University of the Philippines
SCHOOL OF ECONOMICS

Discussion Paper 7911 July 1979

THE ECONOMIC COSTS OF CHILDREN IN THE PHILIPPINES: A SURVEY

by

Ernesto M. Pernia

ABSTRACT

This paper attempts to survey the state of the art on the economic costs of children. Relevant studies suggest rough orders of magnitude for the direct, indirect and social costs of children. The pattern of these costs seems consistent with the persistence of high fertility especially in rural areas. Direct costs appear sufficiently onerous but indirect (opportunity) costs do not seem to be a major consideration in the rural setting. These private costs, in any case, appear to be more than offset by the stream of economic benefits, not to mention non-economic satisfaction from children. By contrast, the social costs of high fertility seem considerable but are not material to the extent that fertility decisions are made within the household framework. Persistently high fertility may be further explained in the context of the threshold model. If a household is poor and/or rural (i.e., below the threshold), the graduation of a child from net consumer to net producer would, by definition, push the household up toward the threshold (and down the mother's labor force participation curve), helping to foster natural fertility. This graduation seems faster the poorer the household. The implication for policy, other than the obvious one of uplifting the masses from poverty, would seem to be to bring social cost considerations to bear on household fertility decisions through information and education.

THE ECONOMIC COSTS OF CHILDREN IN THE PHILIPPINES: A SURVEY

by

*Ernesto M. Pernia**

I. INTRODUCTION

The concern about high fertility in less developed countries (LDCs) is well over a decade old now. There are some signs that this high fertility is finally beginning to taper in some LDCs, but even in these countries the worry about rapid population growth persists. And the worry seems warranted. For one thing, the signs of diminishing fertility do not seem to be concrete enough to be convincing. For another, even if fertility levels are in fact climbing down, the descent appears nowhere near what is considered necessary to attain development and welfare goals within a desirable period of time.

Nearly a decade ago family planning programs were given official support by governments in several LDCs, purportedly to curb rapid population growth. The effectiveness of these programs, however, seems moot at best, as surmised over a decade ago by Davis (1967). The basic explanation for the less-than-expected performance of family planning programs has to do with insufficient attention given to the motivation for small family size, i.e., the demand side.

---

*Associate Professor, School of Economics, University of the Philippines. Valuable research assistance and typing assistance from Isabelita V. Manalansan and Ana R. Aureo, respectively, are gratefully acknowledged.

Realization of the limited efficacy of family planning programs to with the population problem has led to programs or approaches labeled as "beyond family planning". They take into account certain dimensions of socioeconomic development viewed as preconditions for wanting a small number of children than is traditionally needed and desired. The economic costs of children are one such important dimension.

An appreciation of the different costs of children as well as the benefits from them can shed additional light on the persistence of high fertility especially in rural areas. From a policy standpoint, economic costs of children seem to be a variable that is amenable to certain measures. At the individual and household levels, cost-of-children information can be crucial to the decisions on when to get married, when to have the first child, how many children to bear and rear, how to space them, etc. (Espenshade 1972). Some studies suggest that parents in rural households tend to overestimate what children can produce relative to what they consume; they may even produce less than they consume (e.g., Mueller, 1976). In urban, monetized societies cost-of-children data are perhaps more critical given that the prices of goods and services have been rising faster than incomes -- a common phenomenon in LDCs. At the societal level, such data are necessary not only for the design of fertility reduction measures but also for planning public expenditures and welfare programs.

II. RELATED LITERATURE

Despite the importance of information on the economic costs of children, so far there has been no study in the Philippines directly addressed to the subject, nor has there been a major systematic effort (e.g., by the Census Office) to collect pertinent statistics that could be readily analyzed to generate the needed information. This is probably due to the traditional privacy accorded the subject as well as to the general acquiescence in the family planning approach to the population problem.

Research works related to the subject may be classified into three groups, roughly corresponding to the three types of child costs: (a) direct money expenditures, (b) indirect or opportunity costs, and (c) social costs. Under (a) are studies on consumption patterns, nutrition and health, family size and savings, family size and expenditure. Under (b) are research efforts dealing with the allocation of time in rural households based on the Laguna Household Survey (LHS). Research into (c) social costs of children is probably the thinnest.

