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Children and Household Savings in the Philippines

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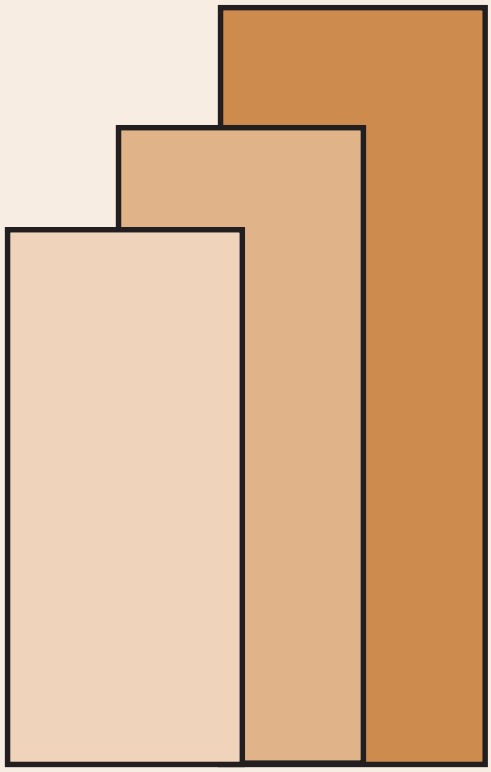

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Abstract

This paper examines the relationship between household savings and family size. Household savings are important indicators for family welfare not only in terms of its investment and income generation prospects but also, and perhaps more importantly given pervasive borrowing constraints and limited social security coverage, because it provides protection from income shortfalls. Descriptive and multivariate evidence on the relationship of household savings and family size are provided. The endogeneity of family size in the household savings equation, as argued for in the old-age security hypothesis, is properly considered by using instrumental variables estimation technique. The paper uses a recent nationally representative household survey in the analysis. The results show that, on average, the impact of additional children on household savings is negative and that the impact is regressive.

Keywords: Household Savings, Family Size, Philippines

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1. Introduction

The importance of savings in development is well known. The traditional interest on savings is that, at the aggregate and household levels, it is the main determinant of investment. Investment, of course, is acknowledged as the primary engine of economic growth. This can be easily demonstrated, albeit crudely, by running a simple regression between gross domestic savings and investment.[2] At the household level while investments and income prospects may also be important as determinants of savings, protection against income shortfalls may be more relevant particularly if there are borrowing constraints and / or social security are not well developed. Savings is the vehicle for consumption smoothing as argued in the celebrated life-cycle hypothesis. Recently saving, on a regular basis, has been found to enable households to move out of slum areas (Lall et al. 2005). Both of these macroeconomic and microeconomic concerns are evident in the case of the Philippines. The savings rates in the country are low even lower than Indonesia which has lower per capita income (Orbeta 2005a). This had been identified as one the main reasons why the country has not grown as fast as her neighbors. Low household savings also exposes them to the risk of income shortfalls.

Considering the foregoing, it is therefore important for policy makers to find explanations for the low savings rate in the country. As far as the author is aware, Bautista and Lamberte (1990) was the last household savings study using data from a survey conducted 30 years ago. Updating this study using new data is important for understanding the saving behavior of Philippine households. In addition, determining the role of children in household savings provides an added dimension to the low savings rate of the country.

This study is part of series of studies[3] conducted by the author to understand the implications of large family size on household welfare. The general motivation for these studies is to understand the relation between poverty, vulnerability and family size. Saving is an important instrument for consumption smoothing and reducing vulnerability to income shortfall. Understanding the role of children and family size on household savings behavior is an important step in understanding the relationship between poverty, vulnerability and family size.

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[2] Mason (1988) for instance found the coefficient of the savings to GDP ratio to be 0.63.

[3] The other studies deal with the impact of family size on labor force participation and income (Orbeta, 2005b) on the education of children (Orbeta, 2005c)

The study estimates savings functions using data from the 2002 Annual Poverty Indicator Survey (APIS) augmented by barangay level data from the 2000 Census of Population and Housing. The estimation challenge is that given the old-age security motivation of children plus the quantity-quality hypothesis of bearing children, the number of children is endogenous to the savings equation which could lead to biased results if ignored. The paper dealt with this problem using instrumental variables estimation as proposed in Angrist and Evans (1998). The study finds that the impact of children on household savings is, on average, negative. In addition, this impact is regressive with bigger depressing effect among poorer households.

The study is organized as follows. The next section presents brief review of related literature. This is followed by a discussion of methodology and estimation concerns. A description of the data set and the variables used are also presented in this section. The estimation results are presented in the fourth section. The final section provides a summary and policy implications.

2. Review of Previous Studies

The literature on savings is extensive but fraught with controversies. It is not the purpose of the paper to disentangle these controversies. Rather, it has the limited objective of focusing on the role of children on household savings. The primary objective is to understand how to estimate the independent impact children on household savings after other factors have been considered so as not to attribute to children variations that should be attributed to other factors. After some discussion on the general motivations for household savings, we focus on the role of family size and children on household savings. Those interested on aggregate savings is referred to Schultz (2004), among others, and the references there in.

Browning and Lusardi (1996) provides a comprehensive review of the recent household savings literature[4]. They noted that to the eight motives for savings identified in Keynes (1936) only one has been added (the downpayment motive) until the time of the review. The eight include: (a) pre-cautionary; (b) life-cycle; (c) intertemporal substitution; (d) improvement; (e) independence; (f) enterprise; (g) bequest; (h) avarice/miserliness. Several observations were given in the survey that are important for empirically estimating saving functions and beneficial to be reiterated here. One, there is considerable heterogeneity in the motives for savings implying that a single explanation will not suffice for all members at any given time or even for the same person over the long stretch of time. Two, while there is a sophisticated intertemporal theory of consumption that has led to a large empirical literature, empirical work on saving (treated as the difference between income and current consumption) is “relatively atheoretical.” Finally, using intertemporal consumption theory, five major determinants of savings have been identified, namely: (a) the discount factor; (b) demographics[5]; (c) real interest rate; (d) variation in consumption; and (e) liquidity constraint. Deaton (1990) and Gersovitz (1988) identified several reasons why savings behavior in developing countries may diverge from the textbook case developed in Browning and Lusardi (1996), namely, (a)

[4] See Mikesell and Zinser (1973) for an earlier comprehensive review of the savings literature at the macro level.

[5] This factor has been largely ignored in aggregate time series literature (largely because it does not change much at the aggregate level) but is potentially very important at the micro level.

households are dynastic that survive beyond individual members; (b) household is an indecomposable unit and savings are decided at the household rather than individual level; (c) households have lower and more uncertain income; (d) borrowing constraints may be much more pervasive; and (e) saving to provide buffer for uncertain and unpredictable income rather than intertemporal consumption smoothing.

