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GENDER DIFFERENCES IN WEALTH TRANSFER AND EXPENDITURE ALLOCATION: EVIDENCE FROM THE RURAL PHILIPPINES

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I. INTRODUCTION

IT is often hypothesized that parents care about both efficiency and equity in the distribution of household resources among family members. Parents may follow a pure investment strategy by allocating more resources to improve the education, nutrition, and health outcomes of those children who have higher potential rates of return in the labor market (Rosenzweig and Schultz 1982; Sen and Sengupta 1983; Behrman 1988b).[1] In India, for example, boys are favored in nutritional allocation (Behrman 1988a), and as a result boys exhibit better health outcomes (Pal 1999), perhaps because of higher expected labor-market returns for investments in boys. Parents may also be interested in ensuring that all children are equally well-off without much regard to efficiency. Thus, parents may invest more in children with poorer initial endowments to improve the lifetime income position of such disadvantaged children vis-à-vis their other children. Equity and efficiency concerns may also be present simultaneously (Behrman, Pollak, and Taubman 1982; Haddad and Hoddinott 1994). A good example is that of Bangladesh, in which adult men consume higher levels of calories because of their greater participation in energy-intensive activities in which health status influences productivity, even though households are averse to inequalities in the consumption of calories (Pitt, Rosenzweig, and Hassan 1990).

This paper seeks to assess whether there is gender bias in the intrahousehold

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[1] See Behrman (1997) for a comprehensive review of the literature on intrahousehold distribution.

allocation of resources in the rural Philippines. Most of the studies on gender bias focus on food or nutrition allocation (Haddad et al. 1996), because nutrition is a fundamental input to health outcomes, which in turn is an important determinant of labor productivity and wage rates. This paper adds another dimension by including intergenerational transfers of wealth in the analysis of gender bias because such transfers directly affect the lifetime income of individuals (Estudillo, Quisumbing, and Otsuka 2001b).

In rice-growing areas of the Philippines, the most important forms of parental transfers to children are land and schooling investments. Quisumbing (1994) and Estudillo, Quisumbing, and Otsuka (2001a, 2001b) posit that parents are concerned with both the efficiency and equity of wealth transfers. Thus, land may be given to sons because rice farming is intensive in male labor, where returns to specific experience may be higher for sons (Rosenzweig and Wolpin 1985). In contrast, parents may give more schooling to daughters since women, who spend more time in nonfarm jobs, experience increased returns per amount of schooling (Deolalikar 1993). How such parental preferences affect consumption expenditures for daughters and sons is a major issue to be addressed in this study. Specifically, we test the hypothesis that parents in the rural Philippines treat daughters and sons equally in the allocation of expenditures.[2]

The remainder of this paper is divided into the five following sections. Section II explains the survey design and describes the farm size, tenure status, and other socioeconomic characteristics of the sample households. Section III reviews by gender the patterns of parental investment in children provided by schooling and land inheritance. Section IV explains the specification of the expenditure function and identifies the determinants of the allocation of consumption expenditures. Section V gives possible explanations on gender equality in the context of the Philippines. Finally, Section VI presents the conclusions of this study.

II. THE SURVEY DESIGN AND CHARACTERISTICS OF THE SAMPLE HOUSEHOLDS

The data in this paper come from three household surveys conducted in 1989 and 1997–98 in five rice-growing villages in the Philippines. The 1989 data come from an inheritance survey that collected data by gender on intergenerational transfers of land and investment in schooling that the parents passed on to the survey respondents and to the respondents' siblings.[3] The 1997–98 data consist of two surveys

[2] In Estudillo, Quisumbing, and Otsuka (2001b), we proved that parents are concerned with both the efficiency and equity of wealth transfers. We do not address the efficiency aspects in this paper.

[3] In 1989 we initially planned to collect data on intergenerational transfers in two generations of households, i.e., from the parents of the respondents to the respondents and their siblings and from the respondents to their children (Quisumbing 1994). However, in 1989 the children of the respon-

covering the same set of households that were interviewed in 1989. The first, administered in 1997, is an inheritance survey that collected data on transfers from the respondents to their children, while the second is the 1998 survey on household income and expenditures. We collected data on household income as well as the incomes of individual children regardless of their civil status and place of residence. Similarly, we collected detailed data on household expenditure items, some of which were subdivided into expenditures among family members by gender.

The five villages are typical rice-growing villages in the Philippines and are located in areas characterized by varied production environments.[4] Two sample villages are located in Central Luzon where the Ilocanos are the majority of the residents, and three villages are located in Panay Island where the Ilonggos are the dominant ethnic group (Figure 1). These villages were randomly selected in 1985 by the International Rice Research Institute (David and Otsuka 1994) and have been frequently surveyed since then. Rice is the main crop during the wet season which runs from June to November. During the dry season rice is planted on land which has irrigation facilities while unirrigated land is planted in cash crops or left fallow.

Among the Ilocanos land is traditionally given as a gift to a newly married son, while daughters whose husbands do not inherit land may also receive land rights from their parents. Both primogeniture and ultimogeniture are practiced among the Ilocanos depending on the availability of land. Among the Ilonggos of Panay, daughters and sons may have equal and independent rights to land, although in the case of land-constrained households, children who help the parents with farming receive more land.

In 1989 we had 161 sample households in Central Luzon and 178 in Panay (Table I). The sample size declined in 1997–98 due to out-migration, death, refusals to be interviewed, and absence during the survey visits. The villages with less favorable production environments have the highest rate of out-migration. The average farm size in Panay is smaller than in Central Luzon due to historically higher population density. Panay was presumably opened for cultivation earlier than Central Luzon because the island is easily accessible by sea. The study villages in Panay used to be characterized by the predominance of owner-cultivation. In contrast, tenant-cultivation has been dominant in Central Luzon because of the long history of *hacien-*

dents were still very young and a large number of respondents had not yet decided on land bequests and schooling investment in their children.

[4] Two villages, one in Central Luzon and the other in Panay, are fully irrigated by well-maintained gravity irrigation systems and represent favorable production environments. Two villages, one in Central Luzon and the other in Panay, are characterized by shallow, favorable rainfed conditions commonly found in the country. The third village in Panay is located in the most unfavorable, drought-prone mountainous production environment. See David and Otsuka (1994) for a more detailed description of the study villages.

