

Ballesteros, Marife M.

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The Dynamics of Housing Demand in the Philippines: Income and Lifecycle Effects

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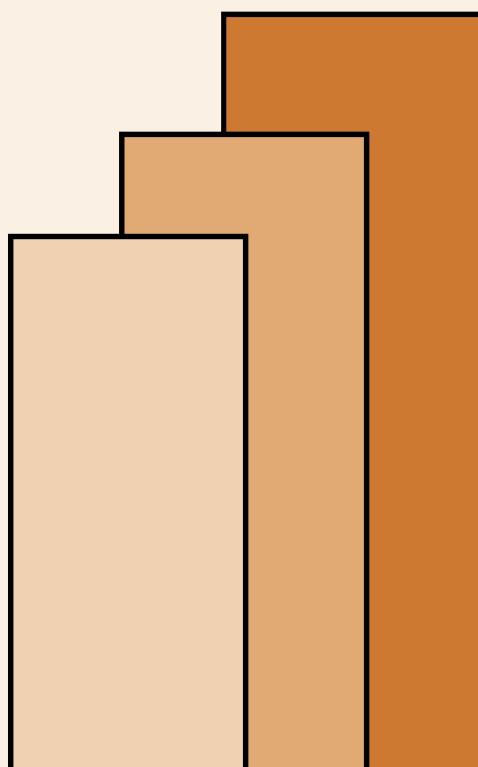
Marife M. Ballesteros

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For comments, suggestions or further inquiries please contact:

The Research Information Staff, Philippine Institute for Development Studies
3rd Floor, NEDA sa Makati Building, 106 Amorsolo Street, Legaspi Village, Makati City, Philippines
Tel Nos: 8924059 and 8935705; Fax No: 8939589; E-mail: publications@pidsnet.pids.gov.ph
Or visit our website at <http://www.pids.gov.ph>

ABSTRACT

This paper examines the housing consumption pattern of households in the Philippines given their socio-economic characteristics and the existing conditions in the land and housing market. Two basic issues are examined: *one*, how is housing adjustment and expenditure associated with income and demographic changes; and *two*, do housing consumption in the country suggest the presence of significant housing market imperfections or capital market imperfections. The results point to the lack of housing alternatives specifically for the low-income households in the formal housing market. Housing adjustments and the path toward acceptable housing are thus constrained. Estimates of income elasticity show that for most households, an increase in income will not be spent on housing but to meet other basic household needs. This being the case, there has to be a significant increase in income to bring about a significant change in housing conditions. In the long run, economic development may bring about the needed boost in income, however, in the short-run, government has look into alternative forms of low-cost housing. One option is developing the low-cost rental market. Another option is finding innovative financing schemes that would allow low monthly amortization. Lastly, government has to institute ways to effectively reduce the high cost of housing in the country.

Keywords: *Housing demand, housing consumption pattern, housing elasticity*

The Dynamics of Housing Demand in the Philippines: Income and Lifecycle Effects

Marife M. Ballesteros
Philippine Institute for Development Studies

I. Introduction

Housing demand analysis is primarily a question of how households adjust their housing consumption given factors that place them out of equilibrium. Housing adjustments maybe done by relocating to another unit, by modifying existing units or by tenure changes. This decision depends on a number of factors, which stems from the peculiar attributes of housing as a tradeable good (e.g. location specificity, high costs viz. income), the characteristic of the households and from the way the housing market operates. The attributes of housing are inherent thus the adjustment process varies among households or across cities and countries primarily due to changes in the characteristics of households and differences in the way the housing and land markets operate within a city or country.

This investigation of housing demand focuses on the effects of income and lifecycle on housing adjustments and expenditure pattern given conditions on the land and housing market. Several issues are examined. *First*, how is housing adjustment and expenditure associated with income and demographic changes? *Second*, do housing adjustments and expenditure on housing suggest the presence of significant housing market imperfections or capital market imperfections?

The discussion proceeds as follows. Section 2 presents key characteristics of the Philippine housing market that may have major influence on housing adjustments and expenditure pattern. Sections 3 and 4 present evidences of housing consumption using household surveys conducted from 1985 to 1997. Section 3 provides some descriptive statistics on household tenure change and housing improvements while Section 4 discusses the estimates of housing demand parameters using econometric

models. In section 5 constraints on housing demand and affordability is discussed. The last section gives a summary of results and provides some policy implications.

II. Key Features of the Housing Market in the Philippines

The Philippine housing market reveals a tremendous gap between the demand and supply of housing. At the root of this housing shortage is the fact that the majority of households are unable to pay for the cost of housing and land. The minimum housing cost of P150 thousand per unit is 3.8 times the yearly wages of unskilled laborer. Likewise, a P250 thousand unit housing is 3.1 times the annual income of an employee earning a median income of P6,700 per month. Compare this to the standard norm in industrialized countries of 2-2.5%.

The high price of land is the major factor in the high cost of housing in the Philippines (Strassman and Blunt 1993). Grimes (1976) suggested that as an international rule, housing for low-income families would require that 100m² of land would cost as much as GNP per capita. In Manila, however, the 1990 price (P1000/sq m) of a site outside the metropolis was 5.2 the national GNP per capita. On the outskirts of the NCR, raw agricultural land costs only P60 per sq m (0.3% of GNP) but the price rises by 2.5-3.0 times when the same land is zoned for urban use. It rises further by 5.3-6.7 times the zoned land price when such area is developed (UNCHS and WB 1993).

The high cost of urban land in the country is due to constraints in the supply side of the market (Ballesteros 2000). *First*, poor planning and infrastructure developments limit the supply of housing land. *Second*, administrative bottlenecks in land and housing developments due to contradicting land laws, unclear standards and overlapping turfs cause delays in the conversion of agricultural lands to urban lands. *Third*, problems on property rights, e.g. fake titling, delays in agreements of right of ways, landgrabbing, etc. further increases transaction costs. *Fourth*, land ownership is highly concentrated and holding land idle is encouraged by the low land and property tax in the country. All the above scenarios limit the supply of urban lands, increases the cost of servicing land thus causing phenomenal rates of increase in urban land prices.

Another feature of the housing market in the country is the lack of long-term financing for housing, which could provide a way to offset the high unit cost of housing relative to income. Like most developing economies, the secondary financial market in the country is undeveloped. Long-term funds for housing are constrained and highly dependent on funds from government social security systems. Moreover, housing finance programs of the government have been unsustainable. One reason is graft and corruption in the approval and release of loans for the low-income sector. It has been reported that payments have been released to participating housing developers with no existing household beneficiary. Another reason is poor subsidy transfer mechanisms. Loans to targeted beneficiaries have been released based on formula lending (i.e. loan amount is computed as a percentage of income), which does not recognize borrowers' probable lack of capacity to pay or incur additional indebtedness (Llanto 1998). In addition, there is less incentive for developers and lending institutions to be prudent since the loan is automatically taken out from them (Llanto 1998). The government thus assumes the full credit risk on the loans.

The rental housing market for low-income households in the Philippines is also not developed. There is very little information about the rental housing market in the country. It is, however, observed that government housing programs mainly emphasized homeownership. Public rental housing then called tenement houses have been one of the earliest government programs on urban housing in the 1950s but this scheme did not take-off. There have been attempts during the Marcos government to revive public rental housing but these houses ended up for homeownership by the middle and high-income earners. The Marcos administration also tried to boost the rental housing market specifically in urban areas by encouraging the development of private "apartments" through the provision of a financing window. However, this program was given least priority compared to the other government housing programs such as the sites and services and zonal improvement programs. What occurred instead was the ratification of the "rent control law" in response to the rising housing costs in urban areas particularly Metro Manila (Batas Pambansa 877 of 1985). This rent control law among others provided for the maximum allowable increases in rents of residential units offered for rent. Since 1985, the effectivity of the law has been extended to 2001. The implementation of the rent control law may have worked

against low-income households, which the law intends to protect since rent controls tend to crowd out investments for low-income rental housing.

Feature	Underlying Causes
<p>Influx of population in major urban centers</p> <p>High unit housing cost relative to income</p> <p>High rate of increase in urban land prices</p> <p>Lack of long-term financing and unsustainable housing finance</p> <p>Undeveloped rental housing market for low-income households</p>	<ul style="list-style-type: none"> • Significant socio-economic disparities among regions and between urban and rural areas • Low wages, high unemployment • Construction cost rising faster than wages • High rate of increase of urban land prices • Scarcity due to limited infrastructure developments, • Scarcity due to Institutional problems (e.g. property rights, bureaucratic bottlenecks) • Holding of idle lands due to low land and property tax • Undeveloped secondary markets • Graft and corruption • Poor subsidy transfer mechanism • Government bias on homeownership • Rent control law

III. Tenure Change and Housing Improvements: Some Descriptive Statistics

The absence of a panel data for households in the Philippines makes it difficult to give an accurate measure of the mobility and path toward acceptable housing of households. Nonetheless, the trends in dwelling conditions and improvements are provided herein to give some indirect measures.

A. General Trends in Housing Consumption

There has been an increase in homeownership in the Philippines between 1985 and 1997 (Table 2). In 1985, 58.1% of households in the Philippines are homeowners. This proportion increased to 64.5% in 1997. The increase in homeownership is observed to be strong in the key urban cities, specifically Metro Manila and Metro

Cebu. Comparatively, the trend on homeownership is slow in Davao City and in rural areas for the same period.

A clear pattern in all areas is the significant proportion of housing by informal means. This “informal” category encompasses a variety of arrangements, such as living with relatives, living in place of business or living on a working farm (the last two examples refer to institutional housing). Also included under this category are the illegal occupants of dwellings (without permission) and those living in natural habitat. Those informal dwellers living with relatives or in place of business represent the tenure condition of one-fifth of households in the Philippines. There has been a significant increase of these types of informal dwellers in Metro Cebu and Davao City while the proportion has remained the same in Metro Manila. On the other hand, the proportion of informal dwellers that occupy housing illegally shows increasing trend specifically in key urban areas. In NCR, this type of dwellers increased in proportion from 2.9% in 1985 to 6.9% in 1997. The situation has been worst in Metro Cebu, whereby illegal dwellers represent 14% of total households in 1997, an increase from a proportion of 2% in 1991.

Table 2. Tenure Trends in the Philippines, 1985-1997, (in proportion of total households).

	1985	1991	1994	1997
Philippines	100.0	100.0	100.0	100.0
Own or owner-like possession of house & lot	58.1	62.9	65.4	64.5
Rent house/room including lot	7.2	6.9	6.0	6.3
Own house, rent lot	6.6	5.5	4.2	4.0
Own/rent-free house, rent-free lot with consent of owner	26.1	22.3	21.6	22.0
Own/rent-free house, rent-free lot without consent of owner	2.0	2.3	2.7	3.2
Urban	100.0	100.0	100.0	100.0
Own or owner-like possession of house & lot	50.1	58.3	61.6	60.1
Rent house/room including lot	17.4	13.2	11.4	12.3
Own house, rent lot	10.3	6.7	5.3	5.0
Own/rent-free house, rent-free lot with consent of owner	19.4	19.0	18.5	18.0
Own/rent-free house, rent-free lot without consent of owner	2.9	2.8	3.2	4.6
Rural	100.0	100.0	100.0	100.0
Own or owner-like possession of house & lot	63.0	67.4	69.1	68.6
Rent house/room including lot	1.0	0.8	0.8	0.9
Own house, rent lot	4.4	4.3	3.2	3.1
Own/rent-free house, rent-free lot with consent of owner	30.1	25.6	24.7	25.6
Own/rent-free house, rent-free lot without consent of owner	1.4	1.9	2.2	1.9
NCR	100.0	100.0	100.0	100.0
Own or owner-like possession of house & lot	41.2	45.5	49.4	50.0
Rent house/room including lot	32.4	30.7	27.6	25.9
Own house, rent lot	9.8	6.6	4.2	3.8
Own/rent-free house, rent-free lot with consent of owner	13.7	13.2	14.0	13.4
Own/rent-free house, rent-free lot without consent of owner	2.9	4.0	4.8	6.9
Metro Cebu	100.0	100.0	100.0	100.0
Own or owner-like possession of house & lot	38.8	45.7	54.5	44.2
Rent house/room including lot	14.8	14.4	12.0	9.3

Own house, rent lot	12.8	11.1	13.4	11.9
Own/rent-free house, rent-free lot with consent of owner	11.2	26.1	13.4	20.5
Own/rent-free house, rent-free lot without consent of owner	22.4	2.7	6.7	14.0
Davao City	100.0	100.0	100.0	100.0
Own or owner-like possession of house & lot	53.9	61.5	55.8	54.6
Rent house/room including lot	15.8	11.6	8.0	11.1
Own house, rent lot	9.7	3.9	5.8	8.0
Own/rent-free house, rent-free lot with consent of owner	19.7	19.3	25.8	24.6
Own/rent-free house, rent-free lot without consent of owner	1.0	3.7	4.5	1.7

Source: National Statistic Office (NSO)
Family Income and Expenditure Survey (FIES)

Overall, the data indicate a “natural progression” toward obtaining what may be considered the best tenure status, i.e. homeownership with secure title to housing/land. However, the path toward homeownership is slow for about 50% of households. The alternative housing for most families is the informal housing sector—either occupying dwellings rent-free with or without consent of legal owners. The rental housing market is observed to be the least alternative for families. This maybe due to the “undeveloped” rental housing for the low-income sector or that this type of rental housing is limited.