The Browning and Lusardi (1996) survey has also emphasized that while a description of which the savers are is not difficult to establish in many societies, it is not as easy to empirically establish what the motivations for savings were. The celebrated life-cycle hypothesis, for instance, has been put to question by evidence showing continued savings even at old-age (e.g. Weil, 1994 and Mikesell and Zinser, 1973). It is easy to establish that savings rates are higher for the higher income or wealthy or the more educated households. It is likewise easy to observe that savings rate increase with age until the period around retirement after which it decreases. But when it comes to establishing what the motivations for savings are, hypotheses tests fail to provide definitive results.

The empirical definitions of savings comes in two forms: (a) the difference between income (Y) and current consumption (C); and (b) the change in wealth (A), i.e. A_{t+1}-A_t=rA_t+Y_t-C_t. It is well-known that what constitute as savings varies across societies. Using financial savings alone can underestimate wealth accumulation in societies where financial development is low. It has been argued that human capital investments (particularly education) should be considered savings (e.g. Gesovitz, 1988). Expenditure on durable goods, livestock, or housing materials, had been considered as a form of savings as well. Lamberte and Bautista (1988), for instance, net out expenditure on education and on durable goods from consumption spending in defining savings in the Philippines. The form of the dependent variable used in savings functions also varies. Savings functions have been estimated in levels (e.g., total savings or savings per capita) as well as in rates (ratio of savings to income (usually disposable income)).

Turning now to the role of children and family size on household savings, several explanations have been offered. For one, consumption theory tells us that consumption is directly proportional to the number of household members. There is little challenge to this proposition except perhaps that children need not be treated equally like adults, hence, the popularity of the concept of adult equivalent units. Then there is the hypothesis that children can be substitute for savings because they are a form of old-age security (Neher, 1972; Willis, 1980, Nerlove et al., 1985). Cain (1981) has argued that children can be a source of risk insurance in high risk settings. Furthermore, given problems of moral hazard, adverse selection and deception inherent in public annuities or just their limited coverage or total absence, the family may prove to be a better institution for risk sharing (Kotlikoff and Spivak, 1981). Hammer (1986) had provided evidence that financial development appears to be a substitute for having children. The substitutability of pension wealth and savings have been established using developed country data (e.g. Hubbard, 1986 and Diamond and Hausman, 1984 for the US; Attanasio and Brugiavini, 2003 for Italy). Early direct evidence on the existence of old-age security incentive for having children was also found using Philippine and Taiwanese data and it was found to be larger in the former (De Vos, 1985). Children also affect savings through other variables (Kelley, 1988 Hammer, 1986), namely, (a) children can be substitutes to other consumption goods; (b) children can contribute directly to market and non-market household income; (c) children can encourage

(discourage) parents to work[6]; (d) encourage the accumulation (reduction) of estates; (e) encourage the accumulation (reduction) of certain assets (e.g. human capital, farm implements).

Literature from developed countries is consistent on showing the negative relationship between family size and household savings. Browning and Lusardi (1996), for instance, reports that savings ratio are higher for couples with no children, lower for households with children, and the least for lone parents. Harris, et al. (1999), using Australian data, finds a negative and significant relationship between household savings (measured as ordered discrete responses) and both the number of children and whether or not there are children in the household. Early literature, using 1950 US Survey of Consumption Expenditures, show that controlling for household income, age and occupation of the head, savings falls very substantially as family size increase from 1 to 3 members, but declines more gradually there after (Eizenga, 1961). Smith and Ward (1980), using US data, found that young children depress savings for young families but increases it for marriages of duration greater than five years. They pointed out that the main channel through which children depresses savings is the child-induced withdrawal of wives from the labor force. Even if family consumption was found to decrease with the birth of a child, this reduction is not sufficient to offset the fall in income. Smith and Ward (1980), also found that the impact of children on family consumption, and by implication savings, depends on their impact on family income and on family consumption. The dominant link of children to the income side is the child-induced lower work effort of women. A much lesser understood link is whether the father and/or older children's time substitute this reduction of the work effort of the mother.[7] On the consumption side, children have two effects. One, child goods will obviously increase proportionately. Two, the impact on other goods will depend on whether they are substitute or compliments with children. These considerations indicate that the effect of children will depend on the age of the parents, the previous consumption history and the age of the child.

As in many other issues, the empirical evidence on the impact of children on household savings is relatively scarce in developing countries (Schultz, 2004). Review of earlier research using developing country data done in Mason (1988) showed mixed results. For Korea, both rural household saving are not depressed by dependency ratio while urban household average saving and marginal propensity to save are inversely related to household size (Kim, 1974). Kelly and Williamson (1968), using data from Indonesia, finds that savings varies with the number of equivalent adults in rural household but not in urban households. Musgrove (1978), using data from five South American countries, finds that the results vary from country to country. In Columbia, Chile and Equador consumption increases with the number of children. An additional child is estimated to reduce savings, on average, by 1.0 to 1.5 percent. In Peru and Venezuela, on the other hand, consumption decline with the number of children. Kelinbaum and Mason (1987) find that in Thailand additional children (3 to 12 years old) depress the saving ratio between one to two percentage points depending on the socioeconomic status of the household and the educational attainment of its head. The impact of additional children for Korean households was found to be somewhat greater. More recent results from

[6] Results in Orbeta (2005b) shows that additional children reduce labor participation and income of mothers and do not significantly affect the labor force participation of fathers.

[7] Angrist and Evans (1998) provide recent evidence supporting the negative impact of children on the labor force participation of mothers and insignificant impact on the labor force participation of fathers.

Thailand confirm this earlier result. Havanon et a. (1992), using multi-classification analysis, finds a negative relationship between wealth accumulation (measured in terms of consumer goods and financial savings and housing) and family size in rural Thailand. The results seems to indicate that the impact is much larger in more developed areas, e.g. larger in Korea compared to Thailand, significant in urban but not in rural Korea (with contrasting result from Indonesia).

Evidence using data from the Philippines is much more consistent in showing the negative impact of children on household savings and asset accumulation. Peek (1974) using data for 1965 and 1971, finds that given household income, an increase in household size reduces savings but the number of children under age 18 has no significant effect on saving. Herrin (1993) in an analysis of household data from Misamis Oriental show that the number of young children aged 0-6 and 7-12 appear to reduce asset accumulation, suggesting that these age are net resource users compared to older children who can contribute to household income more than they consume. In spite of the children's contribution to household income, higher fertility households have not shown larger amount of accumulated assets. Using the 1985 FIES, Mason (1992) shows that (a) the rate of saving is depressed by child bearing; (b) bearing additional children does not necessarily lead to a reduction in the absolute amount of savings or in the absolute amount of saving or in the accumulation of wealth; (c) asset per child is greater in lower fertility households than in higher fertility households.

