

**COMPARATIVE SAVING BEHAVIOR
OF RURAL AND URBAN HOUSEHOLDS
IN THE PHILIPPINES**

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Marginal saving rates for Philippine households are estimated, distinguishing between rural and urban households, by region, and by income group. At a given income level, rural households generally save more than urban households, both on average and at the margin. This contrasts with the higher average saving rates for urban households in the various regions, attributable to their higher incomes. The estimated marginal saving rates for rural households in many regions are found to be higher than their urban counterparts. In the context of agriculture-based development, faster growth of rural incomes need not result in lower aggregate savings.

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I. INTRODUCTION

The aggregate saving rate, the fraction of national income that is not spent on current consumption, has long been widely regarded as a key factor in economic growth.^{1/} In the dynamic Harrod-Domar model, the saving rate and the incremental capital-output ratio jointly determine the growth rate of the economy. The critical role of saving in capital accumulation and economic development is also recognized in the 'two-gap' and classical growth models. Even in the neoclassical growth model in which savings do not influence economic growth in the steady state, a higher saving rate is associated with more rapid growth of the economy in its movement towards long-run equilibrium. As noted by Gersovitz (1988), this transitional path (which can take time) is more meaningful than alternative steady states in representing the evolution of developing economies.

There are of course other determinants of economic growth. Technological progress, institutional development, domestic policies, and the external economic environment have also been emphasized in the development literature. To these additional influences on economic growth can be attributed the lack of a simple correlation sometimes observed between savings and growth in developing countries (LDCs). Only when these explanatory variables are simultaneously taken into account would one be able to assess empirically their separate effects on growth. Although Arthur Lewis' famous dictum that raising the saving rate is the 'central problem in economic development' can be disputed (Deaton 1989: 39), few would doubt that economic growth cannot be long sustained under conditions of declining saving rates.

Savings, including both domestic and foreign, finance the (physical and human) capital formation needed to increase output, and this is of particular importance to typically capital-scarce LDCs. Apart from its direct contribution to output growth, capital accumulation also makes possible the employment of complementary production inputs in abundant supply -- for example, unskilled labour in most developing countries -- and serves as a vehicle for the adoption of improved technologies embodied in new investments.

While there have been brief periods of significant inflow of external financial resources to some LDCs in the past, foreign savings cannot be expected to provide a sustainable basis for financing domestic investment. Raising the national saving rate is particularly essential to developing countries with a heavy

^{1/} Past surveys discussing the role of saving in economic development and its determinants include Snyder (1974) and Gersovitz (1988).

debt-service burden and limited capacity to obtain loans in foreign capital markets. Indeed, macroeconomic adjustment programs oriented to the resumption of long-run growth invariably emphasize the need to expand domestic savings.

Household saving is usually the largest component of domestic savings in developing countries, especially the lower-income, predominantly agricultural LDCs. This contrasts with the much greater importance of corporate saving in developed countries. The ability, willingness, and opportunity of households to save over time can therefore significantly influence the rate and sustainability of capital accumulation and economic growth in developing countries.

There has recently been a growing recognition of the pivotal role of agriculture and the rural sector in promoting a more rapid and equitable economic growth for low-income LDCs. ^{2/} Advocates of an agriculture-based development strategy (ADS) emphasize the expansion of public investments in the rural sector and the removal of policy-induced price biases against agricultural products. These are expected to raise farm productivity, agricultural output, and rural income, which in turn will generate increased intermediate demand for nonagricultural inputs, and more importantly will stimulate consumption demand for food and labour-intensive industrial goods and services, generating employment and income multiplier effects on the rural, regional and national economies. In the short to medium term, rural household income is expected to increase at a faster rate compared to urban household income.

How will the adoption of ADS and associated shift in rural-urban income distribution affect aggregate household savings? In any given year, it is commonly observed that the average saving rate of rural households is lower, sometimes very much lower, than that of urban households. ^{3/} If fixed saving rates for the rural and urban sectors are assumed, the rising real income of rural households relative to urban households in a growth process that is agriculturally driven will likely result in a lower

^{2/} See, for example, Adelman (1984) and Bautista (1988). An early statement of agriculture-based development strategy can be found in Mellor (1976).

^{3/} Lipton (1977: 247) has aptly pointed out that, apart from the significant underestimation of agricultural saving embodied directly in investment, "some rural saving is drained off by price twists to finance socially low-yielding urban investment" and that "farmers would have more incentive to save and to embody their savings in farm investment, if its returns were not artificially depressed by policies turning the terms of trade against agriculture."

aggregate saving rate, calling into question its sustainability. Such an assumption on household saving behaviour is questionable, however.

A positive relationship between the saving rate and income in developing countries, at least within certain ranges of income levels, has been obtained in past empirical studies using household survey data, e.g., (Bhalla 1980) for India, or cross-country national income accounts, e.g., (Moore 1981) for Asian countries. An observed lower average saving rate for rural households (relative to urban households) may then be explained simply by their lower average income. However, rural household incomes can increase rapidly in the course of agriculture-based development, which may prevent a decline in the aggregate saving rate or even raise it. Furthermore, the improvement of investment opportunities in the rural areas associated with the ADS provides an additional stimulus to increased savings by rural households.

Empirical evidence on the relative size of the marginal saving rates for rural and urban households is thin and contradictory. In a study using 1963-72 survey data on South Korean households, 'farmers are found to be considerably more thrifty -- their marginal propensity to consume is almost half that of urban consumers' (Lluch et al. 1977: 99). Based on a similar analytical framework, estimates of the marginal propensity to save (MPS) for Mexico show averages of 0.11 for rural households compared to 0.25 for urban households; 'in Chile the values tend to be around 0.30, with slightly lower levels for comparable urban households' (p. 241). Using data from household surveys in Bangladesh for each year from 1976/77 to 1978-79, the MPS out of transitory income is estimated to be 'consistently and significantly higher' among rural households (Chowdhury 1987). On the other hand, the findings from an Indian study using time series data indicate a higher aggregate MPS for the urban sector (Gupta 1970). To be sure, comparability of saving rate estimates from independent studies for different countries by different investigators is severely impaired by differences in data and measures used and by the varying analytical approaches and estimation techniques adopted in deriving the estimates. ^{4/}

In this paper, we investigate the comparative saving behaviour of rural and urban households in the Philippines using FIES (Family Income and Expenditure Survey) data for 1985, the latest year for which such data are available. Apart from the contribution to empirical knowledge in an area previously not

^{4/} For instance, the use of an 'extended' linear expenditure system and sophisticated econometric estimation procedures in the studies on Korea, Mexico and Chile cited above contrasts sharply with the simple linear regression of income on saving employed in the Bangladesh and India studies.

given systematic attention in the development literature, some policy interest attaches in the Philippine context to an examination of the differential saving behaviour of rural and urban households considering the recent shift towards more rural-oriented development policies as expressed in the government's Medium-Term Philippine Development Plan, 1987-1992.

Section II addresses some theoretical and empirical issues in saving behaviour, especially as they relate to existing conditions in developing countries and in particular, the Philippines. The discussion leads to the specification of household saving functions distinguished by region, by location (rural and urban), and by income class. In Section III, we describe and evaluate the data base for the study, indicating also some relevant characteristics of sample households. Section IV presents and analyzes the estimated saving equations. The findings of the study are summarized, and their implications for development policy and strategy briefly discussed, in the concluding section.