While housing adjustment by tenure is quite slow, improving or modifying housing units has been the apparent trend among households. Between 1985 and 1997, dwelling conditions for most families have improved considerably. Dwellings made of strong wall materials increased from 38.1% in 1985 to 62% in 1997 (Table 3). Homes made of makeshift materials have also declined from 4.0% in 1985 to 2.2% in 1997. Improvements in wall material have been significant in both urban and rural areas including key metropolitan areas.

Toilet facilities has also improved with more than 60% of dwellings using water-sealed toilet in 1997 compared to only 52% in 1985. Water system, however, has remained poor with only about 50% of households having their own faucets and connected to the community water system. This condition is, however, attributed to poor water infrastructure and institutional problems in the country rather than low demand for this facility.

Table 3. Housing Improvement by Tenure, Philippines, 1985-1997 (change in percentage points).^{a/}

	Own or owner-like possession of house and lot	Rent house/ room, including lot	Own house, rent lot	Own/ rent-free house, rent-free lot w/ consent of owner	Own/ rent-free house, rent-free lot w/o consent of owner	Total
Philippines						
Strong Wall	21.9	26.8	27.4	23.4	27.1	23.9
Makeshift Wall	-1.5	0.8	-2.4	-3.2	-2.5	-1.8
Water-sealed Toilet	10.9	3.7	12.7	15.7	14.7	12.2
No Toilet	-1.6	-1.5	-3.4	-2.9	-7.3	-2.5
Own use, Faucet, Community Water System	4.3	-8.3	5.9	2.0	-0.9	2.8
Peddled Water	0.4	0.8	-0.6	1.9	7.9	0.8
Urban						
Strong Wall	17.4	26.9	27.9	28.4	32.6	23.4
Makeshift Wall	-0.5	0.7	-1.6	-4.0	-6.6	-1.3
Water-sealed Toilet	3.6	3.1	10.3	13.7	10.0	6.3
No Toilet	-0.2	-1.1	-1.4	-3.1	-8.7	-1.4
Own use, Faucet, Community Water System	-0.1	-9.0	5.0	-0.2	-8.9	-1.7
Peddled Water	-0.2	0.8	-0.9	2.6	9.5	0.6
Rural						
Strong Wall	19.8	23.6	26.5	17.8	14.4	20.3
Makeshift Wall	-2.1	2.2	-3.5	-3.2	0.0	-2.4
Water-sealed Toilet	10.3	7.7	15.8	12.7	16.0	11.9
No Toilet	-1.0	-5.2	-6.2	-1.0	-1.9	-1.8
Own use, Faucet, Community Water System	0.7	-5.8	6.7	-0.1	4.4	0.7
Peddled Water	0.2	-0.1	-0.2	0.9	1.6	0.4
NCR						
Strong Wall	20.5	27.0	37.2	35.5	47.1	26.8
Makeshift Wall	0.9	1.8	0.1	-0.4	-10.0	1.1
Water-sealed Toilet	3.5	3.9	2.9	13.3	10.7	4.8
No Toilet	-0.8	-1.2	-3.1	-3.0	-5.9	-1.4
Own use, Faucet, Community Water System	-2.9	-13.4	9.4	-8.8	-19.9	-7.2
Peddled Water	-2.1	1.5	-2.0	8.4	12.7	1.2
Metro Cebu						
Strong Wall	10.9	28.7	16.4	22.1	11.6	15.2
Makeshift Wall	-3.8	3.7	-2.4	-10.8	-1.7	-2.9
Water-sealed Toilet	-12.1	-0.7	-0.9	6.0	-0.5	-4.6
No Toilet	4.1	3.5	-0.5	-16.9	-6.4	-1.5
Own use, Faucet, Community Water System	-17.3	-13.5	-10.5	25.6	-6.7	-7.9
Peddled Water	5.4	3.7	1.1	-8.7	23.0	5.3
Davao City						
Strong Wall	26.1	38.4	18.2	41.4	76.9	30.5
Makeshift Wall	-1.5	-8.2	-4.1	-3.5	0.0	-3.1
Water-sealed Toilet	19.7	5.0	-10.7	17.5	35.8	13.7
No Toilet	4.1	4.4	3.1	14.0	23.1	6.9
Own use, Faucet, Community Water System	19.4	-8.9	-15.2	-2.2	53.3	7.6
Peddled Water	-0.9	-16.5	-3.3	6.0	23.6	-1.7

a/ See Appendix 1 for details.

Improvements in dwellings have not been limited to households with secure tenures. Households occupying informal dwellings have likewise showed much improved housing conditions. For instance, those households occupying dwellings without

consent of owners have homes that are mainly (62%) of strong materials compared to only 23% in 1985. Toilet facilities also improved with 51% using water-sealed toilets compared to 36% in 1985. These types of improvements in dwelling conditions have been more pronounced in key urban cities.

B. Housing Consumption by Income Group

Homeownership as expected is comparatively higher among non-poor households, i.e. households above the poverty thresholds (Table 4).¹ However, poor households showed greater improvement in tenure status. In 1985, only 51.8% of poor families were homeowners. This proportion increased by about 10-percentage point in 1997. Comparatively, only a 2-percentage point increase is noted among non-poor households for the same period. There has been a decline in total informal dwellings specifically those who live with relatives and in work areas although the number of households in illegally occupied dwellings or squatter areas have increased. An increase in illegal dwellings is noted among the non-poor households, which maybe indicative of the rising difficulty of obtaining housing from the formal sector even among non-poor families. This finding is also apparent in urban areas, specifically Metro Manila.

In Metro Manila although there has been an increase in homeownership for both poor and non-poor households between 1985 and 1997, the increase in the proportion of households in illegally occupied dwellings has also been sizeable. Among the poor households, the proportion of households in illegally occupied dwellings in 1985 increased three times its level in 1997. This trend is also observed among non-poor households. The increase may have come from new households, from renter-households (house and lot or lot only) or from households under some informal dwelling arrangements.

¹ Households were grouped based on the computed poverty threshold by region/city. This yielded a better classification of households by income over classification using income deciles. Poverty threshold considers regional differences in terms of prices and consumption patterns.

Table 4. Tenure Trends by Income Group, Poor vs. Non-poor Households, Philippines, (in proportion to total households).^{a/}

	1985					1997						
	Total	Own or owner-like possession of house and lot	Rent house/room, including lot	Own house, rent lot	Own/ rent-free house, rent-free lot w/ consent of owner	Own/ rent-free house, rent-free lot w/o consent of owner	Total	Own or owner-like possession of house and lot	Rent house/room, including lot	Own house, rent lot	Own/ rent-free house, rent-free lot w/ consent of owner	Own/ rent-free house, rent-free lot w/o consent of owner
Philippines												
Poor	100.0	51.8	4.0	7.1	34.7	2.4	100.0	62.0	1.9	3.8	28.9	3.4
Non-poor	100.0	63.1	9.8	6.2	19.2	1.6	100.0	65.7	8.4	4.1	18.7	3.0
Urban												
Poor	100.0	39.4	12.5	13.3	30.4	4.4	100.0	53.1	5.7	6.6	28.0	6.6
Non-poor	100.0	55.4	19.8	8.8	13.9	2.1	100.0	61.6	13.8	4.7	15.8	4.1
Rural												
Poor	100.0	56.8	0.6	4.6	36.4	1.6	100.0	65.2	0.5	2.8	29.2	2.3
Non-poor	100.0	69.4	1.5	4.2	23.7	1.2	100.0	71.2	1.2	3.4	22.7	1.5
NCR												
Poor	100.0	29.3	31.2	12.1	21.3	6.0	100.0	37.4	22.7	2.8	19.8	17.3
Non-poor	100.0	44.7	32.8	9.1	11.4	2.0	100.0	50.9	26.1	3.9	12.9	6.2
Metro Cebu												
Poor	100.0	20.9	13.4	11.9	20.9	32.8	100.0	39.7	7.0	15.4	19.6	18.3
Non-poor	100.0	48.1	15.5	13.2	6.2	17.1	100.0	44.6	9.5	11.6	20.6	13.7
Davao City												
Poor	100.0	47.1	10.9	10.3	30.2	1.6	100.0	41.6	6.8	13.4	38.2	-
Non-poor	100.0	57.8	18.6	9.3	13.7	0.6	100.0	56.3	11.7	7.3	22.8	1.9

a/ See Appendix 2 for details.

The trends for Metro Cebu and Davao City show a decline in the proportion of homeownership even among the non-poor households, although the decline is relatively small. In Davao City, we find a comparatively insignificant proportion of illegal dwellers compared to Metro Cebu and NCR.

Housing improvements has been generally on the upward trend for all households, whether poor or non-poor (Table 5). There remain, however, poor water supply connections in all areas, which as earlier indicated, is primarily due to the poor water infrastructure in the country. Although there has been an increase in water outreach for poor communities under the privatization program of the MWSS and LGU initiated water projects, providing households their own piped water through a community water system would still require much work (ADB 2000).

Table 5. Housing Improvement by Income Group, (in percentage point change).

	1985-1997					
	Wall Material		Toilet Facility		Source of Water Supply	
	Strong	Makeshift	Water-sealed	None	Own use, faucet, community water system	Peddler
Philippines						
Poor	16.2	-3.1	5.5	-1.0	-2.8	-0.2
Non-poor	21.1	-0.5	9.7	-0.5	1.7	1.3
Urban						
Poor	17.4	-2.6	2.2	1.1	-7.2	-1.1
Non-poor	17.2	0.3	1.2	0.3	-6.2	1.3
Rural						
Poor	16.1	-3.2	7.3	-2.1	-0.7	0.3
Non-poor	20.5	-1.5	12.8	0.0	1.1	0.5
NCR						
Poor	23.1	11.1	5.5	1.0	-14.4	4.9
Non-poor	20.4	3.0	0.8	-0.7	-12.3	2.1
Metro Cebu						
Poor	9.0	1.5	-19.8	15.6	-4.3	13.5
Non-poor	5.4	-0.5	-13.9	1.5	-17.9	5.3
Davao City						
Poor	45.7	-4.5	9.2	20.2	4.2	-4.8
Non-poor	15.6	-1.1	4.1	5.9	-1.9	-0.6

a/ See Appendix 3 to 5 for details.

C. Housing Consumption by Lifecycle

The proportion of homeownership is highest among married households than households whose heads are unmarried, separated or widowed (Table 6). The household size is shown to have an impact on tenure where larger-sized households, whether married or unmarried/separated/widowed, tend to have lesser capacity for homeownership than smaller-sized households.

The trends in tenure status by lifecycle show increases in the proportion toward homeownership for different household types. This trend is more pronounced among married households than single households. However, illegal housing is more common among married households.

Both single and married households show increasing trend toward illegal dwellings. Where illegal housing was uncommon among single households, we find a rise in the proportion of single households in illegal type of dwellings.

The effects of lifecycle are more pronounced in specific localities. In NCR, while the proportion of homeownership is rising for all types of households, single households are mainly renter-households. Homeownership is highest among married individuals where household head is at least 50 years of age.

Informal dwellings without consent of owners are increasing for all types of households. It is observed that from 1985 to 1997, the conditions of housing by single households have worsened. Similar conditions are observed in other metropolitan areas, i.e., Cebu and Davao City. Informal dwellings are on the rise specifically illegal housing for single and married individuals. It seems that in highly urbanized areas like Metro Manila, Cebu and Davao, housing options in the formal market have become limited even among single households with no dependents. The situation could thus be worst for households with dependents.