Direct Costs

A study on patterns of consumption was undertaken by Tan and Tecson (1974) utilizing data from various sources, viz. the National Census and Statistics Office (NCSO) family income and expenditure surveys

(FIES, 1957, 1961, 1965, 1971), the National Demographic Survey (1968), the Food and Nutrition Research Council regional nutrition survey (1958-1971), and the Food and Agricultural Council consumption surveys (1969-1971). Two approaches are adopted in the analysis: (a) estimation of the consumption function through regression analysis to derive income and demographic elasticities of each grouping of consumption items for families classified as rural, urban, white-collar and blue-collar headed families; and (b) qualitative and quantitative judgements about the quality of life achieved by each income group. The major expenditure categories examined are the following:

i. food: cereal, basic sources of protein, and other foods
ii. alcohol and tobacco
iii. housing, furnishing, and fuel
iv. transportation and communication
v. clothing
vi. medical care
vii. education
viii. miscellaneous

Income, size, and age distribution of the family are deemed to be the major determinants of the level and composition of consumption. For each major consumption item the basic equation estimated is

$$C_i = f(Y, N_1, N_2, L, E, O, G)$$

where

C_i = consumption of item i

Y = family income

N_1 = number of family members below 18 years old

N_2 = number of family members above 18 years old

L = number employed

E = education level of head

O = occupation of head

G = dummy for rural/urban location.

The study shows that the average Filipino family's consumption basket is heavily weighted by items that satisfy such basic human needs as food, shelter, and clothing (about 78 percent of total expenditures, with food alone accounting for over half of total) (see also Cabañero 1977). The Engel income-consumption relationship is consistently borne out by the data. The average propensity to consume food, particularly cereals, declines markedly with income, while housing rises in relative importance. Clothing share rises slightly, peaks for middle-income classes, and tends to decline thereafter. Transportation communication exhibits a clear tendency to rise with income, increasing fivefold from the lowest to the highest income groups. Medical care shows an erratic trend, while miscellaneous items behave like luxury items, i.e., increasing relative share as income rises.

Locational differences seem to influence family consumption beh
For instance, the decline in average propensity to consume food is fas
in urban than in rural areas because food occupies a larger share in t
rural than in the urban family budget. More interestingly, urban fami
regardless of occupation of head, tend to spend more than rural famili
implying that rural families have a higher average propensity to save.
A similar pattern seems to hold for blue-collar headed families vis-á-
white-collar headed families, regardless of location. In general, rur
blue-collar headed families display the lowest marginal propensity to
consume (or the highest marginal propensity to save). Family size aff
both the level and composition of expenditures. It exerts a definite
upward pressure on expenditures for food, clothing, and education. On
the whole, controlling for income, large families spend absolutely mor
than small families.

The effect of family age composition on consumption expenditure
could not be identified as data were available on only two very broad
age groupings (below and above 18). Nonetheless, the study suggests
quite clearly that a smaller number of children would enhance the
saving propensity of low-income, rural families. Alternatively, with
less children a household could improve its consumption. Reduction i
household savings and consumption are two opportunity costs of childre
identified by Mueller (1972).

A study that dealt with the effect of family size on savings is that by Power (1971). Two specifications concerning the relationship of family size to family expenditures are tested with FIES (1957, 1961, and 1965) data, namely,

$$FC = f(FY, S)$$

and

$$FC/FY = f(FY/_S, S)$$

where FC represents family expenditures, FY is family income, and S is family size. Regressions were run on data classified by family size, with categories 1, 2, ..., 9, 10 or more members, thus allowing 10 observations per regression. Separate runs were made for rural, urban, metropolitan, and national. The second specification gave implausible results with negative income parameters.

The results of the first specification appear plausible, as shown in Table 1 (Power 1971: 53 & 55). The marginal expenditure per person added to a family is about ₱107.5 (1965 prices), representing 4.3 percent of mean family income at the national level. In rural areas this marginal expenditure is about 5.8 percent and in urban areas only 2.5 percent, or 2.2 percent in the metropolitan area. In effect, Power underscores the finding of Tan and Tecson above by illustrating that the potential effect of reduced fertility on saving rate is more than double in rural areas.

TABLE 1

Family Expenditures as a Function of Family Income and Family Size

	1965 FIES: FC = c + d FY + e S						
	c	d	e	$\bar{R}^2$	Means FC	Means FY	e/mean FY
National	327.9	0.763 (11.2)	107.5 (6.6)	0.99	2818.5	2490.6	4.29%
Rural	249.6	0.748 (5.4)	102.4 (4.8)	0.98	2122.1	1750.4	5.82%
Urban	768.7	0.731 (10.7)	107.7 (4.4)	0.96	4452.0	4229.6	2.53%
Manila and Suburbs	1575.9	0.646 (8.6)	144.7 (2.57)	0.89	6560.6	6480.6	2.23%

(figures in parentheses are t-values)

Source: Power (1971: 53 & 55)

In order to examine two processes by which family size affects family consumption level, Mangahas (1974) expanded on Power's effort. He omitted the open-ended (10 and over) family-size class, the numerical value of which Power did not specify. The nine-observation regressions result in smaller income coefficients and larger family size coefficients. Mangahas also experimented with the number of equivalent adults as a more refined measure

of the scale of family consumption. Adult-equivalent family size is defined, in a similar manner as in the GE-TEMPO model, as

$$SAE = 0.75\ S_1 + 1.00\ S_2 + 0.50\ S_3$$

where S_1 denotes the number of members below age 15, S_2 is the number aged 15-64, and S_3 the number aged 65 and over. Because the FIES data did not provide sufficient age-cohort information, the NDS (1968) data were used.