II. ANALYTICAL CONSIDERATIONS

In a fundamental sense, one's saving is a sacrifice of current consumption that will allow for an increase in future consumption. Saving is a means not only of reducing fluctuations in income and smoothing consumption over time but also of earning interest. Given the intertemporal nature of the saving process, it is the lifetime income of the individual, not just the current income as implied in the Keynesian consumption function, that should influence current saving. This life-cycle model also suggests a higher rate of saving during certain periods, e.g., in pre-retirement years in order to provide for consumption in old age. Age of the individual would therefore be an appropriate determinant of savings. Additionally, existing investment opportunities (or more precisely, the return to investments) and the cost of borrowing can also significantly affect saving behaviour.

That current saving depends on lifetime resources is also an important implication of Friedman's (1957) permanent income hypothesis. Current income is viewed as the sum of permanent and transitory incomes, the former reflecting the individual's lifetime earnings. In its extreme form the permanent income approach postulates equality between an individual's current consumption and permanent income, implying that the MPS is zero out of permanent income and one out of transitory income. Existing empirical studies do not bear out this strict version of the permanent income hypothesis, but they provide support to the view that the marginal saving rate is higher out of transitory income than that out of permanent income.

Quantitative information on actual choices about savings is typically available at the household rather than individual level, at least among developing countries. Such data are often provided through countrywide income and expenditure surveys, less frequently through special, locationally more focused surveys on changes in family assets and liabilities. Both sources of data are subject to error. Household income, particularly the non-monetized component, is often observed to be underreported, with significant differences in the degree of underestimation among surveys done in the same country for different years (Berry 1985). If nonmonetized consumption is also understated, the saving rate (but not necessarily the level of savings) will be overestimated. On the other hand, household assets and liabilities tend to be incompletely enumerated (data on cash and jewelry are especially difficult to obtain) and nonfinancial investment is frequently not properly valued.

Given the limitations of data used, some analysts have simply examined the determinants of household savings on a variable-by-variable basis, e.g. (Alamgir 1976), instead of using a systematic approach to the modeling of saving behavior. While income is generally acknowledged as the principal influence on saving, there are conceptual and/or data-related difficulties, in a developing country context, in representing the income variable by current income or by some measure of lifetime savings. In this study, estimation of household saving functions makes use of the two alternative measures of the income variable.

The above representation of intertemporal decisionmaking about individual saving needs modification if the household is to be the unit of analysis as required by data availability. One complicating factor is the possible influence of family size on savings. Other things the same, the higher the proportion of household members that consume more than they produce, the lower will be the household saving (Leff 1969). Family size as such would not be the relevant explanatory variable; among rural families particularly, even children can contribute significantly to the household's production and income. Some measure of 'dependency' reflecting the unemployment of household members would be more appropriate.

The strong retirement motive for saving in the life-cycle hypothesis can also be called into question in the context of the strong family ties that characterize many LDC households. Especially in the rural areas where the extended family system is more prevalent, there is a sense of obligation to care for the older, economically inactive household members. This also reduces the need for the younger members to save since their future consumption is expected to be provided for (at least partly) and weakens the expected relationship between age (of household head) and savings.

Many households in developing countries are observed to have a low saving rate, or even a negative one, at low income levels. This is sometimes interpreted to indicate problems of survey data reliability. Alternatively, however, the low or negative saving rate may reflect rational household responses to current transiently low incomes, or to the high consumption needs of the poor since 'current consumption is more likely to influence survival and efficiency-at-work at low levels of consumption' (Gersovitz 1988: 410).

As pointed out above, there is some empirical evidence of rising saving rates as income level increases. As a prominent example, Bhalla (1980) has estimated a nonlinear saving function for rural households in India in which the average propensity to save is zero at the subsistence level and increases at an accelerating rate in the low-income range, followed by a deceleration and eventual tapering off to an asymptotic value. However, as in the formulation of other nonlinear saving functions (e.g., quadratic or semi-logarithmic), the process or mechanism that leads to the nonlinear relation between the saving rate and income level is not spelled out. Due to deficiencies in the data used, the view has been expressed recently that 'hypotheses about behavioral nonlinearities in savings' cannot be disentangled 'from problems in measuring the variables' (Gersovitz 1988: 411). Alternatively, one can estimate a linear saving function for (homogeneous) households differentiated by income group and then compare their estimated saving propensities. This is the approach adopted in the present study.

In many developing countries where capital markets are significantly fragmented (McKinnon 1973), households face different investment opportunities and costs of borrowing that can lead to differences in marginal saving rates. Lower-income households tend to be more vulnerable to capital market imperfections, attributable in large measure to their weak information base and inability to meet collateral requirements. In the Philippines, differing location of households in geographic areas separated by wide spaces and having different consumption and production patterns is likely to imply varying rates of return to investments. Access to credit likewise differs, influenced in part by regional variations in the effectiveness of financial intermediation. In addition, relating to 'taste' (pure time preferences in consumption), some ethnic classes in certain regions are traditionally known for their frugal (spendthrift) ways. It would be appropriate therefore to distinguish household saving functions by geographic regions.

Within a given region it is necessary for the purposes of this study to distinguish rural and urban households in their saving behavior. Apart from likely differences in demographic characteristics, social practices, and educational background, rural households are of course much more engaged in agriculture and face greater income variability relative to urban households.

It is sometimes asserted that the consumption pressures of the demonstration effect are weaker in the rural areas, where the scope for conspicuous consumption is more limited so that rural families will save more compared with their urban counterparts. Contrary to this, the findings of a study for Taiwan indicate that increased awareness and ownership of modern consumption goods led to higher savings, and that 'this relationship held within income groups' (Freedman 1970: 31).

It has been argued (although contrary currents of argument also exist) that there are more immediate outlets for investment in the farm than in the cities and that if interest paid and the rate of return in the rural sector are higher than those available to the urban population, then farmers' marginal propensity to save will be higher. Also, based on the permanent income hypothesis, the relative instability of farm income would imply greater saving out of current income for rural households than for urban households.

Some of the above considerations relate not to the rural-urban distinction which is locational, but to the differentiation of households by source of income. Accordingly, it would be useful to distinguish also between farm and nonfarm households, especially since the proportions of farm (nonfarm) households in urban (rural) areas are not insignificant (see below).

III. THE DATA BASE AND PROFILE OF SAMPLE HOUSEHOLDS

As indicated above, the primary source of data for this study is the Family Income and Expenditure Survey (FIES) for 1985. The FIES is supposed to be conducted by the National Census and Statistics Office every five years beginning 1961. However, after the third survey in 1971, it was only in 1985 that the next FIES was undertaken. While previous surveys were carried out through only one round of interviews, the 1985 FIES entailed two visits by enumerators (in July 1985 and January 1986), which obtained information for the first and second halves of the year. Extensive reinterviews were also conducted subsequently to follow up on seemingly questionable survey responses. Additionally, some qualitative improvements were implemented in the 1985 FIES in dealing with nonsampling errors and in the inclusion of noncash income and expenditures. It is also worth noting that the 1985 FIES and the earlier surveys differ in the number of regions into which the sample households are classified and in the regional grouping of provinces, which precludes direct comparability of regional data from those surveys. ^{5/}

^{5/}

For an extended discussion of the reliability of 1985 FIES data and comparison with other sources of savings data, see Osnima (1988) and Lamberte and Bautista (1989, Ch. IV).