Table 6. Tenure Trends by Lifecycle, Philippines, (in percentage point change).^{a/}

	1985-1997				
	Own or owner-like possession of house and lot	Rent house/ room, including lot	Own house, rent lot	Own/ rent-free house, w/ consent of owner	Own/ rent-free house, w/o consent of owner
Philippines					
single/separated, hysize=1	-1.2	1.8	3.2	-8.3	4.5
single w/ hysize>1	-0.6	1.5	-0.9	0.5	-0.5
separated, hysize>1	13.9	-8.1	-2.2	-5.2	1.5
married, hhead<30, hsize< or =3	2.6	5.0	-1.5	-7.5	1.4
married, hhead<30, 3<hsize<6	9.4	0.4	-5.3	-6.0	1.6
married, hhead<30, hsize 6+	8.9	-1.7	-3.0	-5.3	1.1
married, hhead 30-39, hsize< or =3	3.2	2.2	-4.2	-0.8	-0.3
married, hhead 30-39, 3<hsize<6	9.3	-2.3	-3.1	-4.9	1.0
married, hhead 30-39, hsize 6+	11.8	-3.0	-3.1	-7.3	1.7
married, hhead 40-49, hsize< or =3	6.4	-0.6	-1.9	-6.3	2.4
married, hhead 40-49, 3<hsize<6	7.0	-1.9	-2.5	-3.3	0.7
married, hhead 40-49, hsize 6+	5.0	-1.0	-4.0	-1.9	1.9
married, hhead 50+, hsize< or =3	0.7	0.0	-1.6	-0.6	1.5
married, hhead 50+, 3<hsize<6	3.9	-0.5	-1.0	-2.7	0.4
married, hhead 50+, hsize 6+	5.4	-1.7	-2.1	-3.3	1.7
Urban					
single/separated, hysize=1	-3.3	-4.0	4.3	-2.6	5.6
single w/ hysize>1	3.8	-3.5	-2.9	2.2	0.5
separated, hysize>1	22.2	-12.4	-4.2	-8.5	2.8
married, hhead<30, hsize< or =3	11.3	1.8	-5.9	-9.5	2.1
married, hhead<30, 3<hsize<6	13.4	-7.0	-8.8	2.2	0.3
married, hhead<30, hsize 6+	16.6	-5.3	-7.1	-2.6	-1.6
married, hhead 30-39, hsize< or =3	11.1	0.5	-6.8	-5.3	0.6
married, hhead 30-39, 3<hsize<6	10.8	-7.5	-4.5	-0.4	1.6
married, hhead 30-39, hsize 6+	14.2	-10.7	-6.3	-0.8	3.7
married, hhead 40-49, hsize< or =3	6.0	-11.8	-4.1	6.6	3.3
married, hhead 40-49, 3<hsize<6	13.9	-6.9	-3.1	-4.7	0.9
married, hhead 40-49, hsize 6+	9.9	-4.5	-8.1	-0.6	3.3
married, hhead 50+, hsize< or =3	7.9	-3.4	-3.7	-3.2	2.5
married, hhead 50+, 3<hsize<6	7.2	-3.3	-3.3	-0.2	-0.4
married, hhead 50+, hsize 6+	7.0	-4.6	-4.7	-0.2	2.4
Rural					
single/separated, hysize=1	7.8	-1.7	2.4	-11.7	3.1
single w/ hysize>1	-1.5	1.6	1.1	0.9	-2.0
separated, hysize>1	2.0	-3.9	1.2	1.4	-0.8
married, hhead<30, hsize< or =3	2.7	-0.2	0.0	-3.3	0.8
married, hhead<30, 3<hsize<6	10.8	0.2	-3.8	-9.1	1.9
married, hhead<30, hsize 6+	6.0	-3.2	-1.2	-4.7	3.0
married, hhead 30-39, hsize< or =3	0.5	-2.1	-2.3	5.1	-1.3
married, hhead 30-39, 3<hsize<6	9.8	-0.4	-2.1	-7.5	0.2
married, hhead 30-39, hsize 6+	11.9	-0.7	-1.9	-9.6	0.2
married, hhead 40-49, hsize< or =3	9.9	3.0	-1.1	-12.9	1.1
married, hhead 40-49, 3<hsize<6	3.2	-0.3	-2.2	-0.8	0.2
married, hhead 40-49, hsize 6+	3.2	-0.1	-2.0	-1.6	0.5
married, hhead 50+, hsize< or =3	-2.2	0.4	-1.2	2.2	0.8
married, hhead 50+, 3<hsize<6	3.1	-0.1	-0.2	-3.3	0.6
married, hhead 50+, hsize 6+	4.5	-0.1	-0.2	-5.1	0.9

a/ See Appendix 6 for details.

Table 6. Tenure Trends by Lifecycle, Philippines, (in percentage point change).^{a/}(con't)

	1985-1997				
	Own or owner-like possession of house and lot	Rent house/ room, including lot	Own house, rent lot	Own/ rent-free house, rent-free lot w/ consent of owner	Own/ rent-free house, rent-free lot w/o consent of owner
NCR					
single/separated, hsize=1	21.4	-32.9	1.1	-2.2	12.6
single w/ hsize>1	9.3	-11.1	-4.9	4.1	2.7
separated, hsize>1	23.9	-11.6	-7.9	-8.9	4.4
married, hhead<30, hsize< or =3	14.3	4.2	-11.5	-9.3	2.3
married, hhead<30, 3<hsize<6	6.0	-10.4	-5.2	6.7	2.9
married, hhead<30, hsize 6+	22.6	-3.8	-6.5	-7.4	-4.9
married, hhead 30-39, hsize< or =3	9.3	2.7	-4.6	-7.7	0.3
married, hhead 30-39, 3<hsize<6	4.5	-5.7	-3.0	3.7	0.5
married, hhead 30-39, hsize 6+	11.1	-20.4	-4.3	3.7	9.9
married, hhead 40-49, hsize< or =3	22.3	-26.9	-7.6	6.8	5.5
married, hhead 40-49, 3<hsize<6	16.3	-9.2	-2.5	-5.6	1.0
married, hhead 40-49, hsize 6+	7.3	-5.1	-8.8	-0.1	6.7
married, hhead 50+, hsize< or =3	10.1	-7.6	-3.9	0.3	1.1
married, hhead 50+, 3<hsize<6	6.4	-2.9	-4.4	-2.4	3.3
married, hhead 50+, hsize 6+	6.7	-6.0	-5.3	-1.2	5.9
Metro Cebu					
single/separated, hsize=1	15.0	-18.1	9.2	-6.1	0.0
single w/ hsize>1	-34.5	6.6	-2.0	3.0	27.0
separated, hsize>1	8.3	-50.0	0.0	16.7	25.0
married, hhead<30, hsize< or =3	0.9	44.5	3.6	-24.9	-24.1
married, hhead<30, 3<hsize<6	12.7	-17.5	5.6	26.9	-27.7
married, hhead<30, hsize 6+	25.9	-60.9	0.0	27.1	7.9
married, hhead 30-39, hsize< or =3	20.2	30.1	-20.7	-12.8	-16.8
married, hhead 30-39, 3<hsize<6	3.4	-5.7	-3.1	2.5	2.8
married, hhead 30-39, hsize 6+	10.1	-20.5	0.6	21.1	-11.3
married, hhead 40-49, hsize< or =3	-44.4	0.0	15.7	25.9	2.8
married, hhead 40-49, 3<hsize<6	-22.2	8.0	9.1	29.6	-24.6
married, hhead 40-49, hsize 6+	11.8	-4.5	-10.3	8.3	-5.4
married, hhead 50+, hsize< or =3	6.4	-20.0	18.7	-16.3	11.2
married, hhead 50+, 3<hsize<6	17.2	-1.7	9.7	-3.7	-21.5
married, hhead 50+, hsize 6+	-1.8	-6.7	-6.9	15.0	0.5
Davao City					
single/separated, hsize=1	-14.1	25.6	0.0	-11.5	0.0
single w/ hsize>1	-23.9	-5.4	0.0	29.3	0.0
separated, hsize>1	20.8	-53.8	27.1	5.9	0.0
married, hhead<30, hsize< or =3	-39.4	15.6	9.4	14.3	0.0
married, hhead<30, 3<hsize<6	26.7	-19.9	-8.0	-6.4	7.6
married, hhead<30, hsize 6+	66.7	-50.0	0.0	-16.7	0.0
married, hhead 30-39, hsize< or =3	5.9	-14.7	0.0	8.8	0.0
married, hhead 30-39, 3<hsize<6	6.0	3.2	-12.2	5.6	-2.6
married, hhead 30-39, hsize 6+	-16.5	-3.4	11.8	11.7	-3.7
married, hhead 40-49, hsize< or =3	16.0	-13.9	-16.7	14.6	0.0
married, hhead 40-49, 3<hsize<6	12.8	-14.3	6.5	-7.4	2.4
married, hhead 40-49, hsize 6+	-16.4	3.2	1.7	10.0	1.5
married, hhead 50+, hsize< or =3	-17.5	-8.5	3.6	18.9	3.6
married, hhead 50+, 3<hsize<6	1.4	-2.2	-8.8	9.6	0.0
married, hhead 50+, hsize 6+	8.4	-5.0	-1.9	-1.5	0.0

Improvements in housing are the apparent trend in housing consumption for both single and married households (Table 7). Between 1985 and 1997, housing facilities are much better, in particular, wall material and toilet facilities.

Table 7. Housing Improvement by Lifecycle, (in percentage point change).^{a/}

	1985-1997		
	Wall Material	Toilet Facility	Source of Water Supply
	Strong	Water-sealed	Own use, faucet, community water system
Philippines			
single/separated, hhsz=1	24.2	9.2	8.9
single w/ hhsz>1	22.3	14.4	4.2
separated, hhsz>1	19.4	12.0	1.3
married, hhead<30, hsize< or =3	32.3	23.8	5.1
married, hhead<30, 3<hsize<6	24.3	10.3	1.3
married, hhead<30, hsize 6+	25.7	14.5	1.8
married, hhead 30-39, hsize< or =3	20.4	3.3	0.5
married, hhead 30-39, 3<hsize<6	24.6	11.5	0.4
married, hhead 30-39, hsize 6+	20.1	9.7	1.5
married, hhead 40-49, hsize< or =3	33.2	17.8	9.4
married, hhead 40-49, 3<hsize<6	26.7	13.9	4.7
married, hhead 40-49, hsize 6+	20.9	8.1	1.8
married, hhead 50+, hsize< or =3	21.0	14.1	4.7
married, hhead 50+, 3<hsize<6	24.6	12.8	3.6
married, hhead 50+, hsize 6+	22.8	11.0	0.3
Urban			
single/separated, hhsz=1	25.4	-7.5	1.8
single w/ hhsz>1	22.8	7.0	-4.9
separated, hhsz>1	24.0	4.8	-1.7
married, hhead<30, hsize< or =3	27.0	11.7	-0.8
married, hhead<30, 3<hsize<6	29.8	8.1	-5.6
married, hhead<30, hsize 6+	28.9	15.3	-2.7
married, hhead 30-39, hsize< or =3	25.7	4.4	-1.7
married, hhead 30-39, 3<hsize<6	23.3	5.3	-3.8
married, hhead 30-39, hsize 6+	23.2	4.7	-1.2
married, hhead 40-49, hsize< or =3	27.4	13.1	3.4
married, hhead 40-49, 3<hsize<6	23.9	5.6	1.7
married, hhead 40-49, hsize 6+	22.8	6.1	-1.0
married, hhead 50+, hsize< or =3	23.2	8.2	2.4
married, hhead 50+, 3<hsize<6	17.2	4.7	-2.7
married, hhead 50+, hsize 6+	22.8	4.9	-4.7
Rural			
single/separated, hhsz=1	10.2	6.9	3.4
single w/ hhsz>1	15.5	15.5	3.7
separated, hhsz>1	7.8	19.1	0.2
married, hhead<30, hsize< or =3	28.7	22.9	2.3
married, hhead<30, 3<hsize<6	15.8	5.8	0.3
married, hhead<30, hsize 6+	18.2	8.1	-0.6
married, hhead 30-39, hsize< or =3	9.4	-4.0	-4.1
married, hhead 30-39, 3<hsize<6	22.2	13.2	-0.1
married, hhead 30-39, hsize 6+	15.8	8.7	-0.2
married, hhead 40-49, hsize< or =3	32.9	15.5	5.8
married, hhead 40-49, 3<hsize<6	24.6	16.2	0.7
married, hhead 40-49, hsize 6+	16.4	5.7	-0.4
married, hhead 50+, hsize< or =3	16.0	12.6	0.9
married, hhead 50+, 3<hsize<6	26.1	14.3	2.1
married, hhead 50+, hsize 6+	21.0	14.1	1.4

^{a/} See Appendix 7 to 9 for details.

Table 7. Housing Improvement by Lifecycle, (in percentage point change).^{a/}(con't.)

	1985-1997		
	Wall Material	Toilet Facility	Source of Water Supply
	Strong	Water-sealed	Own use, faucet, community water system
NCR			
single/separated, hysize=1	25.9	-5.9	-13.1
single w/ hysize>1	14.9	2.9	-7.0
separated, hysize>1	21.9	7.1	-19.2
married, hhead<30, hsize< or =3	35.2	9.3	-7.3
married, hhead<30, 3<hsize<6	36.4	1.0	-12.5
married, hhead<30, hsize 6+	34.0	15.2	2.3
married, hhead 30-39, hsize< or =3	35.9	3.0	-14.8
married, hhead 30-39, 3<hsize<6	24.2	7.8	-8.8
married, hhead 30-39, hsize 6+	21.3	1.4	-11.0
married, hhead 40-49, hsize< or =3	27.2	16.6	-6.6
married, hhead 40-49, 3<hsize<6	33.1	2.0	-4.9
married, hhead 40-49, hsize 6+	33.1	7.4	-7.0
married, hhead 50+, hsize< or =3	17.5	-0.6	3.4
married, hhead 50+, 3<hsize<6	14.8	4.7	-6.8
married, hhead 50+, hsize 6+	29.7	5.1	-4.3
Metro Cebu			
single/separated, hysize=1	64.4	-23.3	36.7
single w/ hysize>1	9.2	-29.6	-10.0
separated, hysize>1	-32.0	-39.8	-1.7
married, hhead<30, hsize< or =3	19.5	16.1	10.4
married, hhead<30, 3<hsize<6	18.1	-3.2	6.2
married, hhead<30, hsize 6+	11.6	17.2	15.0
married, hhead 30-39, hsize< or =3	52.4	42.5	23.7
married, hhead 30-39, 3<hsize<6	8.3	-0.2	0.2
married, hhead 30-39, hsize 6+	28.9	-3.7	-11.7
married, hhead 40-49, hsize< or =3	38.0	-56.3	-39.0
married, hhead 40-49, 3<hsize<6	10.2	11.8	-39.6
married, hhead 40-49, hsize 6+	14.3	-17.9	-5.3
married, hhead 50+, hsize< or =3	69.6	39.4	16.7
married, hhead 50+, 3<hsize<6	26.5	1.8	2.3
married, hhead 50+, hsize 6+	-1.2	-16.1	-36.2
Davao City			
single/separated, hysize=1	0.0	0.0	34.6
single w/ hysize>1	47.1	24.2	23.9
separated, hysize>1	20.5	-3.0	-3.8
married, hhead<30, hsize< or =3	37.5	-10.1	-56.4
married, hhead<30, 3<hsize<6	41.3	-1.2	8.0
married, hhead<30, hsize 6+	-23.6	33.3	66.7
married, hhead 30-39, hsize< or =3	41.2	32.4	5.9
married, hhead 30-39, 3<hsize<6	41.2	6.3	8.1
married, hhead 30-39, hsize 6+	50.6	28.2	7.9
married, hhead 40-49, hsize< or =3	59.0	18.8	-1.4
married, hhead 40-49, 3<hsize<6	48.9	24.8	46.9
married, hhead 40-49, hsize 6+	27.3	12.5	8.8
married, hhead 50+, hsize< or =3	-4.6	1.2	-17.2
married, hhead 50+, 3<hsize<6	17.4	0.7	-8.4
married, hhead 50+, hsize 6+	42.3	19.0	7.7

IV. Estimates of Housing Demand Parameters

This section provides some quantitative measure of the effects of income and lifecycle on housing demand. The estimates are obtained from the application of standardized econometric models.