Finally, Mangahas recognized the problem of FIES underestimation of income and attempted to adjust for this. Then, he ran regressions using the following specifications

$$FC = f(FY, S)$$

and

$$FC = f(FY, FY^2, S)$$

(with the notations as defined above). The first specification gives generally better results. With FIES 1965 data, MPC is 0.71 in urban areas as against 0.96 in rural areas, compared with Power's 0.73 and 0.75, respectively. The family size effect is ₱105 in urban and ₱83 in rural areas; Power showed ₱108 and ₱102, respectively.

On the basis of his results, Mangahas argues that "increases in family size lead to increases in the family labor force and in turn in the number of working members of the family. The number of working members, in combination with the age of the household head, the education of the wife, and (in urban areas) the labor force participation of the wife, then determines family income. Obviously it takes 15 years for an increase in S on account of an infant to generate an increase in S_{15}, hence the timing of this process is quite different from that of the second process" (p. 256). In the second process "family size determines the number of equivalent adult members in the family. In combination with family income, this in turn determines the consumption level of the family... In about half of the trials, it was found that the marginal effect of family workers on family income may decline with the number of family workers" (p. 257).

In a study of poverty measurement and nutrition, Valenzona (1976) calculated, inter alia, the effects of family size and age composition on caloric requirements. Her results are given in Tables 2 and 3. The factors used to determine individual caloric requirements were: (a) body size and composition, (b) physical activity, (c) age and sex, (d) climate and other ecological factors.

TABLE 2

Estimated Daily Caloric Requirements by Family Size

Caloric Requirements	Family Size				
	All Sizes	4	5	6	7
Mean Daily Requirements	9,045	7,555	9,132	10,086	13,361
Standard Deviation	2,672	1,786	1,826	1,353	2,475
Maximum Requirements	14,990	11,127	12,785	12,791	18,310
Minimum Requirements	4,300	3,982	5,480	7,380	8,412

Source: Valenzona (1976:22)

TABLE 3

Per Caput Caloric Requirements and Age Distribution by Family Size

Family Size	Per Caput Caloric Requirements	Members below 16	Members 16 and above
4	1,886	1.54	2.46
5	1,814	2.11	2.86
6	1,716	3.19	2.81
7	1,909	4.06	2.94

Source: Valenzona (1976:22)

Valenzona's results indicate a clear rise in food requirements with family size. The effects of age composition, however, is not very clear as the age breakdown is again too gross.

The problem of nutrition and health are examined by Paqueo (1976 and 1977a). He points out the serious problem of undernutrition especially protein calorie malnutrition (PCM) and deficiencies in vitamin A (xeropthalma), iron (anemia), and iodine (goiter). PCM is most serious among infants and young children, with more than one-third or close to nine million of pre-schoolers either moderately or severely undernourished. Three out of every four children are anemic, and about the same number, deficient in vitamin A. The damage to thei physical and mental development would already be difficult to reverse.

Improvements in income and education, and lowering of fertility could reduce the prevalence of malnutrition among children from about 31 percent in 1975 to 1.3 percent in the year 2000. These improvement could also reduce cases of illness among the population. On account of population growth, however, the volume of monthly cases of illness could increase from around 40 to 60 percent.

Thus, Paqueo's findings give some rough orders of magnitude not only of the direct cost but also of the social cost of children (or population growth).

Two other studies on nutrition of children were undertaken using data from the Laguna Household Survey of 573 households. One discusses briefly the distribution of nutrients among children (Valenzuela 1977), and the other looks into the determinants of nutritional status of pre-schoolers (Battad 1977).

In gathering dietary information, Valenzuela used a two-day individual food weighing method which involved the weighing of all food items used in food preparation and of foods consumed by each family member during the day. The computation of the nutrient content of foods consumed was based on the Philippine Food Composition Table, while adequacy of intake was measured on the basis of the Philippine Recommended Dietary Allowance (RDA). Nutrition of infants could not be included in the analysis as information on their dietary intake was incomplete. Of the 357 children included in the analysis, 119 (33 percent) were preschoolers aged 1-6 years, 131 (37 percent) were schoolers 7-12 years old, 80 (22 percent) were adolescents 13-19 years old, and 27 (8 percent) were adults aged 20 years and above. Males constituted 52 percent and females 48 percent. Sex and age were the independent variables while nutrient intake as a percentage of RDA and diet rating were taken as the dependent variables.