The sample consists of 17,495 households. They were selected using a stratified two-stage cluster sampling design, with villages or 'barangays' (classified as either urban or rural) as the primary sampling units and households within each sample barangay as the secondary sampling units. The sampling fraction was typically 1:400 for urban areas and 1:600 for rural areas, with special sampling fractions applied to relatively small areas. A total of 16,971 sample households were successfully interviewed in the two visits.

The distribution of the sample households by region and by urban-rural classification is given in Table 1. (See Annex I for the names of regions and the provinces and chartered cities comprising each region; and Annex II for the classification of rural and urban households in the 1985 FIES.) Since this study also examines saving behavior of farm and nonfarm households, the sample households in each region are also classified in the table according to whether their main source of income came from agricultural or nonagricultural activities.

Rural households constitute some 53 percent of the total sample households. It is worth noting that 42 percent of rural households are classified as nonfarm households. While the proportion varies by region (ranging from 25 to 54 percent), this indicates substantial nonagricultural activities in the rural areas. As regards urban households, a not insignificant proportion (11 percent) is engaged in farm activities, also varying by region (from 7 to 32 percent). The lack of substantial correspondence between rural and farm households and between urban and nonfarm households suggests the usefulness of estimating saving functions separately for these four household categories.

The mean values of household income, savings, and saving rate by region, location and main source of income are shown in Table 2. The large differences in average household income across regions -- especially those relating to the National Capital Region (NCR), the highest income region -- reflect the past uneven development of the Philippine economy and geographic concentration of income growth. Region III, which is located close to the NCR, ranks second. The average household income in Region VIII, the most depressed in the country, is less than 30 percent of that in the NCR. Within each region, a wide disparity between rural and urban average household incomes can be observed, with urban households consistently showing higher values in all the twelve regions. A similar disparity is found if households are classified according to their main source of income. In particular, the average income of farm households is about one-half that of nonfarm households in almost all the regions.

All regions, except one, show positive average household savings. As indicated in Table 4 below, the definition of savings used in this study includes expenditures on equipment,

Table 1
DISTRIBUTION OF SAMPLE HOUSEHOLDS:
BY LOCATION AND BY MAIN OCCUPATION

Region	Rural			Urban			Total
	Farm	Nonfarm	Sub- total	Farm	Nonfarm	Sub- total	
I	381 (46.2)	444 (53.8)	825 (100.0)	36 (8.7)	379 (91.3)	415 (100.0)	1240
II	410 (66.4)	207 (33.6)	617 (100.0)	73 (31.6)	158 (68.4)	231 (100.0)	848
III	366 (43.6)	474 (56.4)	840 (100.0)	62 (7.1)	809 (92.9)	871 (100.0)	1711
IV	593 (49.0)	618 (51.0)	1211 (100.0)	160 (13.9)	988 (86.1)	1148 (100.0)	2359
V	438 (58.2)	314 (41.8)	752 (100.0)	50 (15.7)	268 (84.3)	318 (100.0)	1070
VI	654 (68.0)	307 (32.0)	961 (100.0)	89 (16.1)	465 (83.9)	554 (100.0)	1515
VII	387 (48.9)	404 (51.1)	791 (100.0)	70 (13.1)	463 (86.9)	533 (100.0)	1324
VIII	436 (69.3)	193 (30.7)	629 (100.0)	56 (21.8)	201 (78.2)	257 (100.0)	886
IX	411 (69.3)	182 (30.7)	593 (100.0)	36 (18.8)	156 (81.2)	192 (100.0)	785
X	374 (61.3)	236 (38.7)	610 (100.0)	74 (22.6)	254 (77.4)	328 (100.0)	938
XI	481 (74.6)	164 (25.4)	645 (100.0)	107 (21.8)	383 (78.2)	490 (100.0)	1135
XII	359 (66.4)	182 (33.6)	541 (100.0)	40 (18.6)	175 (81.4)	215 (100.0)	756
NCR	-	-	-	-	2404 (100.0)	2404 (100.0)	2404
TOTAL	5290 (58.7)	3725 (41.7)	9015 (100.0)	853 (10.7)	7103 (89.3)	7956 (100.0)	16971

Note: Figures in parentheses are percentages of total rural or total urban households. See Annex I for the names of regions and provinces/chartered cities in each region.

Table 2
 MEAN VALUES OF HOUSEHOLD INCOME (Y), SAVINGS (S),
 AND SAVING RATE (S/Y): BY REGION, LOCATION
 AND MAIN SOURCE OF INCOME

Region/Households	Y (P)	S (P)	S/Y (%)
I. All Households	32194	6732	20.9
Rural	27490	5689	20.7
Urban	41544	8805	21.2
Farm	26780	5722	20.4
Nonfarm	40818	8720	21.4
II. All Households	29286	6324	21.6
Rural	24950	5513	22.1
Urban	40867	8490	20.8
Farm	18305	4160	22.7
Nonfarm	31087	4459	14.4
III. All Households	40439	6664	16.5
Rural	28750	3158	11.0
Urban	51712	10045	19.4
Farm	18162	1998	11.0
Nonfarm	37346	6909	18.5
IV. All Households	31478	5255	16.7
Rural	24073	3967	16.5
Urban	39289	6614	16.8
Farm	15765	1472	9.3
Nonfarm	34903	6441	18.4
V. All Households	21506	2619	12.2
Rural	17089	1510	8.8
Urban	31953	5242	16.4
Farm	13924	1496	10.7
Nonfarm	27374	4037	14.8
VI. All Households	26699	4465	16.7
Rural	19027	2537	13.3
Urban	40007	7809	19.5
Farm	15530	1899	12.2
Nonfarm	31131	5521	17.2
VII. All Households	21758	4902	22.5
Rural	15465	3076	19.9
Urban	31096	7612	24.4
Farm	11261	2016	17.9
Nonfarm	25488	6391	25.1

Table 2 (cont'd)

Region/Households		Y (P)	S (P)	S/Y (%)
VIII.	All Households	18666	2811	15.1
	Rural	15568	1842	9.9
	Urban	26249	5182	19.7
	Farm	11916	1247	10.5
	Nonfarm	26884	5845	21.7
IX.	All Households	24094	5226	21.7
	Rural	22426	5128	22.9
	Urban	29254	5529	18.9
	Farm	15013	2274	15.2
	Nonfarm	29192	6516	22.3
X.	All Households	27787	6265	22.6
	Rural	21729	3535	16.3
	Urban	39054	11342	29.0
	Farm	26598	6620	24.9
	Nonfarm	29107	3834	13.2
● XI.	All Households	29210	6004	20.6
	Rural	21831	3416	15.6
	Urban	38924	9409	24.2
	Farm	23195	3376	14.6
	Nonfarm	32569	7519	23.1
XII.	All Households	25940	-3660	-14.1
	Rural	21216	2499	11.8
	Urban	37829	-6583	-17.4
	Farm	17411	3442	19.8
	Nonfarm	32434	-2818	-8.7
NCR	All Households	64449	12790	19.8

Source: Calculated from basic data in 1985 Family Income and Expenditures Survey.

consumer durables and education. The household saving rates vary considerably across regions, ranging from -14 to 23 percent. The relatively high saving rates in Regions I and II are not surprising, considering that the population there (mostly, the 'Ilocanos') are traditionally known for thriftiness. The other regions that show relatively higher saving rates are Region VII where the second premier city of the country is located, and Regions IX, X and XI, all from the Mindanao area which are heavily populated by migrant families. There is a considerable difference in the saving rates between urban and rural households within the same region. In particular, the former's saving rates are higher than the latter in nine regions.