A. The Model

The econometric analysis on housing demand is based on Alonso's classic utility maximization framework whereby a household's choice of a location and amount of space consumed depends on income, tastes, and the shape of land and transport gradients. This utility maximization concept has been extended to analyzing individual household's decision in the case of housing services (Strazheim 1975). Households are assumed to choose a set of housing attributes such as to maximize utility subject to budget constraint. These housing attributes include both dwelling-unit characteristics (e.g. tenure choice, housing expenditure, age of structure, size and number of rooms, etc) and neighborhood characteristics (e.g. racial or ethnic composition of the area, aesthetic and environmental aspects of the neighborhood, etc). By simplifying assumptions with regard to the shape of price surfaces (i.e. ignoring neighborhood effects on prices and spatial discontinuities of housing prices) and the effect of relocation costs on decisions of households, the utility maximizing model can be used to derive demand functions for several housing attributes; the elements of these demand functions are income and the parameters of the utility and rent surfaces (e.g. tastes, demographic factors, price).

The analysis applied in this study is confined to the characteristics of the housing unit. Two attributes of dwelling-unit characteristics are analyzed. *First*, total housing expenditure, which refers to the amount that households are willing to incur per unit of time to derive a given amount of housing services. *Second*, tenure choice, which provides estimates on the maximum likelihood of households choosing ownership over renting. The demand equations are represented below. Data is from the Family Income and Expenditure Survey conducted every three years to a representative sample of 40,000 households in the Philippines.

(1) Housing Expenditure Function

$$\ln R = a + b_1 \ln Y + b_2 \ln \text{Pratio} + \text{HC}$$

Where:

R = rent/imputed rent

Y = income/household expenditure

P = relative price of housing to non-housing goods

HC = housing characteristics

(2) Tenure Choice Function

$$Q = a + b_1 \ln Y + b_2 \ln \text{Pratio} + \text{HC}$$

Where:

Q = probability of ownership

(1 if owner; 0 if renter)

Pratio = $\frac{P_{own}}{P_{rent}}$

Income is predicted to be positively related to housing demand. An increase in income leads to an increase in demand for housing. In studies of durable consumer purchases, permanent income has been shown to be the relevant variable in consumers' housing decision (Friedman 1957). Total household expenditures has been used as proxy of permanent income.

The price of housing is also an important factor in housing demand. Housing is considered a normal good thus an increase in the price of housing is expected to reduce the demand for it (this may imply a delay/postponement in consumption of housing, an increase in the savings rate or an increase in consumption of other household goods (e.g. clothing, food, recreation)). The price term has been the source of greatest difficulty in housing demand equations. This difficulty stems from two sources (Ingram 1984): (a) measuring the variation in unit price of housing considering that housing is multidimensional including different attributes in a single-

purchased; and (b) household faces a schedule of prices (e.g. price may vary with quantity of housing but the household can locate anywhere in the city). There have been different measures of unit price of housing, to wit: indices of construction materials and rental prices, land and housing values, work place based price index (i.e. price variation is computed as the variation in expense by workplace for a given quantity of housing). In this paper, housing prices have been estimated using hedonic estimation.

(3) Hedonic Equation

$$\ln R = a + \sum_{i=1} b_i X_i + u$$

- $X_1 =$ type of construction materials
- $X_2 =$ source of water supply
- $X_3 =$ type of toilet facilities

The hedonic estimates assume that variation in housing price is largely explained by differences in the type of housing within specific regions. However, the prices are based on rent values, which include both price and quantity. To untangle price and quantities in the model, we applied Muth's (1971) methodology that assumes a two-input homogenous production function for housing, where the price of one input varies over the sample and the price of the other input is fixed (see also Malpezzi and Mayo 1987). Here we assume the variable input to be the housing structure and land as the fixed input. Given this assumption, the housing expenditure function can be written as follows:

$$(4) \quad \ln R = a + b_1 \ln Y + k_S (1 + E_p) \ln p_S + HC$$

where k_S is the share of structure on housing and E_p is the price elasticity. The other variable definition follows equation (1) above. To convert the coefficient of the log of estimated housing values (b_2) from equation (1) into price elasticity (price effect), the following formula is used:

$$(5) \quad E_p = b_2/k_S - 1$$

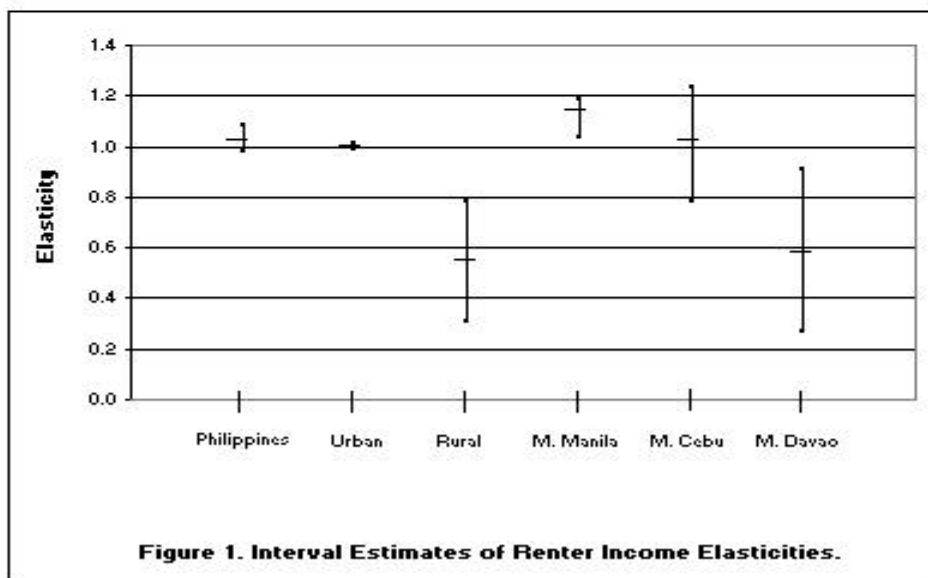
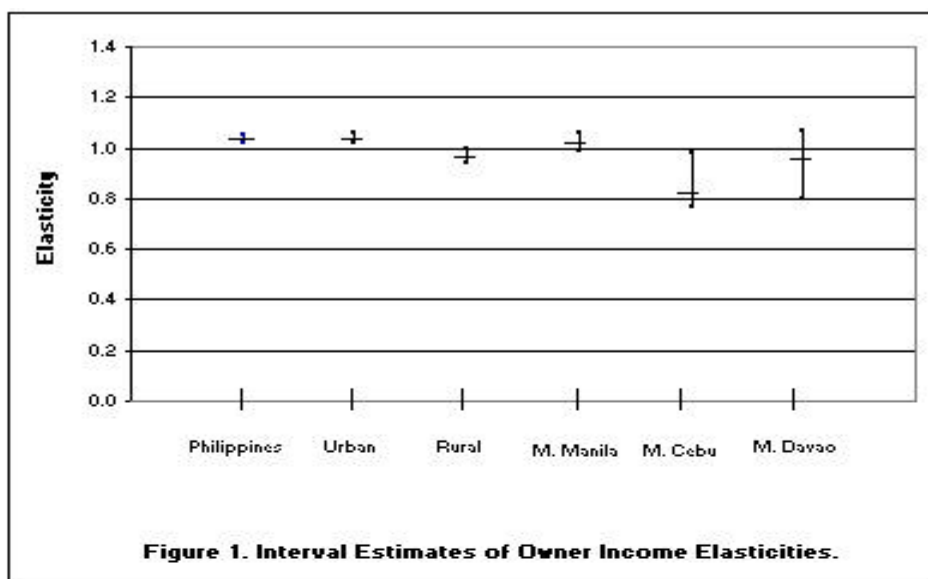
where b_2 is the estimated coefficient and the value of k_S is based on the standard land-structure ratio from government housing programs, which is 40% for land and 60% structure.

With regard to socio-demographic determinants, the following trends are noted. The age of household head is expected to have a positive influence on demand but the demand for housing declines as the household head reaches old age. For marital status, there is a stronger desire for housing due to marriage. Household size is hypothesized to have a positive impact on housing expenditure. However, for very large households, housing consumption is assumed to be crowded out by food consumption, thus a negative relationship results as household size reaches a threshold level. Household size is the main demographic variable used. This variable also captures the effects of age and marital status on housing demand.

The above framework is typical of housing demand studies in the Philippines and elsewhere. The models differ as to how demand variables are represented for analysis and this is largely influenced by the suitability and extensiveness of housing surveys in a specific country. In the last decade, econometric analyses of housing demand specifically in developing countries have grown. This development provided greater understanding of the variation in data, model specifications and variable definitions in demand estimations. Comparatively, there are very few of such studies done in the Philippines. The initial attempt to estimate a demand function for housing in the Philippines was that of Angeles (1985). Malpezzi and Mayo (1987) estimated a similar housing demand function using data from a household survey conducted in Metro Manila in 1984. Geron and Llanto (2001) applied a simple demand model omitting price variation (i.e. assuming no intra-metropolitan variation in prices and thus variation is primarily due to quantities) using data from the Family Income and Expenditures (FIES). Following the demand models used in these studies, the paper extended analysis to include demand by different categories of households and for specific housing attributes. This study also takes into consideration locational variations in demand compared to the aggregate parameters employed in the studies of Angeles, Geron and Llanto.

B. Demand Estimates by Location

Income has been a major determinant of housing demand. Income elasticity of housing demand is between 1.02 and 1.05 for owners and 0.98 to 1.08 for renters. (Figures 1&2). There is an observed variation in income elasticity from place to place but point estimates generally suggest inelastic demand. The variation in estimates maybe due to data aggregation rather than underlying behavior.



Note: See Appendix 10 for details.

Inelastic income suggests that housing expenditure is not highly responsive to a given change in income. A unit increase in income thus will not be spent largely on housing but will be used by households for other needs.

The estimates on renters, however, show divergent behavior, which may reflect different types of renter-households. For instance, there are renters who have their own houses but rent in another location (usually near their work areas) as alternative dwelling. On the other hand, there are households who are primarily renters.

Demand for homeownership is generally high in both urban and rural areas in the Philippines (Table 8). Most households are more likely to be homeowners but this may arise from the limited alternative housing in the formal sector specifically for low-income households rather than aversion to renting. Probability estimates by locality show that the results are different in the case of highly urbanized city of Metro Manila. Here, we find relatively lower probabilities of homeownership. The threshold annual income in which households are indifferent with regard to owning or renting is between P80,000 and P90,000. This implies that a typical household (i.e. married, age of household head between 39-49, with household size of six) with annual incomes of at most P80,000 is most likely to be renter than a homeowner. In other areas, we find that renting is hardly an option even among low-income households. The ratio of price of homeownership vis-à-vis price of rent shows that in these areas, price of rent is almost the same or even higher than the price of homeownership. In Metro Cebu, for instance, the average price ratio is 0.57 and in rural areas, the price ratio is about 1. These price ratios reflect a rental housing market that caters largely to higher-income households. Since the alternative housing in these areas is homeownership, conditions of doubled-up or multi-family dwelling would be common. The other alternative is that households are amortizing owners under micro finance housing arrangement (e.g. CMP) whereby loan amortization are lower than in the formal system.

Table 8. Probability of Homeownership.

Annual Family Income	Philippines ^{a/}		Key Urban Cities ^{b/}		
	Urban	Rural	NCR	Metro Cebu	Davao City
50,000	0.667	0.994	0.429	0.947	0.946
80,000	0.685	0.994	0.496	0.959	0.958
100,000	0.693	0.995	0.527	0.963	0.960
200,000	0.719	0.995	0.624	0.974	0.971
500,000	0.751	0.996	0.736	0.984	0.985

^{a/} Based on the following assumptions:

Household size: Urban = 5

Rural = 6

Age of HH head: 35-49

Average price ratio

$\left(\frac{\text{ownership}}{\text{renting}} \right)$ Urban = 1.800
rural = 0.939

^{b/} Based on the following assumptions:

Household size 5

Age of HH head = 35-49

Average price ratio

NCR = 1.8

Metro Cebu = 0.57

Davao City = 1.09

C. Demand Estimates by Type of Household

Estimates of income elasticity among different household types show that inelastic demand is common among poor households rather than non-poor households.² Poor households are more likely to spend an increase in income on other household needs other than housing. On the other hand, the demand for housing by non-poor households is more responsive to a change in income (Table 9). This finding reflects the need to raise income levels of households such that significant changes in tenure or housing conditions maybe undertaken specifically by poor households. It also provides a rationale for subsidizing housing for the poor.