3. Methodology, Instrument and Data

3.1 Methodology

To determine the impact of children on household savings we estimate savings equations that recognize the endogeneity of the number of children. The importance of the recognizing the endogeneity of children in the household savings equation draws its motivation from the idea that children are a form of old-age security for parents (Neher 1971, Cain 1981, Hammer 1986, and Nerlove et al. 1987), hence, an alternative to savings. Gersovitz (1988) even argued that under these conditions it would be inappropriate econometrically to explain savings using demographic variables unless the endogeneity of the children variable is considered.

To allow for the endogeneity of the number of children, we instrument for it in the estimation. Following Agrist and Evans (1998) we assume a balanced sex-mix and used same sex as the instrument for the number of children. The validity of this instrument is explained the following section.

The paper estimates the following savings function:

$$s = \alpha_0 + \alpha_1 n + \alpha_2 y + X\alpha_3 + \varepsilon$$
$$n = \beta_0 + \beta_1 z + X\beta_2 + \mu$$

The variable *s* represents savings, *n* is the number of children, *y* is income, ***X*** is the vector of household and community characteristics. The second equation expresses *n* as a function of the instrument *z* and the household and community characteristics ***X***. Given this structure ε and μ are presumably correlated.

As pointed out in Paxon (1992), a savings equation that is linear in income can be obtained by maximizing a lifetime utility function that is additively separable over time and has either a quadratic or a constant-absolute-risk aversion form. This is also amply demonstrated in Browning and Lusardi (1996).

Two savings definitions[8] are used in the paper. One is the difference between total income and total expenditures (definition 1). The other recognizes that some of the household expenditures do not provide immediate benefits or the benefits accrue over some period of time failing to satisfy the more narrow definition of consumption. These would include expenditures on durable goods, education and health. These three components in the household expenditure were added back in the second savings definition (definition 2). In addition, two savings concepts were studied, namely: (i) the average saving rates or the ratio of savings to disposable income, and (ii) savings levels. These are the most common concepts used in the literature.

The estimation strategy is as follows. We first establish the endogeneity of the number of children equation using the sex of the first two children as instruments following Angrist and Evans (1998). We do this by various tests available in the `ivreg2` Stata routine described in Baum et al. (2003). We also check the relevance of the instruments by checking at the first stage regression results, particularly, the partial R^2 for the instruments and check if we have a weak instrument problem (Bound, Jaeger and Baker, 1995). We also test for the presence of heteroscedasticity in the data because this is common in cross-section data. When endogeneity is established it is well known that the OLS estimate will be biased and inconsistent and 2SLS or GMM estimates would provide a consistent estimate and the in the case of the GMM, an efficient estimate as well. When weak instrument is indicated, we present LIML estimates that are found to be more robust than the GMM in this case (Stock, Wright, and Yogo, 2002). Finally, in the case of using separate both male and both female instruments we check the overidentifying restrictions test results. This, of course, cannot be done when using the same sex as instrument as the system is exactly identified. When endogeneity is not established and heteroscedasticity was found present, we use heteroscedasticity-corrected OLS estimates.

To provide estimates for the expected varying impact of the number of children by socioeconomic class, models that include the interaction of the number of children and the per capita income quintile dummy variables are estimated using the method that was deemed most appropriate given the results of the test mentioned earlier. The differential impact across socioeconomic class will be estimated by the sum of the coefficient of the base category and the coefficient of the corresponding interaction term.

3.2 Balanced Sex-Mix as an Instrument

There are not too many instruments that one can find for the number children in household models. Most of the likely candidates such the household income, education of the parents or age of marriage are also related to the dependent variable of interest such as labor force participation of parents, savings or education of children, rendering

[8] Other savings definitions such as the change in stock household assets cannot be implemented because no data on assets are available in the data set.

these inappropriate as instruments. Recent research using US data such as Angrist and Evans (1998) has used the hypothesis that families prefer to have balanced sex-mix of children as an instrument for the number of children. The Philippines is one of the countries in Asia where a balance sex-mix are found to have prevailed in contrast to countries in South and Eastern Asia where indications for son preference is often found (Wongboonsin and Ruffolo, 1995). Early literature that confirms preference for balanced sex-mix in the Philippines is found in Stinner and Mader (1975). The other instruments that are available are limited by their applicability only in very specific circumstances. The occurrence of twins have been also been used as instruments again using US data first in Rosenzweig and Wolpin (1980) and in subsequent studies such as Angrist and Evans (1998). A much more recent application of the technique was done for the US (Vere 2005), for Romania (Glick, Marini and Sahn, 2005) and for Norway (Black et al, 2004). Son-preference in Korea was also used as an instrument for the fertility for instance in Lee (2004). Finally, another instrument would be an exogenous policy change that could affect child bearing. Quian (2004), for instance, used the relaxation of the one-child policy in China that allows rural households to have another child if the first child is a girl. Viitanen (2003), on the other hand, used the large-scale giving out of vouchers for privately provided childcare in Finland.

In the case of the balanced sex-mix hypothesis, the fact that families do not have control over the sex of their children makes same sex for the first two children virtually a random assignment. As argued in Angrist and Evans (1998) using same sex as an instrument will allow a causal interpretation. It should be noted, however, that the downside of this instrument is that it will render families that has less than two children unusable for analysis. While this maybe a serious problem in low fertility areas, this may not be in the case of the Philippines where the average number of children exceeds four.

To check on the validity of this instrument, Table 1 provides a cross tabulation of the average proportion of families that have additional children and the average number of number of children by sex of their first two children for 24,000 families that have two or more children using the APIS 2002 dataset. The table shows that 67.4% families that had one male and one female for their first two children had another child while 71.8% had another child when the have same sex for their first two children or a difference of more than 4%. In terms of average number of children, this is 3.49 as against 3.61 or an average difference of a little over 0.12 children. These average differences are statistically significant under conventional level of significance. Comparing this with Table 3 and 5 in Angrist and Evans (1998) one can observe several differences. The difference in the proportion of families having a third child for the two groups of families is smaller and the standard error is larger. In the case of the difference in the average number of children, the difference is larger but so is the standard error. This is not unexpected given the larger family size in the Philippines and the expected larger dispersion of the distribution. Consequently, the implied t statistics in Table 1 are not as large as those in Angrist and Evans (1998) indicating that discrimination generated from the same-sex instrument may not be as strong as those obtained using US data.

3.3 Data Sources

The data on individual and household characteristics and location characteristics were taken from the 2002 Annual Poverty Indicator Survey (APIS). The APIS is a rider survey to the July round of the quarterly Labor Force Survey (LFS) conducted by the National

Statistics Office (NSO). The 2002 round is the third of the APIS series conducted by the NSO. The other two were conducted in 1998 and 1999. It provides basic demographic information on all members of the household as well as household amenities. Income and expenditure for the past 6 month period preceding the survey are also gathered. These are the variables used to compute savings.