The differences in saving rates between farm and nonfarm households within the same region are also quite substantial. The saving rates of nonfarm households in nine regions are higher than farm households. This situation occurs in almost all regions where the saving rates of urban households are found to be higher than rural households.

Table 3 compares the average saving rates between rural and urban households belonging to the same income bracket. Two important observations should be noted. First, urban households dissave if their annual income falls below ₱20,000, while rural households dissave if their annual income is below ₱15,000. The differential cut-off income for dissaving between rural and urban households could be due to the higher cost of living in the urban areas. Second, for the same income class the saving rates of rural households are higher than those of urban households in all but one income class.^{6/} This would seem to suggest that the lower saving rates observed across regions for rural households can be attributed at least in part to their lower incomes compared to urban households.

IV. ESTIMATION RESULTS

Our preliminary regressions indicate lack of significance and sometimes theoretically incorrect signs of the estimated coefficients of the following explanatory variables: age of household head, entered in quadratic form; educational attainment of household head, distinguishing among five education categories; and wife's employment status (employed or unemployed). In most cases these variables are highly correlated with household income, so that their separate effects on savings cannot be disentangled. Accordingly, these variables have been excluded in the subsequent regressions.

^{6/} Lipton (1977, Ch. 10) cites similar evidence of higher rural saving rates in Pakistan and India.

Table 3
HOUSEHOLD SAVING RATES BY INCOME CLASS AND LOCATION

Income Class (In P)	Philippines (%)	Urban (%)	Rural (%)
Under 2,000	-32	-78	-21
2,000 - 3,999	-36	-86	-30
4,000 - 5,999	-22	-22	-22
6,000 - 7,999	-14	-17	-14
8,000 - 9,999	-8	-12	-7
10,000 - 14,999	-2	-7	-1
15,000 - 19,999	3	-2	4
20,000 - 29,999	5	2	7
30,000 - 39,999	10	8	12
40,000 - 59,999	13	11	16
60,000 - 99,999	17	15	23
100,000 - 249,999	24	21	36
250,000 - 499,999	32	33	24
500,000 and over	65	64	80
Total	13	16	10
Total No. of Households	95,663	36,024	59,639

Source: Lamberte and Lim (1987).

Note: Saving is defined as total income minus total expenditures.

Table 4
DEFINITION OF VARIABLES

Notation	Definition
Y	Household disposable income in pesos (= household current income less taxes)
YP	Household permanent income in pesos
YT	Household transitory income in pesos
S	Household savings in pesos (= Y less total household expenditures net of expenses on durable furniture, equipment, and education)
LOC	Location (1 for urban household; 0 for rural household)
D	Main occupation of household head (1 for nonfarm household; 0 for farm household)
DR	Dependency ratio (= number of unemployed household members divided by household size)

Table 5 presents the estimation results for "all" households in each of the 13 regions distinguished in the 1985 FIES, based on the Keynesian saving function in which the income variable is measured as current household income (after taxes). From 48 to 95 percent of the variance of regional household savings is explained in the various estimated equations. Without exception the coefficient estimates for the income variable are highly significant (at the 1 percent). They range widely from 0.334 (Region II) to 0.775 (Region X), indicating that an aggregate saving rate for Philippine households would mask large differences in regional saving propensities. It is worth noting that the MPS estimate for the National Capital Region (Metro Manila) is the second lowest among the 13 regions in either of the two specifications. As expected, the coefficient estimates for DR (dependency ratio) are negative, but in some cases are not significantly different from zero. ^{7/}

Distinguishing between rural and urban households in each region, the estimated saving equations in Table 6, also based on the current income model, show some significant differences in the MPS estimates for the two household classes. Rural households in Regions I and IX have markedly higher coefficient estimates for the income variable compared to urban households, while the opposite is true for Regions IV, VII, X, XI and XII. It is not possible, therefore, to make a generalized inference on the relative saving propensities of rural and urban households in the Philippines.

The MPS estimates for rural households, which range from 0.322 (Region VII) to 0.735 (Region IX) in the specification without the dummy variable for main source of income, may seem quite high. Nearly all these estimates, however, are even lower than the estimated MPS of 0.728 obtained in a recent study of rural savings in the Philippines (Rodriguez and Meyer 1988) using a different data set (based on a special survey involving 980 rural households in 6 provinces).

Also from Table 6, a significant negative influence of the dependency ratio is seen for rural households in most regions; ^{8/}

^{7/} As John Mellor has suggested in a private communication, the composition, not just the number, of unemployed household members (the numerator in the dependency ratio) would be a relevant factor. Because education expenditure counts as saving, more children of school-going age should imply higher saving -- which counterbalances the expected negative effect of DR.

^{8/} The coefficient estimate for the dependency ratio is also found in the Rodriguez-Meyer study to be negative; it is not statistically significant in the current income specification of the saving equation, but significant at the five percent level based on the permanent income model.

Table 5
ESTIMATED SAVING EQUATIONS, CURRENT INCOME MODEL:
ALL HOUSEHOLDS BY REGION

Region	Const.	Y	R ²	:	Const.	Y	DR	R ²
I	-7353 (-18.6)*	0.438 (53.4)*	0.70		-6389 (-6.3)*	0.438 (53.4)*	-1418 (-1.0)	0.70
II	-3460 (-7.0)*	0.334 (27.9)*	0.48		-2074 (-2.0)**	0.335 (28.0)*	-2233 (-1.5)	0.48
III	-13289 (-27.7)*	0.493 (58.0)*	0.66		-12411 (-10.3)*	0.493 (58.0)*	-1272 (-0.8)	0.66
IV	-9387 (-29.9)*	0.465 (68.2)*	0.66		-8008 (-10.7)*	0.466 (68.2)*	-2104 (-2.0)**	0.66
V	-5966 (-16.8)*	0.399 (35.5)*	0.54		-4194 (-5.0)*	0.400 (35.6)*	-2733 (-2.3)*	0.54
VI	-10419 (-24.6)*	0.558 (71.8)*	0.77		-8562 (-7.8)*	0.557 (71.7)*	-2934 (-1.8)	0.77
VII	-5019 (-17.5)*	0.456 (58.8)*	0.72		-2525 (-3.9)*	0.458 (59.3)*	-4100 (-4.3)*	0.73
VIII	-5052 (-15.8)*	0.421 (36.2)*	0.60		-4066 (-5.7)*	0.422 (36.3)*	-1569 (-1.5)	0.60
IX	-11600 (-29.9)*	0.698 (70.8)*	0.86		-9697 (-8.5)*	0.699 (71.0)*	-2744 (-1.8)	0.87
X	-15266 (-32.7)*	0.775 (128.1)*	0.95		-13612 (-9.3)*	0.775 (128.1)*	-2497 (-1.2)	0.95
XI	-13664 (-30.7)*	0.673 (82.4)*	0.86		-10788 (-8.1)*	0.673 (82.5)*	-4244 (-2.3)**	0.86
XII	-10954 (-22.9)*	0.563 (47.1)*	0.75		-8944 (-5.9)*	0.563 (47.2)*	-2853 (-1.4)	0.75
NCR	-12352 (-16.2)*	0.380 (82.1)*	0.73		-7194 (-2.8)*	0.380 (82.0)*	-7354 (-2.1)**	0.74

Notes: See Table 4 for definitions of symbols. Numbers in parentheses are t-values.
R² denotes adjusted coefficient of determination.
* Significant at the one percent level.
** Significant at the five percent level.