² Poor households are households whose incomes fall below a poverty threshold income within a region. The poverty threshold is based on prices and consumption patterns within the region.

We find similar results for renter-households. The findings are also consistent with estimates in specific localities. The econometric model though was not able to capture significantly the behavior of renter-households in NCR, Metro Cebu and Davao City due to lack of representative sample.

Table 9. Income and Price Elasticity by Income Group ^{a/}

	Owners					Renters				
	Intercept	Income (Ey)	Price (Ep)	Confidence Interval (Ey) (95%)	Adjusted R ²	Intercept	Income (Ey)	Price (Ep)	Confidence Interval (Ey) (95%)	Adjusted R ²
Philippines										
Poor	-4.184 (0.214)	0.937 (0.025)	-0.230 (0.011)	0.89 - 0.99	0.455	-3.958 (1.080)	0.977 (0.129)	-0.400 (0.056)	0.72 - 1.24	0.547
Non-Poor	-4.612 (0.084)	1.020 (0.010)	-0.330 (0.007)	1.00 - 1.04	0.699	-4.655 (0.282)	1.047 (0.029)	-0.450 (0.021)	0.99 - 1.11	0.583
Urban										
Poor	-4.449 (0.349)	1.039 (0.041)	-0.420 (0.046)	0.96 - 1.12	0.488	-3.605 (1.191)	0.985 (0.136)	-0.500 (0.160)	0.71 - 1.26	0.474
Non-Poor	-3.956 (0.095)	1.014 (0.010)	-0.450 (0.013)	0.99 - 1.03	0.684	-4.562 (0.291)	1.057 (0.030)	-0.500 (0.033)	1.00 - 1.12	0.573
Rural										
Poor	-3.729 (0.277)	0.865 (0.032)	-0.170 (0.035)	0.80 - 0.93	0.406	n.s.	n.s.	n.s.	n.s.	n.s.
Non-Poor	-4.256 (0.185)	0.966 (0.021)	-0.290 (0.024)	0.92 - 1.01	0.545	n.s.	n.s.	n.s.	n.s.	n.s.
NCR										
Poor	-0.990 (1.912)	0.842 (0.194)	-0.690 (0.056)	0.45 - 1.23	0.271	n.s.	n.s.	n.s.	n.s.	n.s.
Non-Poor	-4.478 (0.212)	1.025 (0.020)	-0.380 (0.023)	0.99 - 1.06	0.724	-5.031 (0.422)	1.141 (0.039)	-0.610 (0.031)	1.06 - 1.22	0.549
Metro Cebu										
Poor	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Non-Poor	-3.912 (0.515)	1.100 (0.058)	-0.61 (0.043)	0.99 - 1.22	0.714	-3.447 (1.337)	1.058 (0.136)	-0.690 (0.067)	0.79 - 1.33	0.605
Metro Davao										
Poor	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
Non-Poor	-3.105 (0.625)	0.907 (0.069)	-0.390 (0.059)	0.77 - 1.05	0.689	n.s.	n.s.	n.s.	n.s.	n.s.

^{a/} Income group based on poverty threshold by region.
n.s. = not significant due to lack of sample households.

Classifying households by lifecycle, yielded inelastic demand estimates for both single and married households (Table 10). However, the likelihood of ownership is higher for married rather than single households. It is also noted that the likelihood of homeownership is highest when household head is about 40 to 50 years old and with

household size of less than 6. On the other hand, the probability of being a homeowner is low among single individuals. The result also reflects the difficulty of owning a home for a middle-income earner specifically in highly urbanized areas.

V. Housing Affordability and Housing Options

Housing demand is shown to be largely associated with income. For this reason, housing affordability has often been measured in terms of the proportion of income that a household must or is willing to spend on housing. However, the demand estimates also show that there are underlying factors such as lifecycle (which also indirectly measures taste and preferences), price of housing and financing availability (i.e. results have suggested that micro finance may have provided a means to homeownership) that impacts on housing affordability.

We tried to capture the interaction of these factors by looking into the distribution of households by average incomes in specific locations. These income levels are matched with housing expenditure patterns and financing availability to come up with some indication of housing affordability.

The distribution of households based on average incomes shows that urban households receive more income than rural households (Figure 3). Metro Cebu and Davao City approximates the distribution of most urban areas. On the other hand, households in Metro Manila are apparently richer than households in other location. About 57% of households in Metro Manila have average annual household income between P150,000 and P250,000 while in other urban areas about 60% of households have incomes between P80,000 and P100,000. These income levels are way above the poverty threshold income in Metro Manila, and urban areas which are P14,000 and P12,577, respectively. In terms of income thus, we find that in urban areas most households are middle-income earners.

Table 10. Demand for Housing by Lifecycle

Lifecycle	Urban		Rural		Metro Manila		Metro Cebu		Metro Davao	
	Probability of Homeownership	Income Elasticity	Probability of Homeownership	Income Elasticity	Probability of Homeownership	Income Elasticity	Probability of Homeownership	Income Elasticity	Probability of Homeownership	Income Elasticity
single/separated, hsize=1	-	0.60	-	0.36	0.05	0.75	-	-	-	-
single w/ hsize>1	-	0.76	-	0.69	0.50	0.78	0.36	-	-	-
separated, hsize>1	0.39	0.76	0.94	0.73	0.28	0.67	-	-	-	-
married, hhead<30, hsize<=3	0.21	0.90	0.92	0.75	0.12	1.00	0.26	-	-	-
married, hhead<30, 3<hsize<6	-	0.84	-	0.74	0.26	0.83	0.24	0.88	-	-
married, hhead<30, hsize 6+	-	0.74	-	0.76	-	0.62	-	-	-	-
married, hhead 30-39, hsize<=3	0.10	0.78	0.91	0.78	0.07	0.78	0.52	-	-	-
married, hhead 30-39, 3<hsize<6	0.18	0.79	0.87	0.72	0.08	0.77	0.43	1.09	-	1.09
married, hhead 30-39, hsize 6+	-	0.88	-	0.72	0.18	0.84	-	0.87	-	-
married, hhead 40-49, hsize<=3	-	0.94	-	0.75	-	0.97	-	-	-	-
married, hhead 40-49, 3<hsize<6	0.25	0.82	0.92	0.77	0.30	0.80	0.55	1.07	-	0.73
married, hhead 40-49, hsize 6+	0.22	0.84	0.93	0.66	0.26	0.84	0.50	0.88	-	0.71
married, hhead 50+, hsize<=3	0.30	0.79	0.95	0.73	0.75	0.83	-	-	-	-
married, hhead 50+, 3<hsize<6	0.25	0.79	0.97	0.80	0.62	0.83	-	1.13	-	1.13
married, hhead 50+, hsize 6+	0.56	0.90	0.99	0.69	-	0.98	0.81	1.23	-	0.85

- not significant due to lack of sample data.

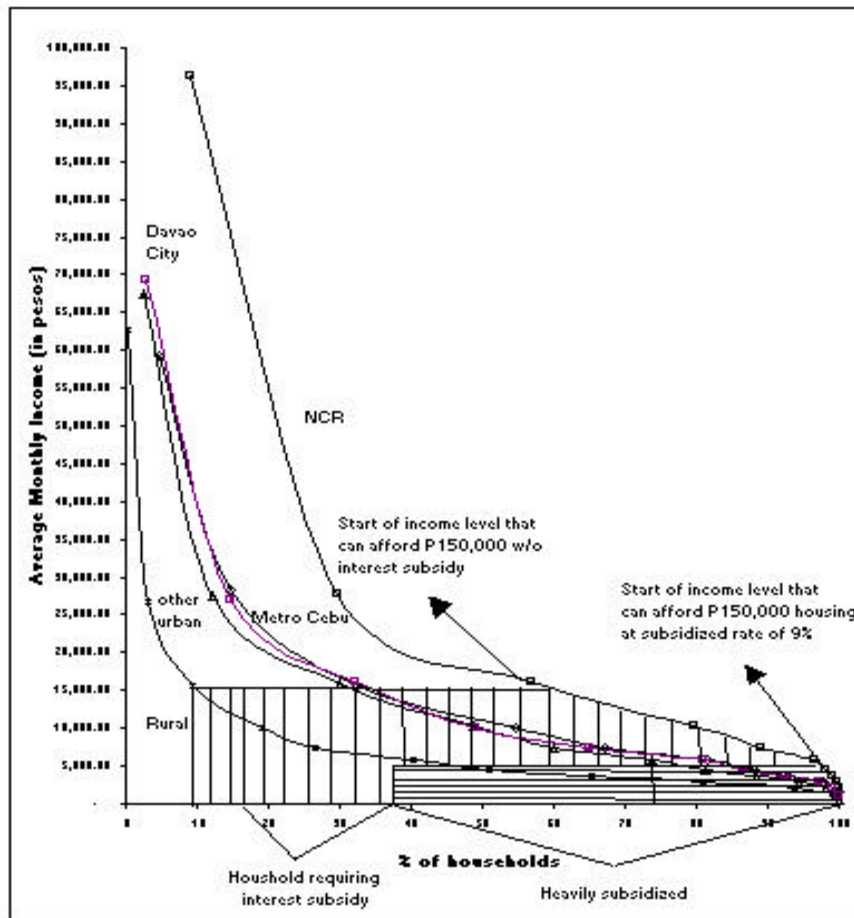


Figure 3. Percentile Distribution of Families, by Income Level.

The income available for housing is, however, minimal. The expenditure pattern of households shows that at least 50% of income is spent on food (Figure 4). Housing expenditure represents 10 to 20% of total expenditures with low-income households spending more in proportion to higher-income households. Food and housing expenditures combined represent 70 to 80% of household income. This leaves only a small amount of income for expenditures on other basic needs (e.g. clothing, fuel, transport, education). Households thus would most likely spend increases in incomes on needs other than housing and their ability to shift other expenses to housing is limited.

What are the households' options in terms of available housing in the market? The minimum low-cost housing unit under government programs costs P150,000. If households provide an equity of 25%, the loan amount required to obtain the P150,000 unit house would be about P112,500. Loan amortization for this loan would

amount to about P800 per month for 30 years at a subsidized rate of 9% (Table 11). This leaves out 62.5% of households from the formal housing market for total Philippines; 40% of households in the urban areas and 81% of households in rural areas (refer to figure 3). In the case of rural areas, it may be argued that the cost of housing can be cheaper.

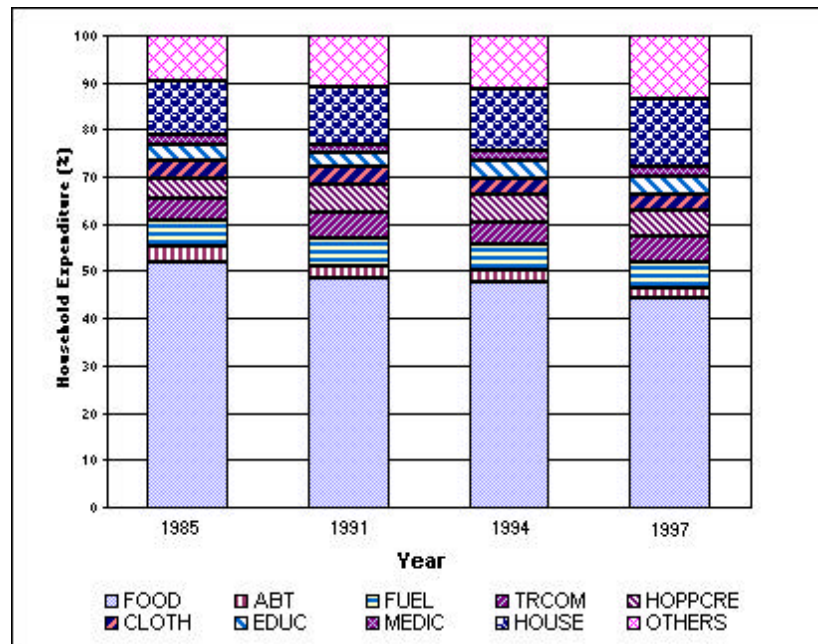


Figure 4. Household Expenditure Patter, Philippines, 1985-1997.

Note: See Appendix 11 for details.

The number of families unable to afford homeownership in the formal sector further increases when the low savings capacity of households is taken into account. Providing the required equity portion of housing loans has been a major constraint for most households. While government programs and other private developers have waived the equity requirement, the implication is that households have to borrow the full amount of P150,000 and pay monthly amortization of about P1,206.93 at subsidized interest rates of 9%. At a market interest rate of 16%, wherein monthly loan amortization becomes P2,017, a P150,000 unit would then be accessible only to households with annual incomes of at least P250,000.

Table 11. Average Housing Expenditure and Loan Amortization.