All monetary values such as income are deflated using provincial consumer price indices compiled by the Price Division of the NSO. This is done to control for inter-provincial price variability.

Barangay and municipal-level data from the 2000 Census of Population and Housing are also used to provide measures of availability of banking facilities and other indicators of investments opportunities. It is therefore assumed that there is not much difference in the structure of distribution of the facilities in 2000 and in 2002 or that whatever changes happened it did not upset the relative distribution of the availability of facilities. These barangay and municipal data set were aggregated at the domain level of the APIS and attached to the APIS data set using domain identification variables.

3.4 Descriptive Statistics

Table 2 provides the savings rates and levels using the two definitions by per capita income quintile and by number of children. The average saving rate is 2.7% for definition 1 and 9.0% for definition 2. In level terms, this is 7,730 and 11,253 (deflated 1994=100) under definition 1 and definition 2, respectively. Looking at the pattern across per capita income quintiles, under definition 1 bottom two quintiles are dissaving while the upper three quintile are have positive savings rates rising as one goes up socioeconomic status as expected. Under definition 2 the poorest quintile is still dissaving with the rest of the households having positive savings rates. Similar patter can, of course, be seen from the savings levels.

By number of children, the savings rates declines, in general, as one goes from a 2-children household to the 9 or more-children household with an unexpected bulge in the 6 and 7-children household. This result becomes more surprising as one observes that there is also an unusual drop in savings levels for these types of households. This can only mean an even greater decline in incomes.

Table 3 provides the descriptive statistics for the variables used in the estimation. The average disposable income per capita is 9.6 thousand (deflated 1994=100). About 84% are male-headed households with an average age of 48 years. The population per banking unit is 11 thousand. The proportion of barangays with access to national highways is about 80% and the proportion of barangays with electricity is about the same proportion (80%). These latter indicators are expected to capture investment opportunities that can affect savings behavior.

4. Estimation Results

4.1 Savings Rates

Table 4 and 5 provides the OLS, IV and heteroscedasticity corrected OLS estimates for the savings rates under definition 1 and definition 2, respectively. As shown by the

estimates, the endogeneity of the number of children in the savings equations is not validated by the tests in this particular data set. The F-values for the Wu-Hausman and the chi-square value for the Durbun-Wu-Hausman tests are both insignificant. The Pagan-Hall test for heteroscedasticity, however, is significant indicating presence of heteroscedasticity. These are true for both savings definitions. Thus, the most appropriate estimates will be those from the heteroscedasticity-corrected OLS. This is what we use in the subsequent discussions.

From Table 4, each additional child reduces the savings rates by -0.36 for definition 1. Table 5 shows that in the case of definition 2, the impact of additional children is not significant. While the estimates may look small in absolute value but they are not relative to the recorded average saving rates. Given the average savings rate in the sample of 0.028, this represents a reduction of about 13%.

The other noteworthy results from the savings rates equation (definition 1) are: (a) per capita income is a strong positive determinant, (b) the sex of the household head does not significantly affect savings rates, (c) savings rates rises with age but does not decline as expected from the life-cycle hypothesis, (d) the availability of banking institutions positively affects the savings rates, (e) access to national highways positively affects the savings rates although not for the availability of electricity, (f) there is higher savings rate in urban areas, and (g) the savings rates in almost all of the other regions, except for Western Visayas Region (6), Autonomous Region of Muslim Mindanao (ARMM) and Caraga also in Mindanao, are higher than the National Capital Region.

In the case of definition 2, the following are the deviations from the definition 1 results besides the insignificance of the number of children variable: (a) the savings rate rises with age but at a declining rate lending some support to the life-cycle hypothesis, (b) male-headed household have lower savings rates, (c) Western Visayas Region (6) has higher savings rate than the National Capital Region.

Table 6 shows the estimation results using the interaction terms of the number of children and per capita income quintile dummy variables. These interaction terms all turned out to be significant for both savings definition. The impact for the poorest quintile is a decline by 2.8% while for the lower middle to the richest quintile are, respectively, 0.9 (-2.8+3.6), 2.9(-2.8+5.7), 4.8(-2.8+7.6), 6.2(-2.8+9.0) for definition 1. The corresponding results for definition 2 are –2.8, 1.0(-2.8+3.8), 3.2(-2.8+6.0), 5.5(-2.8+8.3), and 7.7(-2.8+10.5) for the poorest to the richest quintile, respectively.

Thus, impact of additional children on savings rate is negative on average and is regressive with negative impact on the poorest households and positive impact from the top four quintiles.

4.2 Savings Levels

The endogeneity test for the savings levels equation also showed insignificance like those for the savings rate equations. Again similar to the savings rate equation, the heteroscedasticity tests also showed significance. Under these conditions the heteroscedasticity-corrected OLS estimation is deem most reliable.

Table 7 and 8 shows the estimation results for the savings levels equations. On average, the impact of additional children is negative for both definition 1 and definition 2. Each additional child will cause a reduction of about -254 (deflated 1994=100) for definition 1 and -309 (deflated 1994=100) for definition 2. Relative to the recorded average savings levels this represents a reduction of about -3.3% for definition 1 and -2.7% for definition 2.

The other noteworthy results are: (a) the marginal propensity to save is about 0.52 for definition 1 and 0.59 for definition 2[9], (b) savings level is not affected by the sex of the household head for both definitions; (c) savings level declines with age at a declining rate, (d) savings level is not affected by the availability of banking institution for definition 1 but unexpectedly is negatively affected in definition 2, (e) definition 1 savings is not affected by access to national highway and negatively affected by the availability of electricity with definition 2, (f) savings level is lower in urban areas for both definitions[10], and (g) savings level is higher in all other regions compared to the national capital region[11] except for ARMM.

Table 9 presents the estimation results of using the interaction between the number of children and per capita income dummy variables to capture the differential effects across socioeconomic classes. The results show that the impact of children is insignificant for the poorest quintile for both definitions. For the top four income quintiles, this is negative and increasing in magnitude as one goes up the income classes.

Thus, the impact of additional children on savings levels is negative on average. The impact across income classes is not significant for the poorest but negative for the other income groups.

4.3 Summary of Estimation Results

To get a better picture of the impact of additional children on household savings across the income classes, the computed impacts are expressed in percentage terms relative to recorded rates and levels. The results show that the impact of each additional child on savings rates is a -14% reduction for definition 1 and -18% reduction for definition 2 for the bottom quintile (Table 10). For the top four quintiles, the impacts on the savings rate in percentage terms are positive and declining as one goes up the income classes. For the savings level, the impact is insignificant for the poorest income class and negative for the upper income classes. Similar to the pattern of the effect on the savings rates, the impact in percentage terms also declines as one goes up the income classes.

These results show the negative and regressive effect additional children have on the both the savings rates and levels of households.