Fig. 1. Location of the Study Villages

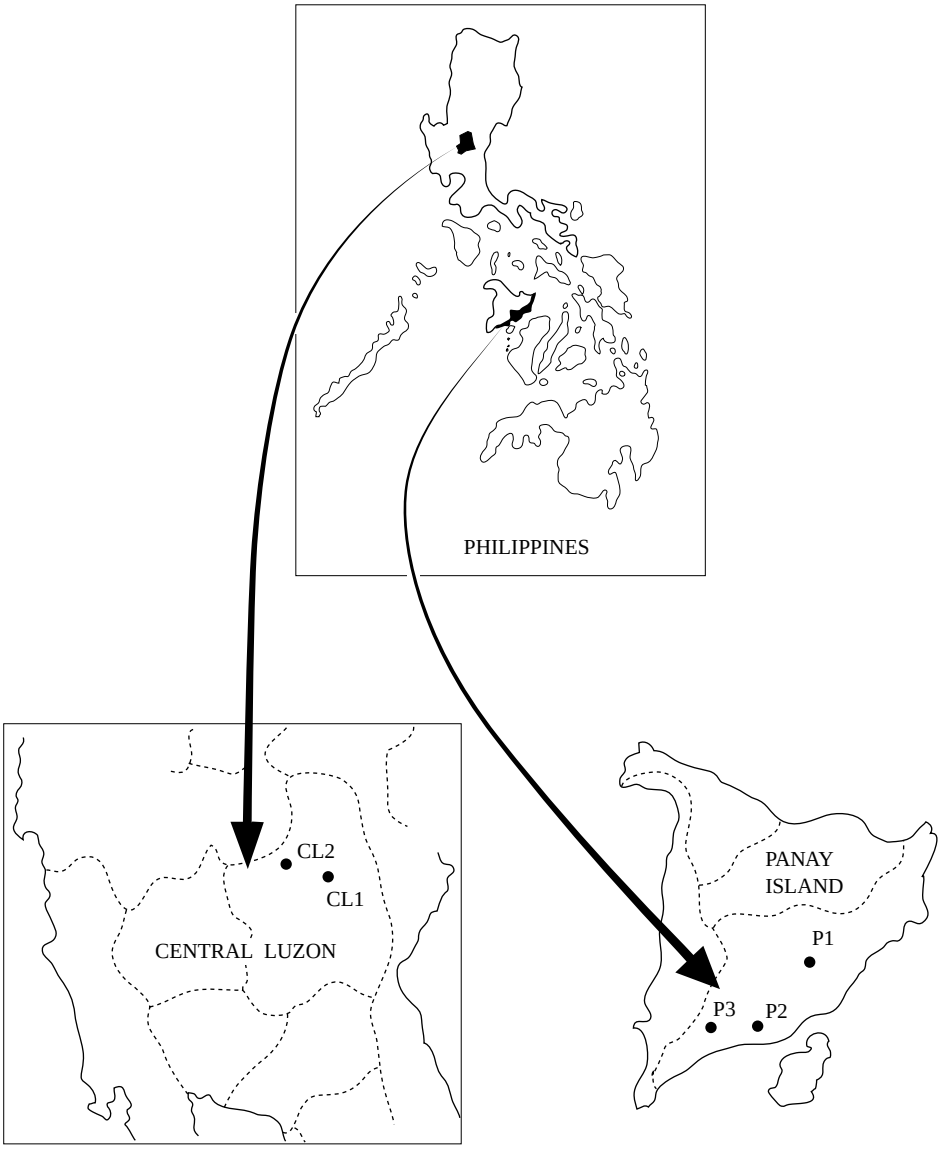

TABLE I

FARM SIZE, TENURE STATUS, AND SOCIOECONOMIC CHARACTERISTICS OF SAMPLE HOUSEHOLDS IN CENTRAL LUZON AND PANAY, 1998

Characteristics	Central Luzon	Panay
Sample size:		
1989	161	178
1997	134	141
1998	129	121
Characteristics in 1998:		
Average farm size (ha)	1.6	1.4
Tenure (% area):		
Owner-EP[a]	42	39
Leasehold-CLT[b]	58	33
Share-tenancy	0	28
Average household size[c]	4.4	4.4
Average number of living children	5.3	5.4
Average number of working members[d]	2.7	3.1
Ratio of household members:		
Male aged		
0–5	2	1
6–9	2	2
10–19	14	15
20–64	31	29
65+	5	7
Female aged		
0–5	2	2
6–9	1	3
10–19	13	12
20–64	25	25
65+	5	4

[a] EP means "emancipation patent."
[b] CLT means "certificate of land transfer."
[c] Includes members who are living with the family but excludes working members living outside the home.
[d] The number of household members between fifteen and sixty-five years of age who are not in school.

das in the region. These consisted of hundreds of hectares of land cultivated by large numbers of share-tenants before the implementation of land reform in the 1970s (Hayami and Kikuchi 1982; Fegan 1982). Since *hacienda* areas were a priority for land reform, our Central Luzon sample has a high incidence of land reform beneficiaries, i.e., holders of certificate of land transfer (CLT) and leaseholders. In 1998 the proportion of land under share-tenancy in our sample villages in Panay was 28 per cent despite the prohibition of share-tenancy by the land reform laws.

The average household in both Central Luzon and Panay consists of more than

four members. Our definition of a household includes only those members who are currently living within the household, excluding married children and single children who have migrated. The average number of living children including those who are married and single, whether living within the household or out-migrated, is more than five per household, with a roughly equal number of sons and daughters. About 61 per cent of the household members in Central Luzon and about 70 per cent in Panay are working members, defined as those members between fifteen and sixty-five years of age who were not in school at the time of the survey. About 8 per cent in Central Luzon and 26 per cent in Panay are nonresident working members in cities or overseas.

The average age profile of household members in 1998 was fairly similar in Central Luzon and Panay. The largest proportion of household members were in the twenty to sixty-four years old age group and were mostly working members. The youngest members, who were zero to five years old, account for the smallest proportion. It is also noteworthy that the proportion of elderly (sixty-five years old and over) was only about 10 per cent. About one-third of the household members belonging to the young age categories of six to nine and ten to nineteen years of age were in school.

III. SCHOOLING AND LAND INHERITANCE

A. *Schooling and Land Inheritance: Older Children*

In this subsection, we briefly review the findings of Estudillo, Quisumbing, and Otsuka (2001a, 2001b). In 1989 we had 339 respondents (37 females) and in 1997 we had 275 respondents (8 females) who were the parents of 767 male and 715 female older children (Table II). These children were twenty-one years old and older and were no longer in school at the time of the survey. The investment in them for schooling had been completed, and parents had definite ideas regarding the potential bequests of land to their heirs. All the male respondents were married,

TABLE II

NUMBER OF INDIVIDUALS BELONGING TO THE SAMPLE HOUSEHOLDS

	Members	Male	Female
1989	Respondents and spouses	333	339
1997	Respondents and spouses	273	275
	Older children of respondents[a]	767	715
	Younger children of respondents[b]	133	108

[a] Refers to children who are twenty-one years old and older.

[b] Refers to children who are between thirteen to twenty years old.

TABLE III

DEMOGRAPHIC CHARACTERISTICS AND LAND INHERITANCE OF MEMBERS OF SAMPLE HOUSEHOLDS IN CENTRAL LUZON AND PANAY, 1989 AND 1997

Characteristics		Male	Female	Male Minus Female
Year of birth:				
1989	Respondents and spouses	1938	1941	
1997	Respondents and spouses	1938	1941	
	Older children of respondents[a]	1967	1967	
	Younger children of respondents[b]	1981	1981	
Schooling (years):				
1989	Respondents and spouses	6.2	6.2	0.0
1997	Respondents and spouses	6.3	6.3	0.0
	Older children of respondents[a]	8.5	10.0	–1.5**
	Younger children of respondents[b]	8.0	8.8	–0.8**
Inherited landholdings (ha):				
	Respondents and spouses	0.58	0.22	0.36**
	Older children of respondents[a]	0.33	0.18	0.15**
	Younger children of respondents[b]	0.26	0.10	0.16**

[a] Refers to children who are twenty-one years old and older.
[b] Refers to children who are between thirteen and twenty years old.
** Significant difference in means according to *t*-test.

while 6 female respondents in 1989 and 2 in 1997 were single female heads of households. Male respondents were over-represented because we interviewed the heads of farming households who are typically the husbands in farming villages.