Income Class	Monthly Housing Expenditure						Housing Loan (Formal Sector) ^{a/}			
	Philippines	Urban	Rural	NCR	Metro Cebu	Davao City	Loan Amount	Interest Rate	Loan Amortization	
									25	30 ^{b/}
under 10,000	66.93	64.85	67.21	-	-	-	50,000	9	419.60	402.31
10,000-19,999	123.97	151.21	118.21	300.00	338.38	209.46	60,000	9	503.52	482.77
20,000-29,999	175.37	214.71	166.11	493.89	325.58	413.01	70,000	9	587.44	563.23
30,000-39,999	240.15	298.95	221.97	701.05	462.59	243.22	80,000	9	671.36	643.70
40,000-49,999	309.55	370.09	282.67	671.16	454.49	368.75	90,000	9	755.28	724.16
50,000-59,999	416.16	494.77	368.34	784.17	567.85	535.46	100,000	9	839.20	804.62
60,000-79,999	571.02	640.72	477.73	892.71	674.11	537.72	150,000	9	1,258.80	1,206.93
80,000-99,999	786.92	811.83	633.23	1,177.04	932.36	686.73	200,000	12	2,106.44	2,057.22
100,000-149,999	1,181.19	1,177.75	930.49	1,591.23	1,349.15	1,050.43	250,000	12	2,633.05	2,571.53
150,000-249,999	1,944.81	1,859.21	1,348.70	2,583.36	2,013.54	1,754.04	300,000	16	4,076.67	4,034.28
250,000-499,999	3,509.75	3,022.89	2,551.33	4,519.08	3,680.47	2,869.02	350,000	16	4,756.12	4,706.66
500,000 & over	13,873.00	6,142.86	4,345.71	20,462.03	8,962.95	7,224.09	400,000	16	5,435.56	5,379.04
							450,000	16	6,115.01	6,051.42
							500,000	16	6,794.45	6,723.80

a/ Based on HDMF schedule of loan amortization and interest for housing loan.

b/ Monthly loan amortization of a P150,000 loan for 30 years at 16% interest rate computed at P2,017.

The situation varies by location. In Metro Manila, we find that only about 3% of households would be unable to avail of the loan amortization for a P150,000 housing unit at subsidized rate. The proportion is higher for Metro Cebu and Davao City but households in these cities are comparatively better off compared to other areas in the country. This is apparently the result of better income-generating activities of households in highly urbanized cities.

The above findings show that subsidizing interest rates alone is not sufficient to allow poor households access to formal and decent housing. There has to be a significant reduction in the costs of housing or that other low-cost housing alternatives have to be considered.

With the constraint on homeownership, alternative housing for most households is the informal sector, where about 30% of households dwell. The rental housing market has not been a major alternative for most households and this is probably due to high rents. The distribution of renter-households show that about 50% pay monthly rents of at least P1,000 (Table 12). The proportion is higher in key urban cities specifically Metro Manila. This rent value is more than sufficient to pay for the monthly amortization of a P150,000 housing unit.

Table 12. Distribution of Renter-Households by Monthly Rent, 1997, (in percent).

Monthly Rent	Philippine	Urban	Rural	NCR	Metro Cebu	Metro Davao
Total	100.0	100.0	100.0	100.0	100.0	100.0
<50	0.3	0.1	2.5	-	-	-
50-99	1.1	0.8	5.5	0.5	-	1.8
100-149	1.5	1.1	6.5	0.3	0.7	3.5
150-199	1.4	0.9	6.9	0.1	-	-
200-299	4.8	3.1	25.9	0.7	7.5	10.2
300-499	10.3	10.0	13.8	5.7	17.5	27.9
500-699	14.7	14.7	15.4	13.3	25.2	22.0
700-999	12.2	12.8	4.7	12.2	8.5	11.4
1000+	53.7	56.5	18.9	67.2	40.6	23.2

Source: FIES 1997

Another alternative housing is homeownership through micro finance schemes. These schemes are showing signs of success in providing homeownership specifically for the poor. The CMP for instance, provides loan amortization of only P185 per month, which is well within the capacity to pay of poor households. This is made possible not only by the available long-term financing but also by the incremental housing scheme adopted. Incremental housing is a scheme whereby housing is acquired in progression. The usual mode is to initially secure tenure by buying undeveloped land and later the household acquires another loan for land and housing improvements. This scheme has been acceptable specifically among informal urban dwellers occupying private and public lands illegally. While it has made significant contributions in terms of security of land tenure, progression to land and housing development has been very slow. The success of the program has also been slowed down by conflicts within the community organization (PADCO 1993).

VI. Concluding Statements

Housing demand in the Philippines has been mainly dictated by housing affordability, which refers not only to a household's ability to pay but also the price of housing in the market and the financing schemes available. Housing affordability is low in the country. This is attributed to several factors: *first*, the ratio of unit housing cost to income is very high. *Second*, housing demand is inelastic since the income received by most households is barely sufficient to satisfy basic needs (e.g. food, clothing, education). *Third*, there is lack of low-cost alternative housing in the formal market. Next to homeownership, the only recourse of households is informal arrangements since the rental housing market has not been developed. This leaves a significant number of households unable to obtain decent housing since homeownership (without subsidy) is only affordable to about 50% of households in the Philippines. The situation can be worst in some areas. *Fourth*, innovative housing finance is limited, which further makes housing less affordable.

The above conditions are reflected in the consumption pattern of households. The path toward acceptable housing has been very slow and housing adjustments have been confined to home improvements with small changes on tenure. Estimates of

household demand functions show that expenditures on housing are not highly responsive to income increases. An increase in income will not necessarily be spent on housing but on other household needs. This being the case, there has to be a significant increase in household incomes to bring about a significant change in the dwelling conditions of households. In the long-run, economic improvements may bring about the needed boost in income for urban households to obtain access to the formal housing market. However, in the short-run, alternative forms of housing for urban households have to be considered. The rental housing market may provide a potential housing alternative for the low-income families given the increasing cost of homeownership in urban areas particularly in highly urbanized cities. There is also an apparent need to come up with innovative financing schemes (e.g. micro financing, incremental housing schemes) that could provide low monthly amortization. Moreover, government has to institute ways to effectively reduce the high cost of housing in the country.

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Appendix 1. Housing Improvements by Tenure (in proportion of HH).

	Own/Amortizing Owners		Rent House/ Room		Own House/ Rent		Being Occupied free with Consent		Being Occupied free without Consent		All Households	
	1985	1997	1985	1997	1985	1997	1985	1997	1985	1997	1985	1997
Philippines												
Wall Construction Material	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Strong	44.6	66.5	56.8	83.5	29.5	56.9	21.7	45.1	23.2	50.3	38.1	62.0
Light	52.5	32.1	39.9	12.3	66.1	41.0	72.3	52.1	64.1	39.5	57.9	35.8
Makeshift	2.9	1.4	3.3	4.1	4.5	2.1	6.0	2.8	12.6	10.2	4.0	2.2
Type of Toilet Facility	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Water-sealed	56.5	67.5	80.8	84.6	55.6	68.3	34.7	50.4	36.5	51.2	52.1	64.3
Closed pit	16.5	12.2	8.4	7.3	18.3	10.3	19.0	12.7	12.5	13.7	16.6	12.0
Open pit	14.5	9.6	2.7	1.6	8.9	6.9	19.0	12.4	20.3	9.0	14.6	9.6
Others (pail system, etc.)	3.1	3.0	4.1	4.3	3.5	4.2	4.8	4.9	4.7	7.5	3.7	3.7
None	9.3	7.7	3.9	2.4	13.6	10.2	22.5	19.6	25.9	18.6	13.0	10.5
Source of Water Supply	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Own use, faucet, community water system	18.0	22.4	54.1	45.9	21.7	27.6	10.4	12.4	15.3	14.4	18.8	21.6
Shared, faucet community water system	14.8	17.6	20.7	27.2	28.2	28.5	19.2	24.6	26.5	30.1	17.5	20.6
Own use, tubed/piped well	21.9	19.4	7.2	5.3	11.3	7.9	11.1	10.3	8.9	6.5	17.0	15.6
Shared, tubed/piped well	15.4	17.5	8.6	12.4	17.7	19.9	20.9	24.9	19.1	22.2	16.6	19.0
Dugwell	16.8	11.8	2.6	2.3	12.3	7.5	23.4	14.9	19.8	9.6	17.3	11.6
Spring, river, stream, etc.	10.0	9.1	0.9	0.7	3.1	2.7	12.4	9.1	6.6	5.7	9.4	8.2
Rain	1.5	0.4	0.1	0.1	0.3	1.1	1.1	0.3	0.4	0.1	1.2	0.4
Peddler	1.5	1.9	5.5	6.3	5.5	4.9	1.6	3.5	3.5	11.4	2.1	3.0
Urban												
Wall Construction Material	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Strong	62.7	80.2	57.5	84.4	32.6	60.5	31.2	59.6	23.9	56.5	51.5	74.9
Light	34.8	17.9	38.9	11.4	62.6	36.3	60.5	36.2	56.7	30.8	44.0	21.9
Makeshift	2.4	1.9	3.6	4.3	4.8	3.2	8.2	4.2	19.3	12.7	4.5	3.2
Type of toilet facility	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Water-sealed	77.5	81.1	82.5	85.6	62.9	73.2	52.5	66.2	45.8	55.7	71.1	77.4
Closed pit	10.3	7.8	7.8	6.9	17.8	9.5	14.6	9.8	10.1	12.3	11.5	8.4
Open pit	5.4	4.2	2.2	1.1	5.7	4.0	12.7	7.2	15.3	7.6	6.6	4.5
Others (pail system, etc.)	2.8	3.2	4.3	4.3	3.8	4.8	5.3	5.1	5.2	9.4	3.7	4.0
None	3.9	3.7	3.2	2.1	9.9	8.5	14.8	11.8	23.7	15.0	7.1	5.7
Source of Water Supply	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Own use, faucet, community water system	41.0	40.9	56.8	47.9	31.5	36.5	24.7	24.5	27.9	18.9	39.2	37.6
Shared, faucet community water system	15.3	16.5	20.4	27.1	28.7	25.4	28.9	28.3	39.1	32.9	20.9	21.1
Own use, tubed/piped well	19.7	17.5	6.3	5.1	9.5	7.8	9.0	9.4	6.8	4.5	13.9	13.4
Shared, tubed/piped well	12.0	13.5	7.6	11.2	14.2	15.6	19.5	20.3	9.1	21.4	12.8	14.9
Dugwell	6.3	5.6	2.2	1.8	7.3	6.7	10.3	8.1	10.2	5.9	6.6	5.6
Spring, river, stream, etc.	1.5	2.5	0.5	0.3	1.2	1.4	3.1	2.5	0.5	0.4	1.6	2.1
Rain	0.5	0.2	0.3	0.1	0.1	-	0.4	0.1	-	0.1	0.4	0.1
Peddler	3.6	3.4	5.8	6.6	7.6	6.7	4.2	6.8	6.4	15.9	4.6	5.2
Rural												
Wall Construction Material	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Strong	35.9	55.6	49.6	73.3	25.0	51.5	18.0	35.8	22.4	36.7	29.9	50.3
Light	61.1	43.4	50.4	24.5	71.0	47.9	76.9	62.3	73.2	58.8	66.3	48.5
Makeshift	3.1	1.0	-	2.2	4.0	0.6	5.1	1.9	4.5	4.4	3.7	1.3
Type of Toilet Facility	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Water-sealed	46.4	56.7	63.6	71.3	45.3	61.1	27.7	40.3	25.2	41.2	40.6	52.5
Closed pit	19.5	15.7	14.6	12.3	19.0	11.5	20.7	14.6	15.6	16.9	19.7	15.3
Open pit	18.9	13.9	8.3	7.2	13.6	11.3	21.5	15.7	26.5	11.9	19.5	14.1
Others (pail system, etc.)	3.2	2.8	2.4	3.2	3.2	3.4	4.6	4.7	4.0	3.2	3.6	3.3
None	12.0	11.0	11.1	5.9	18.9	12.7	25.6	24.6	28.7	26.8	16.6	14.8
Source of Water Supply	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Own use, faucet, community water system	6.9	7.6	25.9	20.0	7.8	14.5	4.7	4.6	-	4.4	6.4	7.1
Shared, faucet community water system	14.7	18.6	24.0	28.2	27.5	33.0	15.3	22.3	11.0	24.1	15.5	20.2
Own use, tubed/piped well	22.9	20.9	16.6	8.3	13.8	8.0	11.9	10.8	11.5	10.9	19.0	17.6
Shared, tubed/piped well	17.0	20.7	18.6	28.4	22.7	26.2	21.4	27.8	31.2	24.1	18.8	22.8
Dugwell	22.0	16.7	6.8	8.1	19.4	8.7	28.6	19.3	31.4	17.6	23.8	17.1
Spring, river, stream, etc.	14.1	14.3	4.8	4.8	5.6	4.6	16.1	13.3	14.1	17.2	14.2	13.7
Rain	2.0	0.5	1.1	-	0.5	2.6	1.3	0.4	0.8	0.1	1.7	0.6
Peddler	0.5	0.7	2.2	2.1	2.6	2.4	0.6	1.5	-	1.6	0.6	1.0

Appendix 1. Housing Improvements by Tenure (in proportion of HH).