5. Summary and Policy Implications

This paper formulates and estimates savings functions recognizing the endogeneity of the number of children as is required by the old-age security hypothesis. In addition, it

[9] Bautista and Lamberte (1990) estimates a savings propensity ranging from 0.334 to 0.775.
[10] This agrees with the earlier results of Bautista and Lamberte (1990).
[11] This also agrees with the earlier results of Bautista and Lamberte (1990).

controls for income and other household and community variables common to savings functions. It uses a nationally representative household survey data.

The estimation results show the negative impact of children on household savings. In addition and perhaps more importantly, if finds that the impact additional children on the saving rates and levels of households is regressive. In particular, the results can be summarized in two statements. One, the impact on the savings rates of the bottom quintile is negative. Two, the impact on the savings level is negative, except for the poorest quintile that is actually dissaving and, in percentage terms, is bigger among the lower income households.

The implications of these results are clear. At the household level, additional children will expose some more families to the risk of income shortfalls and much more so for poorer households. They also deprive households of the prospect of exploiting investment opportunities that come their way. At the aggregate level, additional children contribute to the reduction in saving rates further depressing the already low savings rate of the country. These results also imply that reducing the number of children can help beef up savings to protect families from income shortfall. It constitutes as an important alternative to a formal safety net given the limited reach of the social security system.

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Table 1. Proportion of families that had a third child and average number of children by sex of first two children

Sex of first two children	Proportion that has a third child			Number of children			Proportion to sample
	Mean	SD	SE	Mean	SD	SE	
(1) One Male, One Female	0.6740	0.4688	0.0042	3.4850	1.5436	0.0315	0.964
(2) Both male	0.7179	0.4500	0.0052	3.6452	1.5994	0.0420	0.432
(3) Both female	0.7180	0.4500	0.0063	3.5575	1.4975	0.0495	0.261
(4) Same Sex	0.7179	0.4500	0.0040	3.6095	1.5592	0.0320	1.037
Difference (4)-(1)	0.0439		0.0058	0.1245		0.0449	

Source of basic data: National Statistics Office, Annual Poverty Indicators Survey, 2002

Table 2. Savings rates and savings level by per capita income quintile and number of children, 2002

	Savings Rates		Savings Levels*	
	Def. 1	Def. 2	Def. 1	Def. 2
Per capita Income quintile				
Poorest	-0.208	-0.164	-1,898	-1,373
Lower middle	-0.038	0.011	-263	739
Middle	0.048	0.104	2,084	3,883
Upper middle	0.121	0.191	6,930	10,527
Richest	0.218	0.305	31,888	41,816
No. of children				
2	0.061	0.120	9,039	12,635
3	0.034	0.099	8,332	12,257
4	0.013	0.078	7,793	11,364
5	-0.005	0.059	6,832	9,963
6	-0.019	0.046	3,471	6,128
7	-0.038	0.020	2,924	5,372
8	-0.004	0.055	5,559	8,435
9 and above	-0.007	0.051	3,248	6,348
Philippines	0.027	0.090	7,730	11,253

* Deflated (1994=100)

Table 3. Decriptive statistics

Variables	Obs	Mean	Std. Dev.	Min	Max
Savings rate, def. 1	29868	0.028	0.288	-1	1
Savings rate, def. 2	29868	0.089	0.286	-1	1
Savings, def 1	29868	7,532	41,775	-399,545	2,645,582
Savings, def 2	29868	10,845	43,857	-138,493	2,648,716
Disp. Inc. per capita, 000	29868	9.6	18.0	0	1557
Male household head	29868	0.84	0.36	0	1
Age of household head	29868	48	13	12	99
Pop per banking inst., 000	29538	11	20	2	167
Prop. of bgy with acc. to nat'l highway	29868	0.80	0.13	0.38	1.00
Prop. of bgy with electricity	29868	0.80	0.18	0.25	1.00
Urban dummy	29868	0.59	0.49	0	1
Region 1 dummy	29868	0.05	0.21	0	1
Region 2 dummy	29868	0.04	0.19	0	1
Region 3 dummy	29868	0.10	0.29	0	1
Region 4 dummy	29868	0.16	0.37	0	1
Region 5 dummy	29868	0.05	0.22	0	1
Region 6 dummy	29868	0.07	0.26	0	1
Region 7 dummy	29868	0.06	0.23	0	1
Region 8 dummy	29868	0.05	0.23	0	1
Region 9 dummy	29868	0.04	0.20	0	1
Region 10 dummy	29868	0.05	0.22	0	1
Region 11 dummy	29868	0.05	0.22	0	1
Region 12 dummy	29868	0.04	0.21	0	1
NCR dummy	29868	0.10	0.31	0	1
CAR dummy	29868	0.04	0.20	0	1
ARMM dummy	29868	0.05	0.22	0	1
Caraga dummy	29868	0.04	0.19	0	1

Def 1= Total Income-Total Expenditures

Table 4. Determinants of household savings rates
[Definition 1:Total Income-Total Expenditures]

	OLS (Robust SE)			IV*			OLS (Het.corrected)		
Explanatory Variables	Coef.	Std. Err.	t	Coef.	Std. Err.	z	Coef.	Std. Err.	z
No. of children	-0.003819	0.001348	-2.83	0.00258	0.02614	0.10	-0.003617	0.001343	-2.69
Per capita income, 000	0.007936	0.000671	11.83	0.00808	0.00059	13.70	0.008135	0.000662	12.29
Male household head	-0.009086	0.005401	-1.68	-0.01114	0.00992	-1.12	-0.008592	0.005392	-1.59
Age of household head	0.002329	0.001044	2.23	0.00119	0.00477	0.25	0.002245	0.001043	2.15
Age of household head, squared	-0.000004	0.000010	-0.42	0.00001	0.00005	0.15	-0.000004	0.000010	-0.35
Pop per banking inst., 000	0.000925	0.000112	8.29	0.00092	0.00012	7.77	0.000924	0.000112	8.29
Prop. of bgy with acc. to nat'l highway	0.073444	0.020889	3.52	0.07598	0.02258	3.37	0.073719	0.020877	3.53
Prop. of bgy with electricity	-0.029605	0.020026	-1.48	-0.03095	0.01940	-1.60	-0.030669	0.020006	-1.53
Urban dummy	0.057922	0.004435	13.06	0.05839	0.00429	13.60	0.057304	0.004420	12.96
Region 1 dummy	0.060230	0.009910	6.08	0.05986	0.00995	6.02	0.061158	0.009892	6.18
Region 2 dummy	0.095234	0.011329	8.41	0.09670	0.01239	7.81	0.095619	0.011321	8.45
Region 3 dummy	0.066376	0.007577	8.76	0.06641	0.00760	8.74	0.067139	0.007562	8.88
Region 4 dummy	0.034394	0.006820	5.04	0.03419	0.00700	4.88	0.034869	0.006811	5.12
Region 5 dummy	0.038612	0.010126	3.81	0.03681	0.01224	3.01	0.039737	0.010102	3.93
Region 6 dummy	0.004947	0.008859	0.56	0.00396	0.00956	0.41	0.006055	0.008833	0.69
Region 7 dummy	0.044775	0.009836	4.55	0.04397	0.00967	4.55	0.045777	0.009815	4.66
Region 8 dummy	0.066213	0.010760	6.15	0.06478	0.01180	5.49	0.067236	0.010739	6.26
Region 9 dummy	0.039084	0.011322	3.45	0.03859	0.01128	3.42	0.040062	0.011304	3.54
Region 10 dummy	0.062247	0.009856	6.32	0.06249	0.00946	6.61	0.063146	0.009839	6.42
Region 11 dummy	0.053261	0.009977	5.34	0.05292	0.00963	5.49	0.054401	0.009951	5.47
Region 12 dummy	0.084093	0.011201	7.51	0.08296	0.01171	7.08	0.084908	0.011185	7.59
CAR dummy	0.101432	0.011682	8.68	0.09991	0.01253	7.97	0.101858	0.011674	8.73
ARMM dummy	0.003175	0.017302	0.18	0.00114	0.01748	0.07	0.003996	0.017286	0.23
Caraga dummy	-0.007894	0.012013	-0.66	-0.00748	0.01067	-0.70	-0.006514	0.011983	-0.54
Constant	-0.236148	0.029496	-8.01	-0.23314	0.03198	-7.29	-0.236422	0.029479	-8.02
R-Sq.	0.1500			0.1489			0.1500		
Obs	24,140			24,140			24,140		
Test of Heteroscedasticity									
Pagan-Hall Test Stat (P-value)				26.55(0.0000)					
Endogeneity of No. of Children									
Wu-Hausman F test (P-value)				0.0601(0.8063)					
Durbin-Wu-Hausman chi-sq test (P-value)				0.0602(0.8062)					