Valenzuela's study shows that, on the average, the intake of children was adequate only with respect to iron (131 percent), but di rating was as low as 55 percent. Sex differences in intake were significant only for protein and diet rating, with males doing better than females. On the basis of age cohorts, adults had the highest di rating (61 percent) and adolescents the lowest rating (52 percent). Vitamin A was the least consumed nutrient by all age groups, a findin consistent with that of Paqueo above.

Battad (1977) focused on pre-schoolers aged 6-83 months, divid into three groups: 6-23 months, 24-47 months, and 48-83 months. Thes age groups approximate the stages of transition from the start to the end of breast- or bottle-feeding, or the shift from total dependence of the child on an adult to relative self-sufficiency. Nutritional status was assumed to be a function of household income, maternal factors, demographic factors, education, and disease occurrence.

Regression analysis showed that the marginal effects of educat and income, particularly the interaction of both, were highly signifi Mother's nutritional status was also significantly associated with th nutritional status of children aged 6-23 months. By contrast, additi children aged zero to six years caused marked reductions on the weigh rating of children two years old and over. Females appeared more malnourished than males. The working status of mothers was associate with lower nutritional status for all pre-school children in the samp

Bulatao (1975) addressed himself to the diverse values (benefits) and disvalues (costs) attached to children using a social-psychological approach, which is supposed to provide additional dimensions to the economic framework. The study is exploratory, so no a priori hypotheses are posited. The data are from a sample of 389 young married parents from Greater Manila and Bulacan province, interviewed between December 1972 and January 1973. The sample was designed to compare three groups, namely, urban middle class, urban lower class, and rural residents. Respondents were interviewed with open-ended questions as well as on 45 attitude items concerning various positive functions of children (such as family solidarity, love, and social status), costs of children, and propensity to consider alternatives to children. A value was assumed to have three principal characteristics: (a) salience, or frequency of reference to the value, e.g., in conversation and the media; (b) centrality, or closeness to a person's basic concerns; and (c) differential effect, or prominence in highlighting particular contrasts, such as boys versus girls or the first child versus the fifth child.

On the basis of the unstructured questions, the most frequently mentioned advantage of children had to do with economic benefits and economic security (42 percent of all responses). Next in frequency was the advantage called "happiness, love, companionship" (30 percent).

Rural respondents usually cited economic help, while urban respondents were more likely to mention happiness for the parent or for the family. On the whole, slightly more advantages were pointed out than disadvanta Among disadvantages, the most frequently cited were emotional difficult (50 percent), followed by financial problems (25 percent). Among specific disadvantages, however, the financial costs had the highest frequency. On sex preference, most respondents considered children of both sexes to be important. Sons were wanted for economic and financia assistance, while daughters were desired for household help and companionship to their mothers.

Responses to the 45 attitude items or the value-of-children attitude scales were subjected to principal components analysis, which generated six distinct, though not necessarily all significant, dimensions. These are: (a) family continuity, (b) costs of children external pressures on childbearing, (c) emotional rewards from childre (the least clear component), (d) role expression, (e) decision-mindedness, and (f) incentive value of children. Incentive value and role expression had the highest mean scores, while costs and pressures had the lowest. The latter finding does not seem to correspond with the finding from the unstructured questions from which financial costs stood out as a specific disadvantage. Bulatao explains this inconsistency with reference to the likelihood that the two types of questions may evoke different frames of reference.

According to Bulatao, economic considerations were found to be prominent among the values and disvalues of children. Three economic benefits were salient, namely, assistance in old age, help in housework, and contribution to family finances. Although highly salient, none of these economic benefits ranked high on centrality, however. On the other hand, as regards economic costs, financial burden of children was the most salient and central. It appears that this was the strongest reason the respondents had for limiting the size of their families.

The study attempted to determine how much money respondents had spent on their children over the 12 months preceding the survey. One in five of the respondents could not even hazard a guess and the estimates were extremely variable, ranging from ₱100 to ₱45,000. The median estimate was ₱1,500, or 32 percent of the median family income of ₱4,680 for the sample. These figures are almost meaningless since it is not clear what expenditures they include, or whether they represent costs per child or per so many children in a family.

Finally, it would seem that schooling costs would figure prominently as a financial problem to the extent that 85 percent of parents expected their sons to finish college and 81 percent of parents expressed a similar aspiration for their daughters. However, respondents did not view their children's education as a major financial burden.

Further, if the government were to provide free education up to college, only a few (15 percent) respondents would want to have additional children.

Indirect Costs

Adopting Becker's (1965) framework, Jayme-Ho (1976) attempted to investigate the allocation of household time resources, particularly the married woman's time. Likewise, she tried to analyze the variations in the time budgets of mothers due to their work status and differences in family size and composition. The time data available from the Laguna Household Survey were classified as home production activities and market production activities. The latter category included activities done at home if the product is sold for profit (e.g., weaving, food preservation, etc.). Home production activities were subclassified into child care (further subdivided into care of infants and care of pre-school children), food preparation, and other household activities (house-cleaning, fetching water, etc.). Work status was determined as either not working (zero hours in market production) or working.