The respondents were born mostly in the 1930s and 1940s (Table III). On average, the children of the respondents were born in 1967. When the children were in school in the late 1970s and the early 1980s, the demand for labor began to increase sharply as a result of the development of the nonfarm sector and integration of domestic and international labor markets. The respondents had strong motivation to invest in children's schooling because of the increasing returns to human capital in the nonfarm sector.

The respondents obtained about six years of completed schooling, which was about 2.5 to 4 more years of schooling relative to their parents. Moreover, females were not treated less favorably in schooling. The gap in school attainment in favor of girls appeared in the generation of the respondent's children. Among the older children who were twenty-one years old and older, female children received 1.5 years of additional schooling. It is reasonable to postulate that the increase in school attainment of females reflects the increased returns coming from investment in female schooling, which gave parents greater incentives to invest more in their daughters' schooling. Because completed years in school has a relatively small impact on farm income relative to nonfarm income (Fafchamps and Quisumbing 1999a;

Estudillo, Quisumbing, and Otsuka 2001c; Estudillo and Otsuka 1999; Jolliffe 1998), the increased investment by the respondents in their children's schooling most likely represents a response to the rise in returns on schooling in the nonfarm sector.

Sons, who receive less schooling, are compensated with the inheritance of larger areas of land.[5] Traditionally, land is given to sons because of the greater contribution of male labor in rice farming. According to Estudillo, Quisumbing, and Otsuka (2001b), male labor consisting of both family and hired labor accounts for more than three-fourths of the total labor use in rice farming. The average size of landholdings in the Philippines has been declining due to increased population pressure. Each male child in the respondents' generation, on the average, received only about 0.6 hectares.[6] There has also been a persistent preference in land bequest in favor of male heirs not only among the respondents but also among older and younger children.

Overall, we have found no clear evidence of bias against daughters with respect to transfers of wealth. While daughters receive less land, they are compensated with additional schooling. An important question is to what extent parental decisions to give more land to sons and to invest more in the schooling of daughters affect the lifetime incomes of sons and daughters. In short, the issue is whether the egalitarian motives of parents are consistent with efficiency. Efficiency is achieved if each child receives the amount of land and schooling consistent with one's comparative advantage in farming and nonfarm work. According to the analysis of the individual incomes of older children by Estudillo, Quisumbing, and Otsuka (2001b), the actual distribution of inherited land and schooling among children is translated into both higher family income, defined as the sum of sons' and daughters' incomes, and equal lifetime incomes for sons and daughters. If parents want to treat sons and daughters equally given the increasing value of schooling, we expect a less pronounced bias in school enrollment and expenditures against sons among school aged children.

B. *School Attendance among Younger Children*

In the Philippines, primary school children are commonly between seven and twelve years old, high school students are between thirteen and sixteen years old,

[5] Residential houses and lots are the more important nonland assets transferred to the younger generation. The youngest son traditionally receives the paternal house and lot although more recently it is becoming increasingly common for the child responsible for old-age support to inherit the parental house and lot. We did not include nonland assets in our analysis because only forty per cent of the sample households in 1997 have decided on future bequests of nonland assets to heirs.

[6] Rice lands passed on to the next generation have become smaller but more productive due to the development of irrigation infrastructure and diffusion of new rice technology. Using a longitudinal household data set from Central Luzon, Otsuka, Gascon, and Asano (1994) found that the average rice yield per hectare more than doubled with the introduction of a series of improved modern rice varieties.

TABLE IV

PROPORTION OF CHILDREN IN SCHOOL BY AGE AND SEX, CENTRAL LUZON AND PANAY, 1998

Age	Male		Female	
	Number	% in School	Number	% in School
13	10	100	6	83
14	20	85	15	93
15	19	68	22	100
16	20	85	14	93
17	15	67	17	82
18	22	60	14	71
19	11	45	11	54
20	16	62	9	78
All	133	72	108	84

and college students are between seventeen and twenty years old. In our 1998 sample households, almost all of the children between seven and twelve years old were in school because primary education is free in the Philippines, and primary schools are numerous even in rural areas.

High school education has been mandated as free since 1986. But there are only a few high schools located in rural areas, and thus in our 1998 household sample, only 82 per cent of sons and 95 per cent of daughters between the age of thirteen and sixteen were in high school (Table IV). The proportion is much lower for college education, which is not publicly provided, because the cost of college education can be prohibitive for some rural families. Among the sons in the 1998 sample who were seventeen to twenty years old, 60 per cent were in college, while among the daughters the corresponding percentage was 72 per cent.

We estimated a model of school attainment to determine whether there is significant gender bias in the investment in schooling for children who are thirteen to twenty years old for the 1998 sample only. The dependent variable is completed years in school and the independent variables are seven age dummies, three gender-birth order dummies, four types of parent characteristics, and the interaction term between daughter dummy and parent characteristics and village dummies. The estimated function is specified as:

$$\text{Years in school} = f(\text{7 age dummies, 3 gender-birth order dummies, daughter dummy} \times \text{parent characteristics, parent characteristics, 4 village dummies}). \quad (1)$$

Age dummies are included to account for incomplete schooling decisions at younger ages, with age twenty as the excluded category. Gender-birth order dummies are eldest son, eldest daughter and other son (other daughter is the control). Parent

characteristics include inherited land and completed years of schooling. The coefficients of parent characteristics measure the effect of parent characteristics on sons' school attainment, whereas the interaction terms between parent characteristics and the daughter dummy are expected to measure the gender bias associated with parental characteristics. On the other hand, the coefficients of gender-birth order dummies are expected to capture the gender bias independent of parental characteristics.

Equation (1) is estimated using ordinary least squares (OLS) for all the 241 sample children who were thirteen to twenty years of age in 1998 and the household fixed effects (FE) model for only the 191 children belonging to a subsample of households who have at least two children.[7] We use a subsample of households with at least two children so that the gender-birth order dummies become relevant in the FE model. The FE procedure eliminates selectivity bias since selection in the sample is a family-specific variable. It is also appropriate because it controls for unobserved household-specific variables, which may be correlated with variables included in the model. If such correlation exists, the estimated coefficients of the variables may be biased.

According to our results in Table V, however, this is not the case, since the results of the FE and OLS models are fairly similar in the magnitude of the coefficients and their respective standard errors. Moreover, in the estimation of the FE model, the parent characteristics and village dummies have to be eliminated. However, the effects of parental characteristics are captured through the interaction terms if they impact differently on children, depending on their gender.

The results of OLS and FE models are fairly similar although the Breusch-Pagan Lagrange Multiplier test reveals that FE is preferable to OLS (Table V). As expected, children who are nineteen years old and younger have lower levels of schooling than those aged twenty. In the FE estimates, the gender-birth order dummies are not significant, even though in the OLS estimates other sons appear to receive less schooling than other daughters do. Recall that daughters are favored in schooling investment in the case of older children. This pro-daughter bias no longer holds among younger children.