* For 2SLS instrumented with both male and both female

Table 5. Determinants of household savings rates
[Definition 2:Total Income-(Total Expenditures-Dur. Fur-Education-Health)]

	OLS (Robust SE)			IV*			OLS (Het.corrected)		
Explanatory Variables	Coef.	Std. Err.	t	Coef.	Std. Err.	z	Coef.	Std. Err.	z
No. of children	-0.00262	0.00138	-1.90	-0.01402	0.02529	-0.55	-0.00216	0.00137	-1.58
Per capita income, 000	0.00881	0.00076	11.56	0.00856	0.00057	15.01	0.00924	0.00075	12.35
Male household head	-0.01578	0.00526	-3.00	-0.01213	0.00960	-1.26	-0.01456	0.00525	-2.78
Age of household head	0.00740	0.00103	7.19	0.00943	0.00461	2.04	0.00718	0.00103	7.01
Age of household head, squared	-0.00005	0.00001	-5.10	-0.00007	0.00005	-1.51	-0.00005	0.00001	-4.92
Pop per banking inst., 000	0.00089	0.00011	8.14	0.00090	0.00011	7.89	0.00088	0.00011	8.13
Prop. of bgy with acc. to nat'l highway	0.07026	0.02017	3.48	0.06575	0.02185	3.01	0.07107	0.02015	3.53
Prop. of bgy with electricity	-0.03391	0.01953	-1.74	-0.03151	0.01877	-1.68	-0.03662	0.01949	-1.88
Urban dummy	0.06299	0.00449	14.02	0.06216	0.00416	14.96	0.06171	0.00447	13.80
Region 1 dummy	0.06794	0.00955	7.11	0.06860	0.00962	7.13	0.06977	0.00953	7.32
Region 2 dummy	0.10741	0.01107	9.70	0.10480	0.01199	8.74	0.10851	0.01106	9.81
Region 3 dummy	0.07992	0.00738	10.82	0.07985	0.00735	10.86	0.08153	0.00736	11.08
Region 4 dummy	0.04823	0.00654	7.37	0.04859	0.00678	7.17	0.04927	0.00653	7.55
Region 5 dummy	0.04437	0.00998	4.45	0.04758	0.01185	4.02	0.04685	0.00994	4.71
Region 6 dummy	0.02325	0.00874	2.66	0.02501	0.00925	2.70	0.02542	0.00871	2.92
Region 7 dummy	0.04513	0.00972	4.65	0.04656	0.00936	4.98	0.04727	0.00969	4.88
Region 8 dummy	0.06522	0.01059	6.16	0.06777	0.01142	5.93	0.06755	0.01056	6.39
Region 9 dummy	0.03606	0.01114	3.24	0.03694	0.01091	3.38	0.03800	0.01112	3.42
Region 10 dummy	0.06257	0.00982	6.37	0.06214	0.00915	6.79	0.06453	0.00979	6.59
Region 11 dummy	0.06166	0.00983	6.27	0.06226	0.00932	6.68	0.06419	0.00979	6.55
Region 12 dummy	0.09766	0.01083	9.01	0.09968	0.01133	8.80	0.09922	0.01082	9.17
CAR dummy	0.12070	0.01112	10.85	0.12341	0.01213	10.18	0.12133	0.01111	10.92
ARMM dummy	0.00277	0.01686	0.16	0.00639	0.01691	0.38	0.00423	0.01684	0.25
Caraga dummy	0.01086	0.01183	0.92	0.01013	0.01033	0.98	0.01371	0.01178	1.16
Constant	-0.31085	0.02865	-10.85	-0.31620	0.03094	-10.22	-0.31080	0.02863	-10.85
R-Sq.	0.1893			0.1858			0.1890		
Obs	24,120			24,120			24,120		
Test of Heteroscedasticity									
Pagan-Hall Test Stat (P-value)				25.85(0.0000)					
Endogeneity of No. of Children									
Wu-Hausman F test (P-value)				0.241(0.6514)					
Durbin-Wu-Hausman chi-sq test (P-value)				0.2043(0.6513)					

* For 2SLS instrumented with both male and both female

Table 6. Determinants of household savings rates
(OLS -Heteroscedasticity corrected)

