributive measures, little can be concluded about the welfare impact of trade reforms. Moreover redistribution policies should come up with sustainable poverty reduction measures such as retraining of women who lost their jobs in the EPZ sector and providing them assistance in finding new jobs. In brief these redistribution policies should be sensitive to gender issues and must recognise the differing perceptions of poverty held by men and women.

5.3 Labour Market Policies

As mentioned earlier the Mauritian labour market tends to be highly regulated which inhibits mobility of workers. Hence in this connection the important measures will range from retraining displaced workers, providing job search assistance and other measures to facilitate labour mobility. Social dialogue that will strengthen worker-management cooperation in handling restructuring at the enterprise level, is vital for the success of the above measures and also at reaching consensus on reforms that improve the functioning of labour markets. With the economic crisis, the unskilled and aged workers become more vulnerable and as such, such dialogues may help in preserving essential protection for these workers.

There is also the call for reducing search costs of displaced workers and information imperfections which may end up in under-employment of productive capacity if re-employed employees service on jobs which do not match their productive potential.

6.0 Conclusion

The gist of this paper was to capture the immediate impact of the global economic crisis of 2007 on the welfare of households, using data from household budget surveys. The analysis was conducted at micro level and several interesting findings emerged from the economic exercises. The results from the cross section data from the two different HBS unveil that education, size of household, size square of household as well as activity status of the head are among the statistically significant determinants of the probability of being a household being poor. In the case of skill level it was noted that the higher the skill level of the head the lower the probability of the household drifting into poverty. Moreover the worst immediate victims of the economic crisis tend to be households which are headed by aged and unskilled single female. The results also show that the impact on poverty depends on how poverty is measured.

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