Jayme-Ho reports that, on the average, mothers spent 70 hours a week (10 hours a day) on both home and market production activities. Of the total time only 18 percent went into market production while

82 percent was devoted to home production. The presence of a young child (0-6 years old) in the family caused an increase not only in the mother's child care time but also in the time for food preparation and other home activities. Market production time decreased only slightly, but with a child 0-11 months, increase in home production time and decrease in market production time were more marked. Older children (10 years and over), regardless of sex, acted as substitutes for the mother, particularly in the care of younger children, and in other home production work, but did not substitute for mother's food preparation chore. Age composition rather than number of children seemed to have a more direct influence on the mother's time budget.

King-Quizon (1977) focused on the interaction between husband and wife apropos the allocation of time for certain activities. With Gronau's (1973) model as the theoretical basis, she took as dependent variables market production time, home production time, and leisure; independent variables were own wage, own education, own age, wage of spouse, education of spouse, number of younger and older children, farm assets, home assets, wet season and cool season.

Variables that significantly and positively affected the father's labor supply included his wage and education, school-age children, land and farm assets owned. With respect to the mother, her wage and education were factors that raised her supply of labor in the market. The presence of infants reduced her market labor

supply but not to a significant degree. Nevertheless, the presence of infants and pre-schoolers increased her work time at home, perhaps by reducing consumption or leisure time. Having an infant entailed an increase in mother's care time by over three hours per day. As far as the father was concerned, infants tended to increase his home time while children in school had the opposite effect. Seasonal factors seemed to have no effect on either father or mother's market productive time. As to leisure time, the number of children aged one to six was positively related to father's leisure time, implying that the brunt of child care indeed falls on the mother. With older children, mother's leisure time increased. With an increase in wage rate, however mothers tended to substitute market work for leisure.

Realubit-Navera (1977) attempted to empirically test the hypothesis that children in rural households contribute economic time benefits to the household.-- a strong motivation for large numbers of children. Economic time costs of children were likewise examined. Time was classified in a similar way to that of Jayme-Ho and King-Quisumbing above; likewise, similar explanatory variables and statistical technique (regression analysis) were used. She found that the time cost was highest during the first two years of the child, sharply decreasing when the child becomes three-and-a-half years old, thereafter decreasing further till the age of 12. At ages 3-5, the child appears to start contributing economic time to the household although in negligible amounts only until ages 10-11. At ages 16-18, the child has not

only paid up his cumulated time costs but already contributes a net amount of four hours per day. Children in the poorest income group contribute large amounts of economic time benefits relative to those in higher income households. Apparently, children in poor households spend more time in income-earning activities and less in home activities than their richer counterparts. Richer children also invest more time in schooling than poorer ones.

Other findings were: (a) as household size increases, the economic time contribution per child also increases; (b) father's education increases the child's home production time at the expense of market production time; (c) mother's education is positively related with home production time, particularly child care time, at the cost of market production time; (d) child's schooling time reduces all types of economic time for all income levels; (e) wealth has a negative effect on the child's home production time, positive effect on market production time for middle- and high-income groups, but negative on child's total economic time for low-income households; (f) the number of children increases with household income in poor households, and decreases with income in middle- and high-income households -- a support for the income threshold hypothesis (Encarnación 1973); (g) the income-fertility relationship also holds true for wealth and fertility; (h) both father and mother's education are negatively related with fertility without connoting a threshold value. On the whole, Realubit-Navera's study lends credence to the

contention that economic benefits from children do motivate parents to have many children.

Boulier (1976) tried to deal with the determinants of time allocation of children aged seven years and older. He reports that, ceteris paribus, an increase in the education of parents brings about an increase in time spent by children in school. A rise in the wage rate of mothers has virtually no effect on children's school or work time, but increases child care time and home production time at the expense of leisure time. Ceteris paribus, children in farm households spend substantially more time in school, home production and leisure, and less time in other activities. Boulier also finds that children influence to a considerable extent their parents' time allocation. For instance, children of all ages tend to induce fathers to work longer hours cutting down on leisure time. Older male children substitute for mothers' market work, while older female children substitute for mother's homework freeing them for income-earning activities (Jayme-Ho 1976). Older children also allow more leisure time for mothers (King-Quizon 1977).

The determination of child care and breast-feeding behavior was the subject of Popkin's (1976) inquiry. He points out once again that children (aged 7-15) proxy for mothers in child care, making them available for market work. Because of this role substitution; the per caput child-care time in households with non-working mothers is not much greater than in households with working mothers. An

increase in the mother's education, ceteris paribus, is correlated with increased per caput maternal child-care time in poor households. Job compatibility with child care is pointed out as crucial. The net impact of this compatibility was an increment in child-care time of about 2.7 hours per day, on the average. Changes in wage rate for mothers have little influence on child-care time but, as fathers' wages increase, working mothers increase their child-care time. Breast-feeding behavioral responses to changes in the characteristics of the mother, the nature of her job, and household composition are similar to child-care responses.