Parental characteristics do not seem to have significant effects on children's schooling. The OLS estimates suggest, however, that a mother's completed years in school, but not a father's, has a highly significant coefficient. This result is consistent with the common findings in the literature that a mother's education has a positive effect on child well-being such as nutrition, health, and education (Thomas 1990, 1994; Strauss and Thomas 1995). In the FE estimates, the negative and significant coeffi-

[7] We also estimated a probit function on school attendance where the dependent variable is unity if the child is in school, and zero if otherwise. The probit regression results are fairly similar to the OLS results.

TABLE V

DETERMINANTS OF SCHOOL ATTAINMENT FOR CHILDREN AGED THIRTEEN TO TWENTY
CENTRAL LUZON AND PANAY, 1998

Variable	Fixed Effects	OLS
Constant		10.03**
		(15.06)
Age dummies:[a]		
Age 13	–5.27**	–4.61**
	(–8.00)	(–7.86)
14	–4.49**	–3.74**
	(–8.14)	(–7.78)
15	–3.78**	–3.15**
	(–7.16)	(–6.75)
16	–2.47**	–1.92**
	(–4.63)	(–3.96)
17	–2.82**	–2.34**
	(–5.06)	(–4.72)
18	–1.45**	–0.75
	(–2.81)	(–1.56)
19	–1.80**	–0.73
	(–2.91)	(–1.38)
Gender-birth order dummies:		
Eldest son	–1.57	–1.10
	(–1.49)	(–1.33)
Other son	–1.60	–1.60*
	(–1.55)	(2.05)
Eldest daughter	0.02	–0.34
	(0.05)	(–0.90)
Daughter dummy × parent characteristics:		
Father's schooling		–0.004
		(–0.75)
Mother's schooling		0.19**
		(2.57)
Daughter × father's schooling	0.02	0.05
	(0.21)	(0.55)
Daughter × mother's schooling	–0.06	–0.10
	(–0.51)	(–0.91)
Father's land		0.24
		(1.04)
Mother's land		0.35
		(0.73)
Daughter × father's land	–0.69*	–0.36
	(–1.97)	(–1.09)
Daughter × mother's land	0.22	–0.62
	(0.17)	(–0.57)
Village dummies:[b]		
CL1		0.76*
		(1.99)
CL2		–1.12**
		(–2.43)

TABLE V (Continued)

Variable	Fixed Effects	OLS
P1		0.66
		(1.46)
P2		−0.41
		(−1.05)
Breusch-Pagan LM test (*p*-value)	19.63 (0.00)	
Hausman test, FE vs. RE (*p*-value)	10.54 (0.72)	
Number of observations	191	241

Note: Numbers in parentheses are *t*-values.
[a] Excluded category is twenty years of age.
[b] CL1 and CL2 refer to Central Luzon Village 1 and 2, while P1 and P2 refer to Panay Village 1 and 2, respectively.
[*] Significant at 5 per cent level.
[**] Significant at 1 per cent level.

cient of the interaction term between daughter dummy and father's land indicates that fathers who inherited more land tend to give less schooling to daughters.

IV. DETERMINANTS OF CONSUMPTION EXPENDITURE SHARES

A. *Specification of Estimated Functions*

We estimate a system of household expenditure functions to examine the manner by which the household allocates its resources. We focus on identifying whether some expenditure items are geared towards certain demographic categories in terms of gender and age.

We estimate the expenditure share functions in two stages. The first stage is an ordinary least squares (OLS) regression of natural logarithm of per capita household expenditure (ln *PCE*), and the second stage is a tobit regression of the expenditure shares which incorporates the predicted values of the natural logarithm of PCE (ln PCE^{*}) as one of the regressors. To the extent that households smooth consumption over their lifetime, PCE can effectively represent household permanent income, which is a measure of long-run household resource availability. Because PCE is considered a choice variable, we use its predicted value using instrumental variables that affect PCE but not the expenditure shares. The instruments are the interaction term between the farm household dummy and farm size, and dummies for the tenure status of current landholdings. Our first stage regression function is specified as:

$$\ln PCE = f(\text{farm household dummy} \times \ln \text{farm size}, \ln \text{household size}, \ln \text{father's schooling}, \ln \text{mother's schooling}, 3 \text{ tenurial dummies}, 9 \text{ gender-age group proportions}, 4 \text{ village dummies}). \quad (2)$$

The interaction term of the farm household dummy and the natural logarithm of farm size is included in Equation (2) in order to compare the expenditure patterns of farmer households with landless households (the control). We define landless households as those who do not have access to farmland, including households headed by casual workers, who are mainly employed in rice farming, and by non-agricultural wage workers. Landless households, who have lower incomes, comprise about one-third of our sample. Following convention, we include the logarithm of schooling for fathers and mothers as explanatory variables in the ln *PCE* function.[8] According to Estudillo, Quisumbing, and Otsuka (2001c), college education is a significant factor affecting household nonagricultural income.

Household size represents the amount of available labor resources in the household as well as the size of the consumption unit, while tenurial variables represent access to land resources. For household gender-age groups, we use separately the proportion of male and female members belonging to age brackets zero to five, six to nine, ten to nineteen, twenty to sixty-four, and sixty-five and over. We did not apply a finer age classification because of the small number of households in our sample. Due to this limitation, the gender bias in the schooling of teenagers may not be revealed as sharply by the household expenditure share analysis as in the analysis of school attainment for individuals. The excluded category is the proportion of male members from twenty to sixty-four years of age.

In the second stage regression we estimate a series of reduced-form expenditure share functions, which is specified as:

$$W = f(\ln PCE^{*}, \text{ ln household size, ln father's schooling, ln mother's schooling, (father's land)}^{1/2}, \text{(mother's land)}^{1/2}, \text{9 gender-age group proportions, 4 village dummies}), \quad (3)$$

where W is expenditure shares. Although these shares could be considered as a system of equations, due to censoring of the dependent variable and the endogeneity of per capita expenditure, we estimate the expenditure share for each category as a recursive simultaneous equations tobit regression.

Household size is expected to capture the effect of the strength of size economies or diseconomies in household consumption expenditures. We use the inherited landholdings and schooling of fathers and mothers as indicators of exogenously-determined bargaining power of spouses, because both human and physical asset ownership critically determines the spouses' potential income earnings. We do not use the logarithm of father's and mother's inherited landholdings as some respondents and their spouses did not inherit any land.[9] Instead we use the square root of the levels

[8] We do not include the schooling of children as an explanatory variable because it is endogenous.

[9] Initially we tried including the predicted logarithm of PCE-squared in the second stage regression using both tobit and OLS procedures. The predicted logarithm of PCE-squared was obtained by

TABLE VI

HOUSEHOLD CONSUMPTION EXPENDITURES, CENTRAL LUZON AND PANAY, 1998

Expenditure Items	Percentage	
	Central Luzon	Panay
Food[a]	58	55
Housing[b]	26	31
Clothing	4	1
Schooling	5	4
Health	4	7
Cigarettes and alcohol	3	2
Total	100	100
Total expenditures (Peso/month)	6,116	5,311
Per capital expenditure (Peso/month)	1,390	1,207

Note: U.S.$1 = 38.00 pesos.

[a] Includes foods bought outside the home and consumption of own production.

[b] Includes utilities, housing repairs, and purchases of durables.

of fathers' and mothers' inherited land because of the possible declining marginal effects of inherited land. Using the *F*-test, we examine whether the coefficients of husband's and wife's human and physical capital are significantly different from each other, controlling for household expenditures.