Table 6
ESTIMATED SAVING EQUATIONS, CURRENT INCOME MODEL:
RURAL AND URBAN HOUSEHOLDS BY REGION

Region/Household	Const.	Y	DR	R ²	Const.	Y	DR	D	D*Y	R ²
Region I:										
Rural	-8352 (-7.9)†	0.561 (51.2)†	-2024 (-1.4)	0.76	-2707 (-2.1)††	0.317 (8.2)†	-1884 (-1.3)	-7486 (-7.8)†	0.273 (6.8)†	0.78
Urban	-4579 (-2.4)†	0.358 (30.8)†	-2100 (-0.8)	0.78	-640 (-0.1)	0.284 (8.9)	-2168 (-0.8)	-4112 (-1.8)	0.155 (0.2)	0.78
Region II:										
Rural	-2498 (-3.8)†	0.364 (27.7)†	-1686 (-1.4)	0.55	-4187 (-4.5)†	0.443 (20.9)†	-1667 (-1.4)	2582 (2.9)†	-0.125 (-4.6)†	0.57
Urban	-2606 (-0.8)	0.331 (13.2)†	-3815 (-0.8)	0.43	-4896 (-1.8)	0.432 (3.8)†	-3932 (-0.9)	2441 (8.6)	-0.183 (-0.7)	0.43
Region III:										
Rural	-7489 (-6.4)†	0.475 (38.4)†	-4346 (-2.8)†	0.52	-4192 (3.2)†	0.354 (18.6)†	-3483 (-2.3)††	-6292 (-5.3)†	0.169 (4.5)†	0.54
Urban	-17782 (-8.5)†	0.518 (44.5)†	1587 (-0.5)	0.78	-9879 (-2.2)†	0.321 (3.8)†	1586 (0.6)	-8264 (-2.8)††	0.281 (1.8)	0.78
Region IV:										
Rural	-2821 (-3.9)†	0.362 (34.1)†	-2944 (-3.8)†	0.49	-3369 (-4.8)†	0.434 (16.3)†	-3119 (-3.1)†	198 (0.2)	-0.876 (-2.6)†	0.58
Urban	-13388 (-10.3)†	0.514 (55.5)†	-323 (-0.2)	0.73	-5889 (-2.5)†	0.313 (3.6)†	-6 (-0.8)	-8652 (-4.8)†	-0.218 (-2.4)††	0.73
Region V:										
Rural	-3833 (-4.4)†	0.417 (38.8)†	-3928 (-4.1)†	0.55	-286 (-0.4)	0.238 (7.5)†	-3764 (-4.1)†	-4424 (-6.6)†	0.232 (6.8)†	0.57
Urban	-6986 (-3.2)†	0.413 (19.3)†	-1528 (-0.5)	0.54	1285 (0.35)	0.388 (0.3)	-1784 (-0.6)	-8767 (-2.9)†	0.399 (3.5)†	0.55
Region VI:										
Rural	-4462 (-6.5)†	0.429 (41.2)†	-1988 (-1.9)†	0.64	-3732 (-5.2)†	0.484 (23.2)†	-1864 (-1.9)†	-2862 (-3.1)†	0.848 (2.2)††	0.64
Urban	-15732 (-5.4)†	0.597 (48.8)†	-586 (-0.1)	0.81	-6711 (-1.9)	0.476 (12.4)†	-84 (-0.2)	-11219 (-4.3)†	0.138 (3.4)†	0.81

Table 6 (cont'd)

Region/Household	Const.	Y	DR	R ²	Const.	Y	DR	D	D&Y	R ²
Region VII:										
Rural	-1312 (-2.9)*	0.322 (36.5)*	-975 (-1.5)	0.63	-823 (-1.4)	0.238 (7.6)*	-984 (-1.5)	-50 (-0.1)	0.086 (2.6)*	0.63
Urban	-3564 (-2.4)*	0.518 (42.5)*	-7740 (-3.7)*	0.77	-2242 (0.8)	0.313 (1.9)	0.7111 (-3.4)*	-6977 (-2.6)*	0.212 (1.3)	0.78
Region VIII:										
Rural	-3375 (-5.6)*	0.488 (28.4)*	-1596 (-1.9)	0.56	-2572 (-3.7)*	0.336 (18.2)*	-1487 (-1.8)	-1584 (-2.2)*	0.085 (2.3)**	0.56
Urban	-5664 (-2.8)*	0.444 (19.9)*	-1227 (-0.4)	0.61	-2352 (-0.3)	0.252 (1.8)	-1002 (-0.4)	-3863 (-1.4)	0.199 (1.4)	0.61
Region IX:										
Rural	-8483 (-2.7)*	0.735 (16.6)*	-4271 (-3.3)*	0.91	-2973 (-2.7)*	0.586 (16.6)*	-4549 (-3.3)*	-18463 (-12.3)*	0.273 (8.5)*	0.93
Urban	-7158 (-2.3)**	0.458 (14.4)*	-672 (-0.2)	0.53	-3855 (-1.0)	0.299 (2.6)*	-440 (-0.1)	-4127 (-1.4)	0.168 (-1.4)	0.53
Region X:										
Rural	-3631 (-4.4)*	0.415 (33.4)*	-2752 (-2.4)**	0.65	-2819 (-3.3)*	0.393 (22.9)	-2883 (-3.2)*	-2413 (-3.2)*	0.068 (2.3)**	0.65
Urban	-18685 (-5.7)*	0.796 (92.2)*	-1615 (-0.3)	0.96	-185 (-0.0)	0.157 (1.0)	-1414 (-0.3)	-21865 (5.9)*	0.644 (4.2)	0.97
Region XI:										
Rural	-1459 (-2.1)**	0.323 (25.6)*	-3228 (-3.4)*	0.50	-1770 (-2.4)**	0.369 (19.7)*	-3582 (-3.8)*	183 (0.2)	-0.068 (-2.6)*	0.52
Urban	-16649 (6.1)*	0.711 (63.0)*	-2432 (0.6)	0.89	-7134 (-1.9)	0.495 (6.0)*	-2727 (-0.7)	-18536 (-3.6)*	0.223 (2.7)*	0.89
Region XII:										
Rural	-69 (-0.1)	0.332 (19.9)*	-6328 (-4.9)*	0.44	-549 (-0.5)	0.443 (15.9)*	-7269 (-5.8)*	-16 (-0.0)	-0.127 (-0.0)	0.47
Urban	-21298 (-5.0)*	0.634 (32.1)*	5641 (1.0)	0.83	-12482 (-2.2)**	0.625 (5.2)*	3832 (0.5)	-8977 (-2.2)**	0.017 (0.1)	0.84

Notes: See Table 4 for definitions of symbols. Numbers in parentheses are t-values. R denotes adjusted coefficient of determination.