Cabañero (1977) attempted to look into the "shadow price" of children in terms of both direct money expenditures and time inputs of parents and older siblings. Direct money costs included food (21 items), health, schooling, clothing; time inputs consisted of direct child-care time and additional household chore time occasioned by the presence of children (e.g., extra dishes and clothes to be washed). The contributions of children to the household, i.e., home production and market production, were also considered. While wage data for fathers were available from the survey, the wages of mothers and children had to be estimated on the basis of their characteristics.

To compute the "shadow price" of children, the time inputs into, and time contribution from, children were converted into money terms using their respective wage rates. Two types of child wage rate were estimated: (a) average wage rate in all economic activities weighted by the fraction of time spent in each activity, and (b) "home wage" computed by dividing the value of home-produced goods for home consumption and for the market by the amount of production time spent on the goods.

Cabañero notes that food weighs heavily in the goods expenditure for children, especially males after infancy. Clothing expenses are small relative to food and schooling outlays, and medical expenses show no clear pattern as observed by Tan and Tecson (1974). The time input of the mother declines with the growth of the child until age 12 when some minimum level of care and chore time are maintained for each child. Cabañero stresses the point that young children contribute a substantial amount of productive work which further increases with age, as already indicated by the other studies.

On the average, males cost more than females as infants, pre-schoolers and adults, except, apparently, in terms of human capital investments or schooling outlays. In general, economic benefits from children start to exceed economic costs after age

12 for low-income families, and after 15-17 for high-income families, as implied by Realubit-Navera above. Between farm and non-farm households no significant differences in the full "shadow price" of children emerge.

Social Costs

Research into the social costs of children, as already mentioned, is perhaps the least developed. A paper by Bautista (1974) concerned itself with the consequences of population growth on government expenditures for education and health, using data primarily from documents of the Departments of Education and Health. Government expenditures for education refer only to the elementary, general and vocational secondary levels inasmuch as government financing for higher education has been relatively small. To project government expenditures for education, a constant annual cost per student at 1967 prices in each educational level was assumed together with a constant proportion of the population in each group enrolled. The cost per student used in the projection had the following values (as of late 1960's at 1967 prices): ₱190 for elementary, ₱310 for general secondary, and ₱450 for vocational secondary education ($1.00 = ₱7.35). The per caput health expenditure used as base for projection was ₱7.25 (at 1967

prices), assumed to rise at some rate over the projection period.

Education and health expenditures were then projected under moderate versus slow population growth assumptions. Annual and total savings in education and health expenditures due to reduced population growth were estimated (Bautista 1974: 230) to be as follows:

Year	Savings (in million 1967 pesos)
1975	5
1980	92
1990	1,105
2000	2,514
TOTAL : 1975-2000	23,295

These estimates assume decreasing enrollment rates in general secondary schools, increasing enrollment rates in vocational secondary schools and rising government expenditures per caput, to take into account recent policy directions. The savings seem relatively small in the first few years because of the lagged effects of fertility reduction, but become increasingly substantial over time. By the year 2000, the aggregate savings would be from 67 to 73 percent of real gross national product in 1970. Bautista (1974: 222) concluded that "These figures should be regarded as reflecting only the minimum quantitative effect of population growth

on government expenditures since there are components of the public budget other than education and health that are also population-dependent. Although their expansion relates less clearly to the growth of population, the presumption would still be that it is a positive relationship".

A study that attempts to evaluate the Philippine family planning program was undertaken by Osteria (1972) and subsequently by Pernia and Danao (1978). The evaluation by Osteria was done in two ways: (a) short-term, using cost-effectiveness analysis which looked at cost per acceptor (CPA), cost per couple-year of protection (CYP), and cost per birth averted (CBA); and (b) long-term, employing cost-benefit analysis which tried to measure the value to society of preventing a given number of births. The cost-benefit approach took the present value of (discounted at 10-15 percent) the consumption stream of an unborn child as a measure of benefits and compared this with the cost of preventing a birth via family planning services. Benefits included: (a) the potential increase in savings (or improved consumption) resulting from reduced overall food consumption; (b) the increase in public savings resulting from the diversion of resources for education and health to development projects; and (c) public savings from reduced housing, clothing, and other expenses. Costs included: (a) the marginal product of labor of a birth and (b) costs of family planning services.