	Own/Amortizing Owners		Rent House/ Room		Own House/ Rent		Being Occupied free with Consent		Being Occupied free without Consent		All Households	
	1985	1997	1985	1997	1985	1997	1985	1997	1985	1997	1985	1997
<u>NCR</u>												
Wall Construction Material	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Strong	68.5	89.0	59.2	86.3	44.8	82.0	44.7	80.2	19.6	66.8	58.5	85.3
Light	28.3	6.9	36.4	7.6	49.5	12.2	45.5	10.4	48.1	11.0	36.0	8.1
Makeshift	3.1	4.1	4.3	6.1	5.6	5.7	9.8	9.4	32.2	22.2	5.5	6.6
Type of Toilet Facility	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Water-sealed	83.4	86.9	84.0	87.9	74.3	77.3	69.6	82.9	52.7	63.3	79.9	84.6
Closed pit	7.2	6.4	7.1	6.9	12.7	11.2	9.0	7.3	9.8	11.2	8.0	7.2
Open pit	2.7	1.4	1.0	0.4	0.8	2.6	6.7	1.8	16.0	3.6	2.9	1.4
Others (pail system, etc.)	5.0	4.4	5.4	3.6	6.4	6.3	8.8	5.2	7.0	13.3	5.9	5.0
None	1.6	0.8	2.4	1.2	5.7	2.6	5.9	2.9	14.5	8.6	3.2	1.8
Source of Water Supply	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Own use, faucet, community water system	59.5	56.6	64.0	50.6	42.6	52.0	42.2	33.4	39.0	19.1	56.3	49.2
Shared, faucet community water system	16.1	18.0	21.2	28.3	31.1	23.1	34.1	32.7	36.7	34.8	22.3	24.0
Own use, tubed/piped well	7.3	7.3	2.8	3.5	5.1	3.3	1.6	5.1	2.9	4.0	4.7	5.6
Shared, tubed/piped well	4.3	8.1	3.7	8.4	2.7	8.8	11.6	10.9	6.1	14.6	5.0	9.0
Dugwell	3.2	2.5	1.1	0.7	3.8	-	2.5	1.5	4.5	3.9	2.5	1.9
Spring, river, stream, etc.	-	-	-	-	-	-	-	-	-	-	-	-
Rain	-	-	-	-	-	-	-	-	-	-	-	-
Peddler	9.6	7.5	7.1	8.5	14.8	12.8	8.0	16.4	10.9	23.6	9.1	10.3
<u>Metro Cebu</u>												
Wall Construction Material	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Strong	67.1	78.0	44.8	73.5	36.0	52.4	27.3	49.4	45.5	57.0	50.5	65.7
Light	27.6	20.5	55.2	22.8	56.0	42.0	54.5	43.2	45.5	35.6	42.3	30.0
Makeshift	5.3	1.5	-	3.7	8.0	5.6	18.2	7.4	9.1	7.4	7.1	4.2
Type of Toilet Facility	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Water-sealed	81.6	69.5	79.3	78.6	76.0	75.1	59.1	65.1	61.4	60.9	73.5	68.9
Closed pit	2.6	5.6	6.9	3.8	-	9.6	9.1	15.2	6.8	8.9	4.6	8.3
Open pit	6.6	7.1	3.5	4.1	12.0	0.8	4.5	3.8	9.1	9.8	7.1	5.8
Others (pail system, etc.)	-	4.5	3.5	3.2	-	3.0	-	5.5	2.3	6.4	1.0	4.7
None	9.2	13.3	6.9	10.4	12.0	11.5	27.3	10.4	20.5	14.0	13.8	12.3
Source of Water Supply	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Own use, faucet, community water system	47.4	30.0	41.4	27.9	32.0	21.5	4.5	30.1	29.5	22.9	35.7	27.8
Shared, faucet community water system	21.1	16.7	34.5	18.2	20.0	32.9	31.8	25.2	54.5	20.3	31.6	21.0
Own use, tubed/piped well	13.2	11.8	13.8	14.1	8.0	7.2	9.1	10.2	2.3	3.8	9.7	10.0
Shared, tubed/piped well	14.5	12.0	-	22.5	32.0	16.3	27.3	18.7	6.8	23.1	14.3	16.4
Dugwell	1.3	14.0	6.9	10.2	-	12.9	4.5	5.5	-	2.4	2.0	10.1
Spring, river, stream, etc.	2.6	10.1	-	-	-	-	4.5	0.8	2.3	-	2.0	4.6
Rain	-	-	-	-	-	-	-	-	-	-	-	-
Peddler	-	5.4	3.5	7.1	8.0	9.1	18.2	9.5	4.5	27.5	4.6	9.9
<u>Davao City</u>												
Wall Construction Material	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Strong	62.1	88.2	42.5	80.9	63.2	81.4	32.5	74.0	-	76.9	52.7	83.2
Light	33.9	9.3	47.5	17.3	32.7	18.6	60.5	22.6	100.0	23.1	41.8	14.4
Makeshift	4.0	2.5	10.0	1.8	4.1	-	6.9	3.4	-	-	5.5	2.4
Type of Toilet Facility	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Water-sealed	65.4	85.2	80.0	85.0	87.2	76.4	44.1	61.6	41.1	76.9	64.8	78.5
Closed pit	13.2	3.7	7.5	1.8	4.3	2.5	11.0	1.4	58.9	-	11.4	2.7
Open pit	19.1	6.7	5.0	7.1	8.5	8.8	41.9	18.4	-	-	19.9	9.7
Others (pail system, etc.)	2.2	0.4	7.5	1.8	-	4.9	3.0	1.6	-	-	2.9	1.2
None	-	4.1	-	4.4	4.3	7.4	3.0	17.0	-	23.1	1.0	7.9
Source of Water Supply	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Own use, faucet, community water system	43.3	62.7	47.5	38.6	36.8	21.6	27.9	25.7	-	53.3	39.9	47.4
Shared, faucet community water system	12.8	13.2	17.5	43.1	24.6	21.1	10.1	28.7	41.1	-	14.4	20.8
Own use, tubed/piped well	6.5	1.7	-	1.8	-	-	2.0	1.4	-	-	3.9	1.5
Shared, tubed/piped well	4.9	6.9	7.5	11.3	12.3	26.5	11.6	22.4	58.9	23.1	7.9	13.0
Dugwell	6.5	2.8	2.5	1.8	8.2	14.2	12.7	0.8	-	-	7.2	3.1
Spring, river, stream, etc.	9.2	5.8	2.5	-	10.0	7.3	16.5	2.9	-	-	9.5	4.5
Rain	12.8	3.9	2.5	-	-	4.4	17.3	10.1	-	-	10.7	4.9
Peddler	4.0	3.1	20.0	3.5	8.2	4.9	2.0	8.0	-	23.6	6.5	4.8

Appendix 2. Tenure Trends by Income Group, Poor vs. Non-poor Households, Philippines.

	1985						1991						1994						1997					
	Total	Own or owner-like possession of house and lot	Rent house/room, including lot	Own house, rent lot	Own/ rent-free house, w/ consent of owner	Own/ rent-free house, w/o consent of owner	Total	Own or owner-like possession of house and lot	Rent house/room, including lot	Own house, rent lot	Own/ rent-free house, w/ consent of owner	Own/ rent-free house, w/o consent of owner	Total	Own or owner-like possession of house and lot	Rent house/room, including lot	Own house, rent lot	Own/ rent-free house, w/ consent of owner	Own/ rent-free house, w/o consent of owner	Total	Own or owner-like possession of house and lot	Rent house/room, including lot	Own house, rent lot	Own/ rent-free house, w/ consent of owner	Own/ rent-free house, w/o consent of owner
Philippines																								
Poor	100.0	51.8	4.0	7.1	34.7	2.4	100.0	60.7	2.7	5.5	28.5	2.6	100.0	62.3	1.9	4.0	28.7	3.1	100.0	62.0	1.9	3.8	28.9	3.4
Non-poor	100.0	63.1	9.8	6.2	19.2	1.6	100.0	64.3	9.8	5.5	18.2	2.1	100.0	67.1	8.3	4.4	17.8	2.5	100.0	65.7	8.4	4.1	18.7	3.0
Urban																								
Poor	100.0	39.4	12.5	13.3	30.4	4.4	100.0	55.9	6.3	7.5	26.6	3.7	100.0	58.8	5.0	5.3	26.7	4.3	100.0	53.1	5.7	6.6	28.0	6.6
Non-poor	100.0	55.4	19.8	8.8	13.9	2.1	100.0	59.3	16.4	6.3	15.5	2.4	100.0	62.5	13.4	5.3	15.9	2.8	100.0	61.6	13.8	4.7	15.8	4.1
Rural																								
Poor	100.0	56.8	0.6	4.6	36.4	1.6	100.0	63.7	0.4	4.2	29.7	2.0	100.0	64.1	0.3	3.3	29.7	2.6	100.0	65.2	0.5	2.8	29.2	2.3
Non-poor	100.0	69.4	1.5	4.2	23.7	1.2	100.0	70.8	1.2	4.5	21.8	1.8	100.0	73.5	1.2	3.0	20.4	1.9	100.0	71.2	1.2	3.4	22.7	1.5
NCR																								
Poor	100.0	29.3	31.2	12.1	21.3	6.0	100.0	35.3	25.4	6.8	21.9	10.5	100.0	37.3	28.4	6.6	17.1	10.6	100.0	37.4	22.7	2.8	19.8	17.3
Non-poor	100.0	44.7	32.8	9.1	11.4	2.0	100.0	47.0	31.5	6.6	11.8	3.0	100.0	50.4	27.5	4.0	13.7	4.3	100.0	50.9	26.1	3.9	12.9	6.2
Metro Cebu																								
Poor	100.0	20.9	13.4	11.9	20.9	32.8	100.0	42.0	6.0	17.9	34.1	-	100.0	55.1	10.1	8.1	18.5	8.2	100.0	39.7	7.0	15.4	19.6	18.3
Non-poor	100.0	48.1	15.5	13.2	6.2	17.1	100.0	46.3	15.7	10.0	24.9	3.1	100.0	54.4	12.3	14.2	12.6	6.5	100.0	44.6	9.5	11.6	20.6	13.7
Davao City																								
Poor	100.0	47.1	10.9	10.3	30.2	1.6	100.0	58.3	5.4	4.2	28.6	3.6	100.0	39.7	-	3.6	54.1	2.6	100.0	41.6	6.8	13.4	38.2	-
Non-poor	100.0	57.8	18.6	9.3	13.7	0.6	100.0	62.3	13.2	3.9	16.9	3.7	100.0	58.4	9.3	6.2	21.4	4.8	100.0	56.3	11.7	7.3	22.8	1.9

Appendix 3. Housing Improvements, Poor vs. Non-Poor Households, Wall Materials, 1985-1997.

	1985				1991				1994				1997			
	Total	Strong	Light	Makeshift	Total	Strong	Light	Makeshift	Total	Strong	Light	Makeshift	Total	Strong	Light	Makeshift
Philippines																
Poor	100.0	18.7	75.1	6.2	100.0	34.8	61.2	4.0	100.0	33.6	62.6	3.8	100.0	34.9	62.0	3.1
Non-poor	100.0	53.5	44.2	2.2	100.0	72.2	26.2	1.6	100.0	71.4	26.6	2.0	100.0	74.6	23.6	1.7
Urban																
Poor	100.0	25.1	65.7	9.2	100.0	44.7	50.4	4.8	100.0	41.7	53.2	5.1	100.0	42.5	50.9	6.6
Non-poor	100.0	64.8	33.1	2.1	100.0	82.9	15.2	1.9	100.0	80.0	17.8	2.2	100.0	82.0	15.6	2.4
Rural																
Poor	100.0	16.1	78.9	5.0	100.0	28.6	68.0	3.5	100.0	29.5	67.4	3.1	100.0	32.1	66.1	1.8
Non-poor	100.0	44.2	53.4	2.4	100.0	58.1	40.8	1.1	100.0	59.3	39.1	1.6	100.0	64.7	34.4	0.9
NCR																
Poor	100.0	29.8	53.3	16.9	100.0	70.3	15.5	14.2	100.0	57.5	23.9	18.6	100.0	52.8	19.1	28.1
Non-poor	100.0	67.1	30.8	2.1	100.0	90.1	6.8	3.1	100.0	86.8	9.3	3.9	100.0	87.5	7.3	5.1
Metro Cebu																
Poor	100.0	26.9	59.7	13.4	100.0	33.9	60.1	6.0	100.0	34.6	57.1	8.2	100.0	35.8	49.2	15.0
Non-poor	100.0	62.8	33.3	3.9	100.0	75.1	21.7	3.2	100.0	65.7	29.7	4.5	100.0	68.2	28.5	3.3
Davao City																
Poor	100.0	23.2	67.1	9.7	100.0	60.1	30.4	9.5	100.0	53.6	34.1	12.4	100.0	68.9	26.0	5.2
Non-poor	100.0	69.5	27.4	3.1	100.0	84.5	13.6	1.9	100.0	82.9	15.5	1.5	100.0	85.1	12.9	2.0

Appendix 4. Housing Improvements, Poor vs. Non-Poor Households, Type of Toilet Facility, 1985-1997.