* Significant at the one percent level.

** Significant at the five percent level.

in the case of urban households, only one region (VII) shows a statistically significant coefficient estimate for DR. A possible explanation is that, compared to urban households, there are greater opportunities for farm work among the very young and very old members of rural households, but less opportunity for spending the additional income. That the marginal saving rates differ by source of income for rural and urban households in several regions is indicated by the statistical significance of the coefficient estimates for the interaction term D*Y. They are mostly positive for rural households, implying that their MPS out of nonagricultural income is higher than that out of agricultural income. ^{9/}

Tables 7 and 8 contain the estimated saving equations using the permanent (lifetime) income specification. As discussed in Annex III, estimation of permanent income is based on the hypothetical earning capacity of households, determined from the estimated relationship for each region between household income and various indicators of the stock of human, physical and financial assets. Transitory income is derived residually, after subtracting permanent income from disposable income. The coefficient estimates for both permanent and transitory incomes are seen to be statistically significant, almost always at the one percent level. It is also remarkable that the estimated MPS out of transitory income is higher than that out of permanent income in all but one of the estimated equations. Higher values of the adjusted coefficient of determination are shown in Tables 7 and 8 compared to those in Tables 5 and 6, indicating that a larger proportion of the variance of savings is explained by considering the separate influences of the permanent and transitory components of current income. The importance of lifetime resources, rather than just current income, in the determination of household savings, both rural and urban, in the Philippines is therefore indicated.

From Table 7 the regional MPS for 'all' households ranges from 0.218 to 0.548 out of YP and from 0.388 to 0.803 out of YT -- estimates that differ substantially from the values of zero and one, respectively, postulated in the strict version of the permanent income hypothesis. The latter result also emerges when a distinction is made between rural and urban households (Table 8).

^{9/}

Similarly, Bhalla (1980) obtained generally lower MPS estimates for Indian rural households out of agricultural income relative to other income sources. Based on time-series national income accounts data, Burkner (1981) found a significant positive relationship between household savings and the ratio of industrial to agricultural income for the Philippines but a negative relationship for Thailand.

Table 7
ESTIMATED SAVING EQUATIONS, PERMANENT INCOME MODEL:
ALL HOUSEHOLDS BY REGION

Region	Const.	YP	YT	R^2
I	-2625 (4.8)*	0.290 (19.7)*	0.494 (54.0)*	0.73
II	-39 (-0.1)	0.218 (10.5)*	0.388 (27.4)*	0.50
III	-7336 (-10.0)*	0.346 (21.4)*	0.546 (56.0)*	0.68
IV	-3592 (-7.7)*	0.281 (21.6)*	0.527 (70.4)*	0.70
V	-2560 (-5.2)*	0.242 (12.5)*	0.472 (36.2)*	0.58
VI	-3230 (-5.7)*	0.291 (17.7)*	0.622 (78.6)*	0.81
VII	-2475 (-6.7)*	0.339 (25.5)*	0.511 (56.5)*	0.74
VIII	-2846 (-6.4)*	0.303 (15.1)*	0.479 (34.6)*	0.62
IX	-7106 (-11.5)*	0.512 (22.6)*	0.737 (71.5)*	0.88
X	-8960 (-14.7)*	0.548 (33.1)*	0.803 (138.5)*	0.96
XI	-7506 (-12.0)*	0.462 (26.1)*	0.722 (85.6)*	0.98
XII	-1804 (-2.7)*	0.211 (9.4)*	0.652 (57.8)*	0.82
NCR	-3865 (-3.6)*	0.263 (22.8)*	0.401 (81.6)*	0.75

Notes: See Table 4 for definitions of symbols. Numbers in parentheses are t-values. R^2 denotes adjusted coefficient of determination.

* Significant at the one percent level.

Table 8
ESTIMATED SAVING EQUATIONS, PERMANENT INCOME MODEL:
RURAL AND URBAN HOUSEHOLDS BY REGION

Region/Household	Const.	YP	YT	R ²	Const.	YP	YT	D	DMYP	DMYT	R ²
Region I:											
Rural	-5693 (-9.2)*	0.414 (21.0)*	0.618 (50.0)*	0.78	-1854 (-1.5)	0.218 (4.2)*	0.361 (8.8)*	-4360 (-3.0)*	0.212 (3.7)*	0.278 (6.4)*	0.7
Urban	-887 (-0.8)	0.235 (11.1)*	0.409 (30.7)*	0.73	-2170 (-0.6)	0.205 (0.9)	0.243 (0.9)	1567 (0.4)	0.026 (0.1)	0.167 (0.6)	0.73
Region II:											
Rural	-2213 (-3.4)*	0.310 (13.0)*	0.386 (24.6)*	0.56	-3282 (-3.5)*	0.360 (9.3)*	0.468 (20.0)*	1210 (0.9)	-0.059 (-1.2)	-0.143 (-4.6)*	0.57
Urban	-250 (-0.1)	0.214 (5.1)*	0.389 (13.0)*	0.46	-6949 (-1.4)	0.413 (2.4)**	0.435 (2.9)*	8690 (1.5)	-0.230 (-1.3)	-0.046 (-0.3)	0.46
Region III:											
Rural	-2635 (-3.0)*	0.202 (7.0)*	0.566 (33.3)*	0.58	-2312 (-1.8)	0.184 (3.6)*	0.428 (11.6)*	-210 (-0.1)	0.012 (0.2)	0.176 (4.2)*	0.59
Urban	-11374 (-8.9)*	0.414 (18.6)*	0.556 (41.6)*	0.70	-9070 (-1.6)	0.328 (2.2)**	0.320 (2.9)*	-2155 (-0.4)	0.083 (0.5)	0.240 (2.2)**	0.71
Region IV:											
Rural	-1235 (-2.4)*	0.216 (11.0)*	0.416 (39.2)*	0.52	-2459 (-2.5)*	0.279 (5.6)*	0.461 (16.7)*	1808 (1.4)	-0.080 (-1.4)	-0.055 (-1.8)	0.52
Urban	-6372 (-7.7)*	0.330 (17.6)*	0.567 (56.7)*	0.75	-5028 (-2.0)**	0.279 (2.7)*	0.332 (3.7)*	-1478 (-0.6)	0.052 (0.5)	0.239 (2.7)*	0.76
Region V:											
Rural	-2712 (-5.5)*	0.247 (9.3)*	0.473 (30.0)*	0.57	-531 (-0.7)	0.086 (1.7)	0.276 (8.3)*	-2704 (-2.5)*	0.188 (3.0)*	0.246 (6.5)*	0.59
Urban	-2423 (-1.7)	0.240 (6.2)*	0.483 (19.8)*	0.58	3764 (1.0)	-0.154 (-1.0)	0.139 (1.1)	-6306 (-1.6)	0.405 (2.5)*	0.355 (2.8)*	0.59
Region VI:											
Rural	-3423 (-8.1)*	0.313 (16.8)*	0.481 (39.4)*	0.56	-3512 (-5.2)*	0.322 (8.6)*	0.421 (23.0)*	-84 (-0.1)	-0.012 (-0.3)	0.108 (4.4)*	0.66
Urban	-5232 (-3.5)*	0.330 (11.2)*	0.651 (51.3)*	0.84	-5265 (-1.8)	0.422 (5.1)*	0.491 (12.0)*	-1241 (-0.4)	-0.078 (-0.9)	0.174 (4.0)*	0.84

Table 8 (cont'd.)