B. *Data on Expenditure Shares*

We divide the household expenditure items into food, housing, clothing, schooling, health, and cigarettes and alcohol.[10] In the 1998 survey food was the most important expenditure comprising 58 per cent in Central Luzon and 55 per cent in Panay of total monthly household expenditures (Table VI).[11] Housing expenditure comprised about 30 per cent. Expenditure on schooling was only about 5 per cent

squaring some of the variables used as instruments in the first stage regression. The coefficients of many variables in the second stage regression are similar in specifications with and without the predicted logarithm of PCE-squared in both tobit and OLS regressions. This indicates that the presence of nonlinearity in the data is not considerable.

[10] Food expenditures include those on cereals, root crops, fish and meat, eggs and milk, vegetables, fruits, beverages, and oil, herbs, and spices bought outside and produced at home. Housing expenditure items include utilities, housing repairs, and purchases of durable goods. Clothing refers to clothing and footwear for male and female adults, and for boys and girls. Schooling expenditures include those on tuition, books, supplies, and others for primary, secondary, college, and vocational schools. Health expenditures include expenses on government and private hospitals, doctor's fees and medicines, prenatal care, and immunizations. Cigarettes and alcohol expenditures are grouped separately because they are frequently considered as "adult goods" in expenditure analyses.

[11] Data on food expenditures are based on a one-week recall; housing on a one-month recall; clothing, schooling, and health on a six-month recall; and cigarettes and alcohol on a one-week recall. All expenditure items were adjusted to a monthly basis.

because many of the respondents' children were no longer in school, and only direct expenses for schooling were included in the survey. Though unreported, we observed that the shares of expenditure on clothing for adult males and females, and for boys and girls were almost equal, indicating a relatively equitable intrahousehold distribution of spending on clothing.

Engel's law prevailed in our sample villages; the proportion of expenditure on food declined with an increase in income. In the poorest (in terms of household income) sample village, food expenditure accounted for 70 per cent of the total expenditure, whereas in the richest village it accounted for only about 56 per cent. The total per capita expenditure of the poorest village was only 60 per cent of that of the richest village. The proportion of housing expenditure was generally higher in higher-income villages and in a village where there was a high proportion of working members overseas. The total monthly expenditure in Central Luzon was 78 per cent of total monthly income, whereas it was 81 per cent in Panay. The PCE was higher in Central Luzon than Panay due to higher total expenditure in the former, while the average household size in the two locations was roughly the same.

C. *Estimation Results*

According to our regression results, the elasticity of PCE in respect to farm size among the farming households is 0.12 (Table VII). PCE declines significantly with an increase in household size, which implies that total household expenditure increases less than proportionally with an increase in the number of household members. Mother's schooling, but not father's, affects PCE significantly. This may be because males primarily work in the rice sector where schooling has no significant impact on income, while some of their spouses work in the nonagricultural sector where wages are relatively higher for better-educated workers (Estudillo, Quisumbing, and Otsuka 2001b). Thus it is not unreasonable to find that only wife's schooling affects PCE significantly. Households of owner-cultivators and leaseholders–CLT holders have a PCE significantly higher than that of the landless households, while the share-tenant households seem to have roughly the same PCE as the landless households after controlling for the effect of farm size. Demographic char-

TABLE VII

THE DETERMINANTS OF PER CAPITA EXPENDITURES, CENTRAL LUZON AND PANAY, 1998

Variables	ln Per Capita Expenditures
Constant	7.08**
	(24.00)
FHD[a] × ln farm size	0.12*
	(2.15)
ln household size	–0.63**
	(–6.06)

TABLE VII (Continued)

Variables	ln Per Capita Expenditures
ln father's schooling	–0.04
	(–0.58)
ln mother's schooling	0.24**
	(3.02)
Ratio of landholdings:	
Owned	0.25*
	(2.24)
Leasehold-CLT	0.32**
	(3.08)
Share-tenancy	0.17
	(1.03)
Proportion of household members:	
Males aged	
0–5	0.44
	(0.50)
6–9	–0.10
	(–0.14)
10–19	–0.42
	(–1.48)
65+	–0.26
	(–0.99)
Females aged	
0–5	–0.04
	(–0.07)
6–9	–0.12
	(–0.18)
10–19	0.14
	(0.45)
20–64	0.09
	(0.33)
65+	0.60
	(1.73)
Village dummies:[b]	
CL1	0.35*
	(2.21)
CL2	0.30*
	(1.67)
P1	0.46**
	(2.71)
P2	0.04
	(0.26)
R-squared	0.34
Number of observations	250

Note: Numbers in parentheses refer to *t*-values.

[a] Farm household dummy.

[b] CL1 and CL2 refer to Central Luzon Village 1 and 2, while P1 and P2 refer to Panay Village 1 and 2, respectively.

* Significant at 5 per cent level.

** Significant at 1 per cent level.

acteristics of the households in terms of the sex and age grouping of its members do not have a significant impact on PCE. This may suggest the absence of gender and age biases in the generation of household income and its allocation to current expenditures, which is consistent with the findings of Medina (1991) that the household structure in the Philippines is relatively egalitarian.

Table VIII shows the estimation results of the expenditure share functions. We include food, housing, clothing, schooling, and health but exclude cigarettes and alcohol because they comprise only a small proportion of the total household budget. Moreover, only 60 per cent of the households reported having any expenditures

TABLE VIII

DETERMINANTS OF EXPENDITURE SHARES, CENTRAL LUZON AND PANAY, 1998

Variable	Food	Housing	Clothing	Schooling	Health
Constant	1.86**	–0.97*	0.07	–0.70*	–0.08
	(3.13)	(–1.79)	(0.39)	(–2.04)	(–0.11)
ln *PCE*[a]	–0.13*	0.14*	–0.01	0.07	–0.002
	(–1.67)	(2.01)	(–0.57)	(1.59)	(–0.02)
ln household size	–0.09*	0.09*	–0.01	0.09**	0.001
	(–1.72)	(1.82)	(–0.57)	(2.85)	(0.01)
ln father's schooling	0.02	–0.02	0.01	0.02*	–0.02
	(0.95)	(–1.21)	(0.44)	(1.79)	(–0.87)
ln mother's schooling	–0.04	0.02	0.01	–0.01	0.01
	(–1.44)	(0.82)	(1.05)	(–0.56)	(0.50)
SQRT-father's land[b]	0.02	–0.04*	0.01*	0.003	–0.02
	(1.12)	(–1.80)	(1.85)	(0.28)	(–0.97)
SQRT-mother's land[b]	–0.006	–0.04	–0.00	0.001	0.02
	(–0.19)	(–1.23)	(–0.30)	(0.02)	(0.58)
Proportion of household members:					
Males aged					
0–5	0.05	–0.13	–0.02	–0.12	0.49
	(0.20)	(–0.56)	(–0.32)	(–0.83)	(1.60)
6–9	0.15	0.10	–0.03	0.003	–0.14
	(0.73)	(0.53)	(–0.47)	(0.03)	(–0.57)
10–19	–0.14	0.10	0.04	0.17**	–0.20*
	(–1.51)	(1.21)	(1.39)	(3.22)	(1.76)
65+	0.10	–0.06	–0.04	–0.06	–0.01
	(1.23)	(–0.85)	(–1.61)	(–1.11)	(–0.18)
Females aged					
0–5	–0.19	0.30	–0.07	–0.11	0.18
	(–0.95)	(1.64)	(–1.19)	(–0.94)	(0.83)
6–9	0.05	–0.06	–0.10	0.15	–0.16
	(0.29)	(–0.36)	(–1.44)	(1.37)	(–0.62)
10–19	–0.05	–0.06	0.01	0.14**	0.03
	(–0.58)	(–0.78)	(0.61)	(2.86)	(0.34)
20–64	–0.61	0.01	0.001	0.009	0.11
	(–0.75)	(0.20)	(0.01)	(0.17)	(1.24)
65+	–0.12	0.09	0.01	–0.002	0.09
	(–1.10)	(0.95)	(0.41)	(–0.03)	(0.74)