Explanatory Variables	Definition 1 Coef.	Std. Err.	z	Definition 2 Coef.	Std. Err.	z
No. of children	-0.02757	0.00139	-19.80	-0.02789	0.00137	-20.29
No. of children x quintile 2	0.03628	0.00114	31.71	0.03755	0.00111	33.94
No. of children x quintile 3	0.05663	0.00133	42.65	0.05999	0.00126	47.68
No. of children x quintile 4	0.07580	0.00163	46.42	0.08337	0.00158	52.84
No. of children x quintile 5	0.08995	0.00350	25.73	0.10466	0.00357	29.33
Per capita income, 000	0.00493	0.00052	9.46	0.00515	0.00055	9.31
Male household head	-0.00264	0.00495	-0.53	-0.00776	0.00461	-1.68
Age of household head	-0.00346	0.00095	-3.64	0.00087	0.00091	0.96
Age of household head, squared	0.00004	0.00001	4.67	0.00000	0.00001	0.39
Pop per banking inst., 000	0.00074	0.00010	7.39	0.00069	0.00010	7.29
Prop. of bgy with acc. to nat'l highway	0.06726	0.01945	3.46	0.06381	0.01836	3.47
Prop. of bgy with electricity	-0.12741	0.01828	-6.97	-0.14149	0.01732	-8.17
Urban dummy	0.00982	0.00370	2.66	0.00968	0.00351	2.76
Region 1 dummy	0.09101	0.00906	10.05	0.10422	0.00845	12.33
Region 2 dummy	0.11202	0.01016	11.02	0.12826	0.00966	13.28
Region 3 dummy	0.07775	0.00697	11.15	0.09506	0.00649	14.64
Region 4 dummy	0.04653	0.00641	7.26	0.06303	0.00596	10.58
Region 5 dummy	0.09616	0.00913	10.53	0.10922	0.00860	12.71
Region 6 dummy	0.04493	0.00781	5.75	0.06958	0.00730	9.53
Region 7 dummy	0.08935	0.00902	9.90	0.09604	0.00858	11.19
Region 8 dummy	0.11437	0.00983	11.63	0.11961	0.00932	12.83
Region 9 dummy	0.07209	0.01034	6.97	0.07435	0.00988	7.53
Region 10 dummy	0.12935	0.00892	14.51	0.13764	0.00853	16.14
Region 11 dummy	0.09855	0.00891	11.06	0.11441	0.00835	13.70
Region 12 dummy	0.11453	0.01051	10.90	0.13264	0.00992	13.37
CAR dummy	0.09812	0.01073	9.15	0.11708	0.00999	11.72
ARMM dummy	0.01623	0.01543	1.05	0.01854	0.01464	1.27
Caraga dummy	0.06403	0.01065	6.01	0.09191	0.01000	9.19
Constant	-0.04857	0.02801	-1.73	-0.10207	0.02671	-3.82
R-Sq.	0.2643			0.3326		
Obs	24,120			24,120		

Table 7. Determinants of household savings
[Definition 1:Total Income-Total Expenditures]

	OLS (Robust SE)			IV*			OLS (Het.corrected)		
Explanatory Variables	Coef.	Std. Err.	t	Coef.	Std. Err.	z	Coef.	Std. Err.	z
No. of children	-223.15	101.32	-2.20	1583.53	2184.29	0.72	-253.94	97.84	-2.60
Household income	0.56	0.04	13.09	0.56	0.00	202.20	0.52	0.03	14.94
Male household head	296.57	513.85	0.58	-375.15	940.18	-0.40	185.93	508.17	0.37
Age of household head	-675.06	142.19	-4.75	-989.45	389.98	-2.54	-566.72	123.49	-4.59
Age of household head, squared	5.38	1.31	4.12	8.72	4.12	2.11	4.60	1.19	3.85
Pop per banking inst., 000	-1.74	5.01	-0.35	-3.93	10.45	-0.38	-0.15	4.91	-0.03
Prop. of bgy with acc. to nat'l highway	-2213.78	1729.82	-1.28	-1406.90	2044.80	-0.69	-2400.44	1718.63	-1.40
Prop. of bgy with electricity	-14086.64	2092.07	-6.73	-14300.84	1686.26	-8.48	-12686.38	1845.19	-6.88
Urban dummy	-5309.24	865.69	-6.13	-5041.13	473.20	-10.65	-4590.52	745.58	-6.16
Region 1 dummy	13476.15	1285.96	10.48	13226.26	930.55	14.21	12801.99	1212.95	10.55
Region 2 dummy	13845.52	1294.52	10.70	14189.26	1056.44	13.43	13442.42	1271.94	10.57
Region 3 dummy	11633.72	1377.71	8.44	11511.39	696.25	16.53	10790.27	1258.90	8.57
Region 4 dummy	8380.79	1023.44	8.19	8233.29	647.75	12.71	7970.41	992.88	8.03
Region 5 dummy	14794.09	1414.79	10.46	14089.60	1221.47	11.53	13738.12	1260.89	10.90
Region 6 dummy	9610.37	1283.77	7.49	9204.46	918.75	10.02	8853.93	1205.21	7.35
Region 7 dummy	13918.73	1428.58	9.74	13487.50	966.91	13.95	12917.54	1290.31	10.01
Region 8 dummy	14126.09	1281.16	11.03	13561.31	1143.71	11.86	13309.93	1185.34	11.23
Region 9 dummy	11717.86	1235.55	9.48	11435.60	1050.89	10.88	10978.42	1154.23	9.51
Region 10 dummy	17113.80	1476.21	11.59	16977.20	858.37	19.78	16048.13	1323.03	12.13
Region 11 dummy	14997.72	1549.37	9.68	14746.21	906.14	16.27	13910.48	1408.06	9.88
Region 12 dummy	11833.06	1181.24	10.02	11385.03	1104.98	10.30	11242.14	1126.63	9.98
CAR dummy	10405.47	1078.81	9.65	9962.08	1112.08	8.96	10416.18	1075.14	9.69
ARMM dummy	11046.94	1385.85	7.97	10324.06	1631.13	6.33	10356.43	1325.46	7.81
Caraga dummy	15362.83	1638.50	9.38	15264.48	951.17	16.05	14177.03	1459.49	9.71
Constant	7211.49	3254.32	2.22	8000.05	2813.79	2.84	5186.02	2951.77	1.76
R-Sq.	0.678			0.674			0.674		
Obs	24,120			24,120			24,120		
Test of Heteroscedasticity									
Pagan-Hall Test Stat (P-value)				4,667.7(0.000)					
Endogeneity of No. of Children									
Wu-Hausman F test (P-value)				0.694(0.405)					
Durbin-Wu-Hausman chi-sq test (P-value)				0.695(0.405)					

* For 2SLS instrumented with both male and both female

Table 8. Determinants of household savings
[Definition 2:Total Income-(Total Expenditures-Dur. Fur-Education-Health)]