Region/Household	Const.	YP	VT	R ²	Const.	YP	VT	D	DmYP	DmVT	R ²
Region VII:											
Rural	-1732 (-6.0)m	0.311 (20.5)m	0.327 (30.1)m	0.63	-500 (-1.0)	0.167 (4.1)m	0.262 (8.1)m	-912 (-1.4)	0.153 (3.4)m	0.062 (1.8)	0.54
Urban	-4143 (-4.9)m	0.378 (16.9)m	0.572 (41.0)m	0.79	-1275 (-0.4)	0.269 (1.6)	0.308 (1.8)	-3401 (-1.1)	0.117 (0.6)	0.266 (1.5)	0.79
Region VIII:											
Rural	-2429 (-5.7)m	0.274 (11.3)m	0.457 (27.6)m	0.56	-1695 (-2.5)m	0.199 (4.1)m	0.373 (11.0)m	150 (0.1)	0.062 (0.9)	0.106 (2.7)m	0.59
Urban	-2974 (-2.4)m	0.312 (7.9)m	0.507 (18.9)m	0.63	-2825 (-1.0)	0.243 (1.6)	0.258 (1.6)	262 (0.1)	0.061 (0.4)	0.256 (1.8)	0.63
Region IX:											
Rural	-8410 (-14.5)m	0.604 (27.6)m	0.761 (75.9)m	0.92	-5085 (-5.0)m	0.443 (7.5)m	0.514 (15.8)m	-9780 (-6.3)m	0.291 (4.4)m	0.270 (7.9)m	0.93
Urban	-4414 (-2.6)m	0.340 (6.9)m	0.507 (13.6)m	0.55	-2212 (-0.7)	0.198 (1.3)	0.362 (2.8)m	-2356 (-0.6)	0.151 (0.9)	0.156 (1.1)	0.54
Region X:											
Rural	-3811 (-7.8)m	0.338 (16.9)m	0.459 (29.5)m	0.66	-2699 (-4.2)m	0.289 (9.7)m	0.449 (20.2)m	-3077 (-2.9)m	0.113 (2.7)m	0.029 (0.9)	0.66
Urban	-12655 (-9.1)m	0.616 (25.9)m	0.821 (96.2)m	0.97	-162 (-0.1)	0.106 (0.6)	0.186 (1.2)	-14424 (-3.8)m	0.529 (3.2)m	0.636 (4.2)m	0.97
Region XI:											
Rural	-696 (-1.2)	0.186 (7.9)m	0.359 (25.5)m	0.53	-404 (-0.5)	0.180 (5.1)m	0.410 (20.5)m	-1781 (-1.4)	0.055 (1.1)	-0.089 (-3.1)m	.5
Urban	-11964 (-10.0)m	0.549 (22.1)m	0.749 (63.1)m	0.90	-8746 (-2.7)m	0.486 (4.9)m	0.499 (5.7)m	-3778 (-1.1)	0.064 (0.6)	0.256 (2.9)m	0.90
Region XII:											
Rural	-202 (0.3)	0.127 (4.3)m	0.417 (21.8)m	0.46	-1782 (-1.4)	0.221 (3.2)m	0.464 (15.7)m	1735 (1.0)	-0.106 (-1.3)	-0.080 (-2.1)m	0.46
Urban	-8792 (-5.2)m	0.405 (10.7)m	0.659 (34.3)m	0.66	-9366 (-2.3)m	0.595 (4.3)m	0.656 (5.0)m	-549 (-0.1)	-0.186 (-1.3)	0.046 (0.4)	0.66

Notes: See Table 4 for definitions of symbols. Numbers in parentheses are t-values. R² denotes adjusted coefficient of determination.

m Significant at the one percent level.
mm Significant at the five percent level.

It is evident from Table 8 that there are some significant differences in the MPS out of YP and YT estimated for rural and urban households in each region. Again, it is not possible to generalize on the relative magnitudes of the saving propensities between the two household classes. We note that rural households show higher MPS out of permanent income in four regions (I, II, V and IX) and out of transitory income in three regions (I, III and IX). It also appears from the significant coefficient estimates for $D*YP$ and $D*YT$ in several equations that, given the household location (rural or urban), the marginal saving rates differ by main source of income; that many of them have a positive sign indicates again higher MPS values for nonfarm vis-à-vis farm households.

A final set of regressions distinguishes three income groups (first, second and third terciles) among rural and urban households in each region. Table 9 summarizes the resulting MPS estimate from the permanent income model.^{10/} A striking observation is the markedly higher MPS out of either permanent or transitory income for the higher income group. This is especially true among rural households, which show comparable average MPS estimates for the low- and middle-income groups that are only about one-half for the high-income group. In the case of urban households, the MPS first increases sharply from the smallest value for the low-income group to an intermediate value for the middle-income group before climbing to the largest value for the high-income group.

A possible explanation for this comparative saving behavior of rural and urban households would be as follows. As indicated above, there is a wide differential between the average incomes of rural and urban households in the Philippines. Because middle-income rural households also have generally low income levels (compared not only to the high-income rural household group but also to middle-income urban households), they presumably face conditions inimical to saving to a similar extent as low-income households (e.g., relating to investment opportunities, borrowing costs, and consumption needs).

The average MPS for low-income rural households out of either permanent or transitory income is seen in Table 9 to be higher relative to their urban counterparts. While the average MPS estimates are higher for urban households in the other income categories, they are not significantly different (based on the two-tailed t-test) from those for rural households except in the middle-income group and only out of permanent income (0.27 versus 0.15). Likewise the MPS estimates for rural and urban households

^{10/} For a full presentation of the regression results (involving 144 estimated saving equations in all), see Lamberte and Bautista (1989).

Table 9
 REGIONAL AVERAGE VALUES OF ESTIMATED MPS OUT OF PERMANENT AND TRANSITORY
 INCOME BY RURAL AND URBAN HOUSEHOLDS AND BY INCOME GROUP

	Low-Income	Middle-Income	High-Income	All Income Groups
MPS out of PR				
Rural	0.16	0.15	0.34	0.22
Urban	0.11	0.27	0.38	0.25
MPS out of YT				
Rural	0.24	0.27	0.53	0.35
Urban	0.14	0.30	0.56	0.33

Note: Each entry represents the simple average of MPS estimates for the 12 regions based on the regression of S on YP and YT.

averaged across all regions and income groups are not significantly different. It seems reasonable to infer from all this, considering the much lower average income of rural households relative to urban households in each of the three income categories, that in general rural households in the Philippines not only have a higher average saving rate (as shown earlier) but also have a higher marginal saving rate than urban households at the same income level.