TABLE VIII (Continued)

Variable	Food	Housing	Clothing	Schooling	Health
Village dummies:[c]					
CL1	−0.05	−0.01	0.04**	0.007	−0.04
	(−1.14)	(−0.40)	(2.80)	(0.26)	(−0.69)
CL2	−0.01	−0.04	0.03*	−0.007	−0.06
	(−0.17)	(−0.87)	(1.83)	(−0.26)	(−1.06)
P1	−0.06	−0.004	0.01	−0.002	−0.005
	(−1.10)	(−0.07)	(0.67)	(−0.07)	(−0.07)
P2	−0.09*	0.06	−0.00	−0.01	−0.01
	(−2.10)	(1.61)	(−0.06)	(−0.74)	(−0.27)
Log-likelihood ratio	82.24	104.15	172.25	107.36	−40.94
F-test of the equality of coefficients:					
Males 10–19 = females 10–19	0.90	1.08	1.95	0.00	1.71
Father's land = mother's land	0.03	0.00	1.96	0.00	2.27
Father's schooling = mother's schooling	1.27	1.44	0.65	1.29	0.31
Number of observations	250	250	250	250	250

Note: Numbers in parentheses refer to *t*-values.

[a] *PCE** refers to the predicted values of per capita expenditure.

[b] Refer to the square-root of the levels of mothers' and fathers' inherited landholdings.

[c] CL1 and CL2 refer to Central Luzon Village 1 and 2 and P1 and P2 refer to Panay Village 1 and 2, respectively.

* Significant at 5 per cent level.

** Significant at 1 per cent level.

on cigarettes and alcohol.[12] According to the estimation results, the share of food in total expenditures tends to decline with an increase in PCE, whereas the share for housing increases significantly. These findings indicate that increased availability of resources allows households to shift their consumption pattern away from food towards housing.

The share of expenditures for food is negatively related to household size indicating that larger households seem to benefit from economies of scale with respect to food expenditures.[13] Larger households may benefit from economies of scale regarding food expenditures, probably due to increasing returns on activities with large fixed costs, such as cooking (Fafchamps and Quisumbing 1999b), although we can not confirm this directly because our data pertain to food purchases, not the combined expenditure on food and time spent by households in food preparation.[14]

[12] It is possible that this may reflect underreporting of alcohol and tobacco consumption, a common occurrence in household surveys.

[13] Our finding conforms to that of Deaton and Paxson (1998) in the United States, Great Britain, France, South Africa, Taiwan, Thailand, and Pakistan that per capita demand for food decreases with household size due to economies of scale in consumption.

[14] Larger households may also benefit from direct economies of scale in expenditure through bulk buying, thus paying less per unit, and from minimizing wastage through better management of refrigerators and storage facilities at home.

The significantly higher shares that larger households expend on housing may be due to our use of the cost of housing repairs and construction, rather than the imputed rental value of housing services, due to the absence of house rental markets. It is possible that this may overstate the housing expenditures of larger households. Finally, the shares for schooling also increase with household size, most probably because of the increase in the number of members of school age in large families.

The effects of father's and mother's schooling and inherited landholdings on expenditure shares are not significant except in a few cases.[15] Father's schooling has a positive and significant effect on the share of expenditures for schooling, whereas father's inherited landholdings decreases the housing share and increases the clothing share. The significance levels are low in all three cases. The insignificance of the effect of mother's schooling on the expenditure for children's schooling is unexpected because most of the empirical findings in the developing countries show that mother's schooling is associated with higher expenditures for education (Quisumbing and Maluccio 2000). We speculate that this is due to the relatively high mean and low variance of women's schooling. In our sample, for example, the mean of mother's schooling is relatively high (6.46 years) and its standard deviation is relatively low (2.93 years), which unexpectedly resulted in insignificant effects of mother's schooling on children's schooling expenditures.

The insignificance of the coefficients on parental characteristics suggests that once per capita expenditures are controlled for, parental characteristics do not have any additional explanatory power. One possible reason why the effect of inherited landholdings on expenditures is minimal is the declining importance of land income among rice farming households (Estudillo and Otsuka 1999). The share of land income for our sample households declined from 34 per cent in 1985 to 24 per cent in 1998 (Estudillo, Quisumbing, and Otsuka 2001c), which means that households finance a major portion of their expenditures from other sources of income. The major factor behind the shift of household income structure away from land is the recent development of nonfarm labor markets and improved access of households to such markets.

Using the *F*-test, we examine whether the coefficients of father's and mother's

[15] Fathers' and mothers' schooling and inherited landholdings are proxies for the relative income contributions and bargaining power of spouses. We do not use income shares of each spouse because they may be endogenous to expenditure share functions. Doss (1996b) pointed out that the use of income share as a measure of bargaining power is problematic because income is affected by labor allocation decisions in the household. She argued that the more appropriate proxy for bargaining power is the percentage of assets held by women. Nonetheless, there is ample evidence in the literature that increased income contribution by women is associated with expenditure patterns that are more child-oriented and income-enhancing such as better health and education for children (Kennedy and Peters 1992; Hoddinott and Haddad 1995; Haddad et al. 1996). On the other hand, higher income shares for fathers tend to be associated with increased expenditures on "adult" goods, such as cigarettes and alcohol, partly because these goods are consumed mostly by adult males.

schooling and the coefficients of father's and mother's inherited landholdings are the same when controlling for per capita expenditures (a proxy for permanent income).[16] Equality of coefficients suggests that human and physical assets brought into marriage by mothers and fathers have equal effects on consumption expenditures, which may also mean that the consumption expenditure patterns desirable for fathers and mothers do not differ substantially.

The computed *F*-values shown at the bottom of Table VIII are all below the critical *F*-values at 5 per cent level of significance, which suggests that father's and mother's schooling and father's and mother's inherited landholdings have the same effects on the shares of expenditures.