Osteria observed that total family planning expenditures during the period FY 1967-FY 1971 amounted to over ₱28 million, with service and administration claiming a substantial bulk. During this period family planning expenditures multiplied 30 times while the increase in acceptors was only 18 times, implying a more-than-doubling in the cost per acceptor. It took three years (three CYPs) to prevent a birth. An inter-country comparison showed that the cost per CYP in the Philippines was slightly higher than those in Taiwan, Pakistan and India, and lower than those in Chile, South Korea and Tunisia. The results of cost-benefit analysis showed that savings in food consumption and education constituted over 70 percent and 12-13 percent, respectively, of total benefits. Loss in productivity accounted for more than half of the costs. The differences between benefits and costs ranged from ₱320 to 540, and the benefit-to-cost ratios were in the range from 2.8 to 4.2.

Finally, Paqueo (1977) argues that most studies on the economic impact of population control have been made on the assumption that the cost of reducing fertility is negligible. He points out that in the Philippines family planning program expenditures have in fact been substantial, as also pointed out by Pernia and Danao (1978). He assessed the economic-demographic effects of the program via a family planning program sub-model grafted onto an economic-demographic model. His findings show that the positive effects on

family incomes and on investment-to-output ratio seem inconsequential. Paqueo also notes that aggregate output would be reduced after some time on account of a relatively smaller labor force. Furthermore, it appears that the payoffs from the family planning program basically stem from a diminution in the number of persons sharing the aggregate product rather than from increased production and savings.

III. CONCLUDING REMARKS

As became evident from the survey, studies somehow relevant to the subject have been done with different purposes in mind, and hence do not provide a solid basis for conclusions or inferences concerning the economic costs of children. Rather, they serve as take-off points for research into the three types of child costs and, for that matter, benefits from children.

As far as direct costs are concerned, there are simply no hard quantitative estimates as yet. Studies based on FIES data (e.g., Tan and Tecson 1974) are concerned with consumption patterns of families or households in general. The study on the value of children (Bulatao 1975) merely states that parents derive various benefits (including economic) from children and that parents consider the financial costs, among other disadvantages, of children to be a burden; it then stresses the point that benefits other than

economic are also strong incentives for having children. Studies based on the Laguna Household Survey data do not go beyond at most giving notions about the direct costs and benefits of children, suggesting that children do provide considerable net benefits and a therefore good investments -- a finding that seems to run counter to Mueller's (1976) hypothesis. It is reported, for instance, that after adolescence or so, a child especially in poor households start to make a net contribution to household resources -- a major argument, among others, in favor of large numbers of children.

With respect to indirect or opportunity costs of children, it appears from the LHS studies that the market time costs of women do not really loom large in rural areas, as suggested by Repetto (1976). For one thing, there are many other family members to share child-care chores. For another, there may not be ample market work opportunities for women in rural areas. At any rate, the findings on time costs from LHS studies were derived within a broader framework than necessary to specifically capture the opportunity costs of children. Moreover, the LHS did not include the urban setting where opportunity costs are presumed to figure more prominently.

On social costs, all that can be said so far is that public savings from reduced population growth may be substantial. Also, resources applied to family planning programs (FPP) have been considerable and increasing over time, with FPP effectiveness

diminishing (Pernia and Danao 1978). These resources could otherwise be marshalled to development projects.

In sum, given the state of the art, one can draw an impressionistic conclusion. Direct costs appear sufficiently onerous but indirect costs do not seem to articulate themselves in the rural setting. These private costs of children (implicitly, a large number of them, say, the typical six or more in rural areas), however, appear to be more than offset by the stream of economic benefits that emanate from them, not to mention non-economic satisfaction. Fewer children would seem to allow greater family savings and perhaps better nutrition (child quality) but poor parents are apparently not in the position to be too concerned about these. By contrast, the social costs of high fertility seem considerable. To the extent, however, that fertility decisions are made within the household framework, the persistence of high fertility can be explained. Such persistence may be further elucidated in the context of the threshold model. If a household is poor and/or rural (i.e., below the threshold), the graduation of a child from net consumer to net producer status would, by definition, push the household up toward the threshold, helping to foster natural fertility.* This graduation seems faster the poorer the household. We know, of course, that the majority of Philippine households are poor and/or rural.

---

*And down the mother's labor force participation curve (see Encarnación 1979).

This conclusion may sound pessimistic. But there is an implication for public policy. Other than uplifting the masses from poverty as already enunciated ad nauseam, the role of the government would seem to be to bring social cost considerations to bear on household fertility decisions through information and education.

BIBLIOGRAPHY

Battad, Josephine R. 1977. "Determinants of Nutritional Status of Pre-Schoolers." Paper presented at the Symposium on the New Household Economics, May 27-28, 1977, Regent of Manila Hotel.

Bautista, Romeo M. 1974. "Population and Government Expenditures," in A. Kintanar et al., Studies in Philippine Economic-Demographic Relationships. Quezon City: U.P. School of Economics.