	OLS (Robust SE)			IV*			OLS (Het.corrected)		
Explanatory Variables	Coef.	Std. Err.	t	Coef.	Std. Err.	z	Coef.	Std. Err.	z
No. of children	-281.96	89.47	-3.15	2055.21	1923.49	1.07	-309.10	86.95	-3.55
Household income	0.63	0.04	17.24	0.63	0.00	259.02	0.59	0.03	19.91
Male household head	-548.32	411.78	-1.33	-1417.28	827.92	-1.71	-750.45	398.10	-1.89
Age of household head	-415.75	132.60	-3.14	-822.45	343.42	-2.39	-304.31	114.41	-2.66
Age of household head, squared	2.83	1.24	2.28	7.14	3.63	1.97	2.01	1.12	1.79
Pop per banking inst.,000	-1.53	4.30	-0.36	-4.37	9.20	-0.47	-4041.83	637.73	-6.34
Prop. of bgy with acc. to nat'l highway	-1987.45	1536.51	-1.29	-943.64	1800.65	-0.52	-0.09	4.24	-0.02
Prop. of bgy with electricity	-13617.61	1828.13	-7.45	-13894.70	1484.92	-9.36	-2018.45	1519.33	-1.33
Urban dummy	-4758.91	747.13	-6.37	-4412.07	416.70	-10.59	-12175.09	1595.27	-7.63
Region 1 dummy	13288.13	1119.08	11.87	12964.87	819.44	15.82	12800.19	1078.89	11.86
Region 2 dummy	14318.58	1126.56	12.71	14763.25	930.30	15.87	14146.26	1121.06	12.62
Region 3 dummy	12009.50	1160.42	10.35	11851.25	613.11	19.33	11414.66	1093.17	10.44
Region 4 dummy	9202.31	878.00	10.48	9011.50	570.41	15.80	9029.37	869.14	10.39
Region 5 dummy	15016.00	1180.14	12.72	14104.66	1075.62	13.11	14229.29	1088.72	13.07
Region 6 dummy	11172.71	1030.90	10.84	10647.61	809.05	13.16	10791.80	1004.81	10.74
Region 7 dummy	13851.00	1212.46	11.42	13293.15	851.46	15.61	13076.01	1129.36	11.58
Region 8 dummy	14234.87	1077.05	13.22	13504.25	1007.15	13.41	13680.00	1030.47	13.28
Region 9 dummy	11937.53	1050.54	11.36	11572.40	925.41	12.51	11484.52	1016.53	11.30
Region 10 dummy	16993.83	1239.14	13.71	16817.13	755.88	22.25	16154.29	1142.45	14.14
Region 11 dummy	15409.32	1302.07	11.83	15083.96	797.94	18.90	14587.10	1225.84	11.90
Region 12 dummy	12437.71	1015.27	12.25	11858.13	973.04	12.19	12126.09	994.86	12.19
CAR dummy	11052.50	982.76	11.25	10478.92	979.29	10.70	11264.57	974.71	11.56
ARMM dummy	11215.08	1184.88	9.47	10279.93	1436.37	7.16	10820.01	1167.65	9.27
Caraga dummy	16242.83	1357.43	11.97	16115.60	837.60	19.24	15311.25	1241.89	12.33
Constant	913.92	3044.36	0.30	1934.02	2477.82	0.78	-1577.86	2689.58	-0.59
R-Sq.	0.780			0.773			0.777		
Obs	24,120			24,120			24,120		
Test of Heteroscedasticity									
Pagan-Hall Test Stat (P-value)				4,337.4(0.000)					
Endogeneity of No. of Children									
Wu-Hausman F test (P-value)				1.52(0.217)					
Durbin-Wu-Hausman chi-sq test (P-value)				1.53(0.217)					

* For 2SLS instrumented with both male and both female

Table 9. Determinants of household savings
(OLS -Heteroscedasticity corrected)

Explanatory Variables	Definition 1 Coef.	Std. Err.	z	Definition 2 Coef.	Std. Err.	z
No. of children	84.33	103.59	0.81	49.41	91.40	0.54
No. of children x quintile 2	-593.68	85.01	-6.98	-592.41	75.70	-7.83
No. of children x quintile 3	-1538.13	224.90	-6.84	-1445.43	198.89	-7.27
No. of children x quintile 4	-3457.89	511.23	-6.76	-3044.24	450.02	-6.76
No. of children x quintile 5	-9113.79	1547.97	-5.89	-7279.21	1355.18	-5.37
Per capita income, 000	0.64	0.05	13.17	0.69	0.04	16.32
Male household head	-1310.75	490.67	-2.67	-1856.98	375.63	-4.94
Age of household head	-258.00	100.92	-2.56	-63.71	94.64	-0.67
Age of household head, squared	1.56	1.09	1.43	-0.34	1.02	-0.34
Pop per banking inst., 000	-0.54	5.05	-0.11	0.39	4.32	0.09
Prop. of bgy with acc. to nat'l highway	-2057.04	1647.19	-1.25	-1729.57	1466.33	-1.18
Prop. of bgy with electricity	-9587.56	1470.84	-6.52	-9563.68	1293.24	-7.40
Urban dummy	-2752.75	377.37	-7.29	-2514.57	327.39	-7.68
Region 1 dummy	10288.91	1022.81	10.06	10738.90	953.65	11.26
Region 2 dummy	11492.87	1150.66	9.99	12509.21	1033.51	12.10
Region 3 dummy	9344.64	998.35	9.36	10255.51	895.01	11.46
Region 4 dummy	6863.20	892.25	7.69	8071.27	795.45	10.15
Region 5 dummy	11091.13	924.05	12.00	11942.62	820.30	14.56
Region 6 dummy	6203.06	1071.52	5.79	8481.52	892.52	9.50
Region 7 dummy	10625.66	953.30	11.15	11131.28	866.32	12.85
Region 8 dummy	10939.98	972.24	11.25	11607.26	871.68	13.32
Region 9 dummy	8893.22	962.67	9.24	9688.22	868.29	11.16
Region 10 dummy	12993.86	921.93	14.09	13525.39	830.36	16.29
Region 11 dummy	10915.69	1095.03	9.97	12079.43	992.30	12.17
Region 12 dummy	9342.94	985.66	9.48	10485.18	889.82	11.78
CAR dummy	10503.34	1080.41	9.72	11229.43	979.12	11.47
ARMM dummy	9486.84	1211.02	7.83	10032.03	1064.84	9.42
Caraga dummy	10624.58	1043.47	10.18	12282.00	911.96	13.47
Constant	-1813.88	2640.69	-0.69	-7171.11	2375.81	-3.02
R-Sq.	0.7089			0.7981		
Obs	24,120			24,120		

Table 10. Impact on children on savings rate and levels

	Rate				Levels			
	Def 1		Def 2		Def 1		Def 2	
	coeff.	%	coeff.	%	coeff.	%	coeff.	%
Average	-0.36	-12.96	ns	ns	-254	-3.28	-309	-2.74
Poorest	-2.76	-13.90	-2.79	-18.22	ns	ns	ns	ns
Lower middle	0.87	41.12	0.97	32.42	-594	-433.35	-592	-61.13
Middle	2.91	48.97	3.21	27.50	-1,538	-63.16	-1,445	-32.63
Upper middle	4.82	36.96	5.55	27.24	-3,458	-43.52	-3,044	-25.28
Richest	6.27	27.07	7.68	23.53	-9,114	-23.86	-7,279	-14.46
Means	0.028		0.091		7,742		10,854	

ns - not significant
Source: Computed from Tables 4-9.