It is possible that the allocation of resources among household members depends upon one's contribution to household income. In some countries the distribution of food among household members may be skewed in favor of adult males because they are potential labor market participants whose productivity is sensitive to health status (Pitt, Rosenzweig, and Hassan 1990). Boys may be favored relative to girls (Behrman 1988a; Pittigrew 1986; Levine 1987) if males have higher wage rates, making investment in the health outcomes of boys more profitable. In rural Pakistan medical expenditures on elderly males are lower compared to those on younger male working members, reflecting each group's contribution to household income (Kochar 1999).[17]

In general, our survey data show that the shares of household members in different age-sex categories do not significantly affect the budget shares devoted to food, housing, and clothing.[18] However, the share of health expenditures for males who are ten to nineteen years old is significantly less. This result is similar to the finding of Bouis et al. (1998) that adolescents, who are less likely to get sick, seem less likely to receive health care. It is also important to point out that a significant share of expenditures on schooling is allocated to males and females between ten and nineteen years of age. These are the household members who are most likely in middle primary school to early college. The coefficients of the proportions of males

[16] This procedure cannot accurately test whether a common preference model of the household is more desirable than the collective model because we included human capital, a variable that affects not only the extent of bargaining powers of spouses but also their wage rates. The common preference model assumes that all individuals within the household share the same preferences or there is a single decision maker who decides for all, while the collective model views the household as a collective entity made up of individuals who have different preferences (Doss 1996a).

[17] It is also interesting to mention that coresidence of fathers and sons in Pakistan may benefit the fathers although not in terms of wealth but in increases in consumption of goods and leisure. Increases in sons' incomes are accompanied by decreases in father's days of work and such increase in income is used to finance expenditures on household public goods such as consumer durables and ceremonies (Kochar 2000).

[18] Past studies on intrahousehold allocation of food using actual food intake show that food distribution among household members in Filipino households is generally egalitarian (Bouis 1991; Bouis and Peña 1997).

and females in this age group are not significantly different, confirming once again the absence of gender bias with respect to schooling expenditures among younger children.[19]

We have found that daughters and sons are treated equally in the allocation of household expenditures in the rural Philippines. In the allocation of consumption expenditures, we found no evidence that girls are treated less favorably.

V. EXPLANATIONS FOR GENDER EQUALITY IN THE PHILIPPINES

Overall, we found that intergenerational transfers of land, investment in schooling, and the intrahousehold allocation of expenditures are not biased against women or girls in the Philippines. This section looks at some possible explanations for this relative gender equality. In particular we examine: (1) the historical and social aspects of gender relations, (2) the policy of universal education, (3) market returns to schooling and earnings, and (4) a brief comparison with other countries.

1. *Historical and social aspects of gender relations*

Filipino women historically have enjoyed an honored position equal to their male counterparts. The recent practice of bequeathing more land to sons in the Philippines was uncommon in the pre-colonial past. During pre-Hispanic times, "Filipino women own and manage their garden plots and pass them on to the next generation" (Weir 2001). A division of labor along sexual lines existed: women had full control over decisions regarding food crop production while men engaged in hunting and fishing. As in other countries, women's participation in food crop production declined substantially with the intensification of agriculture and the introduction of the plow (Boserup 1970).

Spanish colonialism which began in 1521 and lasted about 350 years was another factor contributing to the practice of giving land to sons. The Spanish clergy preached the dominance of men over women in the control of household resources. The traditional Filipino woman's control over land ownership and decision-making in food crop production as well as rights to land inheritance was undermined (Alcantara 1994).

Yet many women professionals could be found in the teaching profession during the Spanish era. And there were many more who would have wanted to pursue university education but were unable to because of the small number of schools that were open to women. By the late Hispanic colonial period in the late 1800s "Mentally, socially, and in almost all the relations of life, our [Filipino] women are [were] regarded as the equals of our men." (Lopez 1902).

[19] In Vietnam there is a strong association between household income and child schooling, and this association is stronger for girls, indicating that schooling for girls is treated like a luxury good (Behrman and Knowles 1999).

Even in more recent times, Filipino women have performed well in the social and political arena when compared with their counterparts in Japan and the United States. According to the *Human Development Report 2000* (UNDP 2000), the value of the gender empowerment measure (GEM) is 0.479 for the Philippines, 0.490 for Japan, and 0.707 for the United States. The lower value for the Philippines is explained solely by the low value of women's GDP per capita. Yet in terms of political and profession representation, Filipino women perform as well or better. Among the three countries, the proportion of female professional and technical workers is highest in the Philippines—64.6 per cent compared to 44.0 per cent in Japan, and 53.4 per cent in the United States—while the proportion of female administrators and managers is comparable to that in the Untied States—33.7 per cent in the Philippines, 9.0 per cent in Japan, and 44.4 per cent in the United States.

Many social scientists believe that Filipino families are egalitarian.[20] Gender equality is evidenced in the distribution of food. During meal time food is laid on the table for every one to partake regardless of gender or age, indicating that there is no discrimination between boys and girls and between children and adults (Bouis et al. 1998).[21] Husband and wife in a Filipino home carry out household decision making jointly, although the preference of the husband emerges more dominantly in fertility decisions (David 1994; Alcantara 1994). All children are valued equally in intergenerational transfers: sons receive more land while daughters are given more schooling (Estudillo, Quisumbing, and Otsuka 2001a). Parents consider schooling and land as alternative forms of intergenerational transfers to equalize the lifetime incomes of children. In a detailed account of the history of a barrio in Central Luzon, Fegan (1982, p. 119) described how after the land frontier had closed in the barrio in the 1940s, schooling became the substitute for farmland as a form of inheritance.

2. *Policy of universal education*

One of the most important legacies of American colonization, which began in 1898 and lasted for about fifty years, was its policy of universal education introduced before the Second World War. The Philippines saw a spectacular increase in school enrollment rates in the 1960s particularly for girls who had been less favored in schooling during the Spanish era. The universal education policy contrib-

[20] A typical Filipino has many relatives consisting of the core family members and extended members including in-laws. Members maintain close relationships centered mainly upon reciprocal obligations. Bilateral kinship system (descent is traced bilaterally on both the father's and mother's side) and relatives are reckoned on both consanguineal principles and affinal terms (Kikuchi 1989; Miralao 1997).

[21] The Philippine case contrasts to that of Bangladesh where adult males are served first, and working males are highly likely to receive more calories because their productivity depends on their health status (Pitt, Rosenzweig, and Hassan 1990). Since children and adults in the Philippines have equal access to food, it appears that intrahousehold food distribution in Filipino households is not dependent on one's contribution to household income.

uted to eliminating gender differences in schooling. As seen in Table III, the gender gap in schooling was closed during the generation of the respondents who were of primary school age during the implementation of universal education.

Free secondary schooling was mandated in 1986 during the Aquino administration. This policy has contributed significantly to the improved school attainment of the children of the survey respondents; these children completed three to four more years of schooling than their parents (Table III). In June 2001 the Arroyo administration implemented a "zero collection" policy which completely exempts parents from paying school fees even for miscellaneous contributions such as funds for local school maintenance and projects. The main aim of the policy is to make primary and secondary schooling accessible to all. Thus we expect a further increase in the average school attainment of the younger generation.

Overall, it is evident that the secular improvement in school facilities in the country has been instrumental in raising the level of school attainment for female children and eliminating gender differences in schooling.

3. *Market returns to schooling and earnings*

Parents invest in the schooling of a child if the expected pay off is equal to or higher than the costs.[22] Parents may give more schooling to daughters if investment in their schooling is more profitable than that for sons. According to Psacharopoulos (1985, 1994), the worldwide estimate of the rate of return on female education exceeded that for males by more than one percentage point in the 1970s and 1980s. While the rate of return on schooling for females is increasing, the gender gap in absolute earnings for men and women remains wide at 23 per cent in developed countries and 27 per cent in developing countries (World Bank 2001, p. 55, Table 1.2).