Becker, Gary. 1965. "A Theory of the Allocation of Time." Economic Journal, Vol. 75, pp. 493-517.

Boulier, Bryan L. 1976. "Children and Household Economic Activity in Laguna, Philippines." UPSE Discussion Paper 76-19. U.P. School of Economics.

Bulatao, Rodolfo A. 1975. The Value of Children: Philippines. Honolulu: East-West Center.

Cabañero, Teresa A. 1977. "The 'Shadow Price' of Children in Laguna Households." Paper presented at the Symposium on the New Household Economics, May 27-28, 1977, Regent of Manila Hotel.

Davis, Kingsley. 1967. "Population Policy: Will Current Programs Succeed?" Science, Vol. 158, pp. 730-739.

Encarnación, José Jr. 1975. "Fertility, Education, Labor Force Participation, and Fertility," in W. Flieger and P.C. Smith (eds.), A Demographic Path to Modernity. Quezon City: University of the Philippines Press.

_____. 1979. "Fertility Behavior and Labor Force Participati A Model of Lexicographic Choice." UPSE Discussion Paper 7908: U.P. School of Economics.

Espenshade, Thomas J. 1972. The Costs of Children in Urban United States, Population Monograph Series, Berkeley: International Population and Urban Research.

Gronau, Reuben. 1973. "The Effect of Children on Housewife's Value of Time," Journal of Political Economy, Vol. 81, No. 2, Part II, pp. 168-169.

Jayme-Ho, Teresa. 1976. "Time Budgets of Married Women in Rural Households: Laguna." UPSE Discussion Paper 76-36. U.P. School of Economics.

King-Quizon, Elizabeth. 1977. "Time Allocation in Philippine Rural Households: the Laguna Case." Paper presented at the Symposium on the New Household Economics, May 27-28, 1977, Regent of Manila Hotel.

Mangahas, Mahar. 1974. "Family Size as a Determinant of Family Expenditure," in A. Kintanar et al., Studies in Philippine Economic-Demographic Relationships. Quezon City: U.P. School of Economics.

Mueller, Eva. 1972. "Economic Cost and Value of Children: Conceptualization and Measurement," in James T. Fawcett (ed.) The Satisfactions and Costs of Children: Theories, Concepts, Methods. Honolulu: East-West Center.

_____. 1976. "The Economic Value of Children in Peasant Agriculture," in Ronald G. Ridker (ed.) Population and Development: The Search for Selective Interventions. Baltimore: The Johns Hopkins University Press.

National Census and Statistics Office. 1973. Family Income and Expenditures: 1971. Bulletin Series No. 34. Manila.

Navera, Emeline Realubit. 1977. "The Allocation of Household Time Associated with Children in Rural Households in Laguna, Philippines." Paper presented at the Symposium on the New Household Economics, May 27-28, 1977, Regent of Manila Hotel.

Osteria, Trinidad. 1972. "Cost-Effectiveness and Cost-Benefit from the Philippine Family Planning Program." Family Planning Evaluation Office, U.P. Population Institute (mimeo).

Paqueo, Vicente B. 1976. "Social Indicators for Health and Nutrition," in M. Mangahas (ed.) Measuring Philippine Development. Manila: Development Academy of the Philippines.

_____. 1977a. "PREPF Health and Nutrition Scenarios for the Year 2000." PREPF Project. U.P. School of Economics.

_____. 1977b. "Economic-Demographic Interactions and the Impact of Investments in Population Control." Ph.D. dissertation. U.P. School of Economics.

Pernia, Ernesto M. and Rolando A. Danao. 1978. "Cost-Effectiveness Analysis and Optimal Resource Allocation: The Philippine Family Planning Program," December (typescript).

Popkin, Barry M. 1976. "The Role of the Rural Filipino Mother in the Determination of Child Care and Breast-Feeding Behavior." UPSE Discussion Paper 76-12. U.P. School of Economics.

Power, Victoria E. 1971. "The Effect of Family Size on Savings: A Cross Sectoral Analysis." M.A. Thesis. U.P. School of Economics.

Repetto, Robert G. 1976. "Direct Economic Costs and Value of Children," in R.G. Ridker (ed.) Population and Development: The Search for Selective Interventions. Baltimore: The Johns Hopkins University Press.

Tan, Edita A. and Tecson, G.R. 1974. "Patterns of Consumption in the Philippines." UPSE Discussion Paper 74-9. U.P. School of Economics.

Valenzona, Rosalinda. 1976. "Poverty Measurement and Nutrition." UPSE Discussion Paper 76-27. U.P. School of Economics.

Valenzuela, Rosario E. 1977. "A Note on the Distribution of Nutrients Among Children in Laguna, Philippines." Paper Presented at the Symposium on the New Household Economics, May 27-28, 1977, Regent of Manila Hotel.