V. CONCLUSIONS

The empirical findings of this study can be briefly summarized, and some inferences can be made from them, as follows:

- (1) 'Income' is the most important determinant of household savings in the Philippines. This result is robust to the alternative measures of current income and its permanent and transitory components, to the inclusion or exclusion of other explanatory variables, and to differences in the classification of households used (by region, by rural-urban, and by income class).
- (2) Lifetime factors, as represented in the permanent income measure by certain household characteristics, have a significant influence on household savings. The findings also bear out the hypothesis that the marginal propensity to save out of transitory income is higher than that out of permanent income.
- (3) Marginal saving rates vary widely among households in different regions, between rural and urban households, and among different income classes. The aggregate saving rate is therefore subject to change as income is redistributed across different household classes.
- (4) The marginal propensity to save of households in the Metro Manila area is estimated to be lower than in any of the country's other 12 regions except one. This would seem to suggest that a reversal of the past pattern of regional income growth biased toward Metro Manila can affect positively the aggregate saving rate.
- (5) It is difficult to generalize about the relative size of the marginal saving rates between rural and urban households. This contrasts with the invariably higher average saving rates observed for urban households in the various regions, attributable to their higher incomes relative to rural households. However, the estimated marginal saving rates for rural households in many regions are higher than their urban counterparts,

indicating a substantial scope for increased savings with rising rural income in the context of agriculture-based development.

- (6) By main source of income, nonfarm households in the rural areas tend to save more, in the margin, than farm (agricultural) households. An increasing share of non-agriculture in rural income over time, as the inter-sectoral linkage effects of agricultural growth work themselves out, can then lead to a higher marginal saving rate among rural households.
- (7) At a given income level, rural households generally save more, or dissave less, than urban households, both on average and at the margin. Moreover, the marginal saving rate of rural households increases more rapidly as they move up from the low- and middle-income groups to the high-income group compared to their urban counterparts. Under these conditions, even if the average income and savings of urban households are initially higher, faster income growth among rural households will not necessarily result in a lower aggregate saving rate.

In sum the empirical evidence presented in this paper does not provide support to the notion that the adoption of an agriculture-based development strategy and associated shift in rural-urban income distribution inevitably entail some sacrifice in domestic savings, and thereby, in capital formation and the sustainability of economic growth. Indeed the observed large potential for expanded rural savings is likely to be realized as the income prospects and investment opportunities are improved for rural households by increased public investment in the rural areas and reduced agricultural price distortions. Nothing definite can be predicted, of course, until one does a detailed general equilibrium analysis taking into systematic account the various factors affecting aggregate savings.

As a final point, the macroeconomic benefits of savings in a developing country context as described above do not enter in the calculation of individuals or households acting in isolation, so that aggregate private savings is likely to be lower than is socially desirable (Sen 1967). To deal with this externality, 'what is needed is not additional public sector saving, but a subsidy to saving, presumably in the form of a higher marginal return' (Deaton 1988: 41). In fact there is an anti-savings bias in many LDC government market interventions that repress financial intermediation, keep interest rates low, and reduce investment opportunities (McKinnon 1973). Such policy-induced sources of undersaving in the Philippines, as discussed in Tan (1981) and Lamberte and Lim (1987), need to be addressed first before any ambitious government program of savings mobilization can be rationalized.

Annex I
 NAMES OF REGIONS AND PROVINCES
 AND CHARTERED CITIES IN EACH REGION

Region	Name	Provinces/Chartered Cities
I	Ilocos	Abra, Benguet, Ilocos Norte, Ilocos Sur, La Union, Mountain Province, Pangasinan
II	Cagayan Valley	Batanes, Cagayan, Ifugao, Isabela, Kalinga-Apayao, Nueva Vizcaya, Quirino
III	Central Luzon	Bataan, Bulacan, Nueva Ecija, Pampanga, Tarlac, Zambales, Angeles City, Olongapo City
IV	Southern Tagalog	Batangas, Cavite, Laguna, Marinduque, Occidental Mindoro, Oriental Mindoro, Palawan, Quezon, Rizal, Romblon, Aurora
V	Bicol	Albay, Camarines Norte, Camarines Sur, Catanduanes, Masbate, Sorsogon
VI	Western Visayas	Aklan, Antique, Capiz, Iloilo, Negros Occidental, Iloilo City, Bacolod City
VII	Central Visayas	Bohol, Cebu, Negros Oriental, Siquijor, Cebu City
VIII	Eastern Visayas	Eastern Samar, Northern Samar, Western Samar, Leyte, Southern Leyte
IX	Western Mindanao	Basilan, Sulu, Tawitawi, Zamboanga del Norte, Zamboanga del Sur, Zamboanga City
X	Northern Mindanao	Agusan del Norte, Agusan del Sur, Bukidnon, Camiguin, Misamis Occidental, Misamis Oriental, Surigao del Norte, Butuan City, Cagayan de Oro City
XI	Southern Mindanao	Davao del Norte, Davao del Sur, Davao Oriental, South Cotabato, Surigao del Sur, Davao City
XII	Central Mindanao	Lanao del Norte, Lanao del Sur, Maguindanao, North Cotabato, Sultan Kudarat, Iligan City
NCR	National Capital Region	Manila, Pasig, Quezon City, Caloocan City, Pasay City, Makati, Other Metro

Annex II
CLASSIFICATION OF RURAL AND URBAN HOUSEHOLDS

There is always an element of arbitrariness in differentiating between rural and urban areas, which determines the classification of households into rural and urban. In the 1985 FIES, urban areas are defined to consist of:

1. In their entirety, all cities and municipalities having a population density of at least 1,000 persons per square kilometer.
2. Poblaciones or central districts of municipalities and cities which have a population density of at least 500 persons per square kilometer.
3. Poblaciones or central districts (not included in 1 and 2), regardless of the population size, which have the following:
 - i. street pattern, i.e., network of streets in either parallel or right angle orientation;
 - ii. at least six establishments (commercial, manufacturing, recreational and/or personal services);
 - iii. at least three of the following:
 - (1) a town hall, church or chapel with religious services at least once a month;
 - (2) a public plaza, park, or cemetery;
 - (3) a public market or building where trading activities are carried on at least once a week;
 - (4) a public building like a school, hospital, puericulture and health center or library.
4. Barangays having at least 1,000 inhabitants which meet the conditions set forth in 3 above, and where the occupation of the inhabitants is predominantly non-farming or nonfishing.

All areas not falling under any of the above classifications are considered rural.

Annex III
ESTIMATING PERMANENT INCOME

We follow Bhalla (1980) and Hyun *et al.* (1979), among others, in using an earnings function on which to base the estimation of permanent income for each household. The procedure basically involves regressing disposable income on various indicators of earning capacity of the household, and the predicted value is taken as the measure of permanent income. The earning capacity of a household is assumed to be related to its stock of human capital, physical and financial assets.

Available human capital of a household may be gauged in terms of the educational background, occupational status, and the proportion of household members employed. We therefore included the following explanatory variables in the regression equation for household earning capacity: educational attainment of household head, represented by the five education categories distinguished in the 1985 FIES; main source of income, classified into fifteen occupational categories; and the dependency ratio, expected to have a negative effect.

FIES data do not include ownership of physical and financial assets. What we have done is represent these stock variables by proxies for flow variables that can be identified with the asset values. Available data on purchases of consumer durables are used to represent ownership of physical assets. As to financial assets, the following income flow data are used as proxies: inheritance received during the year, pension and retirement benefits, workmen's compensation, social security benefits, dividends from investments, and profits from sale of stocks. The assumption is that the higher the income from such sources, the larger is the value of financial assets held by the household.

The estimated earnings equations for the thirteen regions are deemed generally satisfactory based on the expected signs of the coefficients, t-values, and adjusted coefficients of determination. Copies of the regression results are available on request from the authors.

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