Behrman and Lanzona (1989) found substantial returns on schooling for both men and women in five Philippine rice villages where modern rice varieties were widely adopted. Male rates of return on an additional year of schooling were 8 per cent and 10 per cent in the wet and dry seasons, respectively. The corresponding rates of return on female education were 7 per cent in both wet and dry seasons. The difference between male and female rates of return is not statistically significant. We also found evidences in the rural Philippines that gender does not have a significant impact on household nonfarm income (Estudillo and Otsuka 1999; Estudillo, Quisumbing, and Otsuka 2001c). Moreover, individual nonfarm earnings of fe-

[22] An ethnographic study by Bouis et al. (1998), however, indicates that parental decisions regarding schooling do not depend on differential expected payoffs on schooling for boys and girls but on the inherent ability of the child. Girls are given more schooling because they are "more studious," "patient," "willing to sacrifice," and "interested in their studies," while boys are fond of "roaming around" and "playing with their *barkada* (peer group)" and have to be "reminded" and "scolded" to do their schoolwork.

males are not significantly different from those of males (Estudillo, Quisumbing, and Otsuka 2001b). These indicate that the gender gap in nonfarm earnings in the Philippines is negligible.[23]

Estudillo, Quisumbing, and Otsuka (2001b) also found that females are more likely to participate in nonfarm employment, perhaps due to their higher school attainment and their access to nonfarm jobs. Females have a 70 per cent probability of participation in nonfarm employment, in contrast to males who have only a 56 per cent probability.

Worldwide evidence for the earnings of women and men adjusted for differences in human capital shows that women continue to earn less than men (World Bank 2001, pp. 301–6, Appendix 3). The female to male earnings ratio in the Philippines ranged from 71 per cent to 75 per cent in 1978 and from 76 per cent to 80 per cent in 1988. We expect that the ratio became even narrower in the 1990s considering that Filipino females have obtained more schooling and that the domestic labor market is increasingly becoming more integrated with the international market. The female to male earnings ratio in the Philippines is narrower than in the United States (67 to 70 per cent in 1985–94) and Japan (58 per cent in 1988), and better than in many of the developing countries, indicating that gender discrimination in the labor market in the Philippines is much less.

4. *A brief comparison with other countries*

Inequity in intergenerational transfers of land in favor of men often occurs in patrilineal systems of inheritance in which land is transferred from the father to the male members of the family. Micro-level studies in South Asia show significant pro-male bias: women have less access to land (Agarwal 1997), tend to receive significantly less schooling than men (Meier and Rauch 2000, p. 267), and receive significantly less food intake and provision of medical care (Haddad et al. 1996).

According to our ongoing parallel studies on gender equity in the matrilineal societies of Sumatra and western Ghana (Quisumbing and Otsuka 2001a, 2001b), intergenerational wealth transfer in terms of land and schooling has been moving towards gender equity in these areas. In Sumatra, daughters used to inherit land exclusively and sons used to receive more schooling, but in more recent years daughters and sons inherit land in accordance with the demand for male and female labor.

[23] Using data from the Bicol region in the rural Philippines, Lanzona (1998) found that there is a 17 per cent wage gap in nonfarm sector jobs in favor of males after controlling for education and experience, even though women in his sample receive more schooling than men. Lanzona's (1998) findings are supported by the wage function estimates of Maluccio (1998, Tables 1, 3, 4, and 5) using data from the same study area. These two authors, however, did not give a clear explanation as to why the wage gap exists when women are more educated than men. They pointed out, however, that the wage gap is one of the major factors why women surpassed men in outmigration from the village. We speculate that Lanzona's (1998) and Maluccio's (1998) findings reflect the relative poverty and backwardness of the Bicol region compared to our study areas.

Also sons and daughters tend to receive more equalized levels of schooling than before. In the so-called uterine matrilineal systems of Ghana, land used to be transferred from a deceased man to his brother or nephew (sister's son), but as the demand for female labor increased in the course of intensified land use, wives and daughters have begun to receive some portion of land as gifts (often one-third for a wife and one-third for children including daughters). Moreover, the gap in schooling between men and women has become smaller in this region. Common to the three studies encompassing the Philippines, Sumatra, and Ghana are changes in land inheritance patterns for men and women in response to changes in the relative demand for male and female farm labor. Narrowing of the gender gap in schooling has also been observed in Sumatra and, to a lesser extent, in Ghana, which may be explained by the increased availability of primary schooling (and in the case of Indonesia, by the reduction in discrimination in nonfarm jobs).

Policies can be used to help equalize land transfers and the investment in schooling between men and women. For example, land titling programs in Costa Rica and Colombia increased the number of women beneficiaries in land reform programs (World Bank 2001, pp. 120–24). In Ghana land received by wives as gifts from their husbands in return for planting cocoa trees can become the legal property of the wives through the Intestate Succession Law (Quisumbing et al. 2001). Presumably due to the increase in the number of schools in rural areas and improvement in rural roads, school enrollment rates for girls doubled in South Asia, sub-Saharan Africa, and the Middle East and North Africa, which led to a substantial reduction in gender gaps in schooling (World Bank 2001, pp. 1–5).[24]

VI. SUMMARY AND CONCLUSIONS

The main objective of this paper is to determine whether there is gender bias in the Philippines in intergenerational transfers of wealth as well as in the intrahousehold allocation of expenditures. We found that daughters receive less land but are compensated by more schooling. Larger investment in the schooling of daughters would tend to neutralize the existing gender-inequalities in land inheritance in favor of sons, which is consistent with parental equity concerns regarding their children's future welfare. In all likelihood, higher investment in the schooling of daughters reflects increased returns on female human capital in nonfarm jobs, which is consistent with the efficiency concerns of parents. We did not find any strong evidence that daughters and wives are particularly less favored in expenditure allocation compared to sons and husbands.

[24] Deninger, Olinto, and Maertens (2000) argued that the implementation of land reform in the Philippines resulted in a greater accumulation of human capital in the younger generation because of the wealth effects conferred by the implementation of land reform to the former share tenants. Their study, however, used data from the 1980s to confirm the effects of land reform implemented primarily in the 1970s.

While parents exhibit preferential treatment towards children of a specific gender, the overall results for the younger generation suggest that gender or birth order does not affect decisions on schooling for the younger generation of children. Thus in comparison to other countries (e.g., Bangladesh) where discrimination against girls is clear in both the expenditure regressions and the individual regressions (Quisumbing and Maluccio 2000), the Philippines emerges as relatively equitable.

It is expected that returns on human capital will increase due to the rapid development of the nonfarm sector. If, at the same time, labor markets become competitive, the gender-wage gap will be reduced. Parents will then increase their investment in the schooling of both daughters and sons in response to the increasing returns on human capital. Furthermore, we find that the investment in schooling between younger sons and daughters no longer exhibits the pro-female bias which we found among older children, indicating that parents have adjusted their investment strategies through time. We speculate that in the longer run this trend may equalize the wife's bargaining position vis-à-vis her husband's, which may further increase the advantages of making joint decisions within the household. In this situation, equity concerns will not conflict with efficiency objectives.

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