	1985						1991						1994						1997						
	Total	Water-sealed	Closed-pit	Open-pit	Others (pail system, etc)	None	Total	Water-sealed	Closed-pit	Open-pit	Others (pail system, etc)	None	Total	Water-sealed	Closed-pit	Open-pit	Others (pail system, etc)	None	Total	Water-sealed	Closed-pit	Open-pit	Others (pail system, etc)	None	
Philippines																									
Poor	100.0	34.9	19.0	20.2	4.6	21.3	100.0	37.1	19.9	16.6	4.0	22.4	100.0	36.9	19.9	17.8	3.6	21.7	100.0	40.4	17.8	17.7	3.9	20.2	
Non-poor	100.0	65.8	14.7	10.1	3.0	6.4	100.0	68.3	12.9	6.9	3.9	8.0	100.0	75.5	9.4	6.4	2.1	6.7	100.0	75.5	9.3	5.8	3.6	5.9	
Urban																									
Poor	100.0	50.2	16.7	12.7	5.5	14.8	100.0	45.3	18.7	11.7	5.4	18.9	100.0	48.7	14.9	14.1	4.1	18.2	100.0	52.4	14.5	12.1	5.1	15.9	
Non-poor	100.0	81.7	8.8	3.5	2.9	3.1	100.0	79.0	9.5	3.1	4.4	4.1	100.0	85.1	5.7	3.2	2.0	4.0	100.0	82.9	7.0	2.9	3.8	3.5	
Rural																									
Poor	100.0	28.7	20.0	23.3	4.2	23.9	100.0	31.9	20.7	19.8	3.0	24.6	100.0	31.0	22.4	19.7	3.4	23.5	100.0	36.0	19.0	19.8	3.4	21.8	
Non-poor	100.0	52.8	19.5	15.6	3.0	9.1	100.0	54.2	17.5	11.9	3.1	13.3	100.0	61.8	14.7	10.8	2.2	10.4	100.0	65.6	12.3	9.7	3.2	9.2	
NCR																									
Poor	100.0	63.4	13.7	6.4	9.3	7.2	100.0	62.1	9.1	4.0	13.0	11.8	100.0	72.8	8.1	4.0	8.7	6.4	100.0	68.8	10.8	3.6	8.5	8.3	
Non-poor	100.0	84.9	6.4	1.9	4.8	2.0	100.0	85.3	6.6	1.3	4.8	2.0	100.0	93.1	3.2	1.0	1.5	1.3	100.0	85.7	6.9	1.2	4.7	1.4	
Metro Cebu																									
Poor	100.0	49.3	11.9	11.9	3.0	23.9	100.0	20.0	26.0	6.0	18.1	29.9	100.0	28.4	16.5	18.5	4.1	32.6	100.0	29.5	4.9	14.6	11.5	39.5	
Non-poor	100.0	86.0	0.8	4.7	-	8.5	100.0	64.7	5.4	1.3	22.4	6.3	100.0	55.6	12.4	10.0	7.2	14.9	100.0	72.2	8.6	5.0	4.1	10.1	
Davao City																									
Poor	100.0	41.3	13.9	36.3	5.9	2.7	100.0	24.4	49.4	17.3	-	8.9	100.0	38.0	5.2	47.1	-	9.6	100.0	50.4	4.7	17.0	5.0	22.9	
Non-poor	100.0	78.2	10.0	10.6	1.2	-	100.0	67.3	25.1	3.4	0.9	3.3	100.0	85.5	4.4	5.0	2.0	3.1	100.0	82.3	2.5	8.7	0.7	5.9	

Appendix 5. Housing Improvements, Poor vs. Non-Poor Households, Source of Water Supply, 1985-1997.

	1985									1991								
	Total	Own use, faucet community water system	Shared, faucet community water system	Own use, tubed/ piped well	Shared, tubed/ piped well	Dugwell	Spring, river stream, etc.	Rain	Peddler	Total	Own use, faucet community water system	Shared, faucet community water system	Own use, tubed/ piped well	Shared, tubed/ piped well	Dugwell	Spring, river stream, etc.	Rain	Peddler
Philippines																		
Poor	100.0	7.7	19.5	11.3	20.6	23.2	14.2	1.4	2.1	100.0	7.9	21.8	10.5	23.2	20.5	13.8	0.6	1.8
Non-poor	100.0	27.6	16.0	21.6	13.3	12.6	5.7	1.1	2.1	100.0	30.9	18.2	16.8	14.6	11.0	5.0	0.6	2.8
Urban																		
Poor	100.0	19.3	29.4	10.2	21.1	10.2	3.4	0.4	5.9	100.0	13.1	24.9	10.4	24.3	16.0	7.4	0.4	3.4
Non-poor	100.0	49.3	16.5	15.8	8.7	4.7	0.7	0.4	3.9	100.0	45.2	18.5	13.8	10.7	5.8	1.7	0.2	4.0
Rural																		
Poor	100.0	3.1	15.4	11.7	20.4	28.5	18.5	1.7	0.6	100.0	4.6	19.8	10.5	22.5	23.3	17.8	0.7	0.8
Non-poor	100.0	9.8	15.5	26.4	17.2	19.0	9.8	1.7	0.6	100.0	12.0	17.8	20.8	19.8	17.9	9.4	1.1	1.1
NCR																		
Poor	100.0	31.7	37.4	4.1	9.8	2.9	-	-	14.0	100.0	28.1	39.2	2.8	8.9	4.2	-	-	16.9
Non-poor	100.0	63.7	17.8	4.9	3.6	2.4	-	-	7.6	100.0	63.1	19.8	3.9	4.3	1.9	0.0	-	7.0
Metro Cebu																		
Poor	100.0	13.4	43.3	6.0	23.9	3.0	4.5	-	6.0	100.0	4.0	22.0	-	45.9	4.0	14.0	-	10.0
Non-poor	100.0	47.3	25.6	11.6	9.3	1.6	0.8	-	3.9	100.0	35.3	20.7	12.9	19.1	2.8	2.2	-	6.9
Davao City																		
Poor	100.0	17.3	19.0	5.4	8.4	10.1	14.2	17.4	8.1	100.0	18.5	32.1	8.3	20.8	4.2	3.0	8.9	4.2
Non-poor	100.0	52.8	11.8	3.0	7.6	5.5	6.9	6.9	5.6	100.0	55.5	16.9	4.7	9.0	2.9	3.7	4.2	3.1

Appendix 5. Housing Improvements, Poor vs. Non-Poor Households, Source of Water Supply, 1985-1997. (con't.)

	1994									1997								
	Total	Own use, faucet community water system	Shared, faucet community water system	Own use, tubed/piped well	Shared, tubed/piped well	Dugwell	Spring, river stream, etc.	Rain	Peddler	Total	Own use, faucet community water system	Shared, faucet community water system	Own use, tubed/piped well	Shared, tubed/piped well	Dugwell	Spring, river stream, etc.	Rain	Peddler
Philippines																		
Poor	100.0	7.1	22.8	11.5	23.7	18.9	13.9	0.7	1.5	100.0	5.0	23.6	10.4	23.8	19.3	15.6	0.4	1.9
Non-poor	100.0	31.4	19.2	18.2	15.4	8.6	3.9	0.6	2.7	100.0	29.4	19.2	18.1	16.8	8.1	4.7	0.3	3.4
Urban																		
Poor	100.0	12.4	26.0	11.7	25.9	13.5	7.1	0.3	3.0	100.0	12.1	29.1	11.0	24.1	12.3	6.2	0.3	4.8
Non-poor	100.0	44.1	18.9	14.4	12.7	4.7	0.9	0.4	3.8	100.0	43.1	19.4	13.9	12.9	4.2	1.2	0.1	5.2
Rural																		
Poor	100.0	4.4	21.2	11.3	22.5	21.7	17.3	0.9	0.7	100.0	2.4	21.6	10.1	23.7	21.8	19.1	0.5	0.9
Non-poor	100.0	13.3	19.7	23.5	19.2	14.2	8.0	0.9	1.1	100.0	10.9	19.0	23.6	22.1	13.3	9.4	0.6	1.0
NCR																		
Poor	100.0	33.3	37.5	2.7	9.2	4.6	-	-	12.8	100.0	17.3	42.0	2.3	14.8	4.7	-	-	18.9
Non-poor	100.0	61.2	20.9	3.9	4.8	2.6	0.0	-	6.6	100.0	51.4	22.7	5.9	8.6	1.7	-	-	9.7
Metro Cebu																		
Poor	100.0	6.1	26.4	2.1	24.3	20.5	14.4	2.1	4.1	100.0	9.1	27.4	3.7	18.5	10.2	11.6	-	19.5
Non-poor	100.0	35.0	21.3	8.4	19.0	8.4	2.6	1.0	4.2	100.0	29.4	20.5	10.5	16.2	10.1	4.1	-	9.1
Davao City																		
Poor	100.0	4.4	41.2	-	11.5	14.8	14.0	7.8	6.2	100.0	21.5	32.4	3.0	14.2	13.5	6.0	6.0	3.3
Non-poor	100.0	63.2	20.0	3.9	5.9	1.1	1.2	2.4	2.3	100.0	50.9	19.2	1.2	12.9	1.7	4.3	4.8	5.0

Appendix 7. Housing Improvement By Lifecycle, Wall Materials.

	1985				1997			
	Total	Strong	Light	Makeshift	Total	Strong	Light	Makeshift
WALL MATERIALS								
Philippines								
single/separated, hysize=1	100.0	34.2	57.9	7.9	100.0	58.4	36.4	5.2
single w/ hysize>1	100.0	54.0	44.6	1.5	100.0	76.3	21.6	2.1
separated, hysize>1	100.0	46.4	47.9	5.7	100.0	65.9	31.3	2.9
married, hhead<30, hsize< or =3	100.0	21.7	71.8	6.5	100.0	53.9	43.2	2.8
married, hhead<30, 3<hsize<6	100.0	23.1	71.4	5.6	100.0	47.3	49.9	2.7
married, hhead<30, hsize 6+	100.0	24.1	67.1	8.9	100.0	49.8	48.2	2.0
married, hhead 30-39, hsize< or =3	100.0	41.2	55.9	2.9	100.0	61.6	36.4	2.0
married, hhead 30-39, 3<hsize<6	100.0	37.4	57.9	4.7	100.0	62.0	35.7	2.3
married, hhead 30-39, hsize 6+	100.0	31.3	64.6	4.0	100.0	51.4	45.5	3.1
married, hhead 40-49, hsize< or =3	100.0	33.4	62.6	4.0	100.0	66.6	30.6	2.8
married, hhead 40-49, 3<hsize<6	100.0	41.9	54.7	3.5	100.0	68.6	29.4	2.0
married, hhead 40-49, hsize 6+	100.0	37.6	59.2	3.2	100.0	58.5	39.5	2.0
married, hhead 50+, hsize< or =3	100.0	40.3	55.2	4.5	100.0	61.3	37.1	1.6
married, hhead 50+, 3<hsize<6	100.0	44.0	53.0	3.0	100.0	68.6	29.9	1.5
married, hhead 50+, hsize 6+	100.0	46.5	51.0	2.5	100.0	69.3	29.0	1.7
Urban								
single/separated, hysize=1	100.0	51.2	45.5	3.3	100.0	76.5	19.1	4.4
single w/ hysize>1	100.0	62.2	36.3	1.4	100.0	85.0	12.4	2.6
separated, hysize>1	100.0	53.2	37.2	9.6	100.0	77.3	18.4	4.4
married, hhead<30, hsize< or =3	100.0	41.2	53.4	5.4	100.0	68.1	26.8	5.1
married, hhead<30, 3<hsize<6	100.0	35.5	58.1	6.5	100.0	65.3	29.5	5.2
married, hhead<30, hsize 6+	100.0	34.3	54.6	11.1	100.0	63.2	33.4	3.4
married, hhead 30-39, hsize< or =3	100.0	52.9	43.8	3.3	100.0	78.6	19.2	2.2
married, hhead 30-39, 3<hsize<6	100.0	51.5	43.5	5.0	100.0	74.8	21.9	3.3
married, hhead 30-39, hsize 6+	100.0	41.8	53.3	4.9	100.0	65.0	29.6	5.4
married, hhead 40-49, hsize< or =3	100.0	47.5	49.0	3.6	100.0	74.8	22.3	2.9
married, hhead 40-49, 3<hsize<6	100.0	56.3	40.6	3.1	100.0	80.3	17.1	2.6
married, hhead 40-49, hsize 6+	100.0	49.3	45.9	4.9	100.0	72.1	25.0	2.9
married, hhead 50+, hsize< or =3	100.0	54.4	40.7	4.8	100.0	77.6	20.3	2.1
married, hhead 50+, 3<hsize<6	100.0	61.0	35.2	3.8	100.0	78.2	19.7	2.1
married, hhead 50+, hsize 6+	100.0	56.9	39.8	3.2	100.0	79.8	17.9	2.3
Rural								
single/separated, hysize=1	100.0	24.5	65.0	10.5	100.0	34.7	59.1	6.2
single w/ hysize>1	100.0	45.2	53.3	1.5	100.0	60.7	38.1	1.2
separated, hysize>1	100.0	36.4	63.6	-	100.0	44.3	55.7	-
married, hhead<30, hsize< or =3	100.0	13.5	79.6	7.0	100.0	42.2	56.8	1.0
married, hhead<30, 3<hsize<6	100.0	17.4	77.5	5.1	100.0	33.2	66.1	0.7
married, hhead<30, hsize 6+	100.0	17.9	74.6	7.5	100.0	36.2	63.2	0.7
married, hhead 30-39, hsize< or =3	100.0	32.9	64.5	2.6	100.0	42.3	55.9	1.8
married, hhead 30-39, 3<hsize<6	100.0	27.0	68.5	4.5	100.0	49.1	49.5	1.3
married, hhead 30-39, hsize 6+	100.0	26.5	69.9	3.6	100.0	42.3	56.2	1.5
married, hhead 40-49, hsize< or =3	100.0	25.6	70.2	4.2	100.0	58.5	38.8	2.7
married, hhead 40-49, 3<hsize<6	100.0	31.0	65.2	3.8	100.0	55.6	43.1	1.3
married, hhead 40-49, hsize 6+	100.0	30.8	66.9	2.3	100.0	47.2	51.4	1.3
married, hhead 50+, hsize< or =3	100.0	34.9	60.6	4.4	100.0	51.0	47.8	1.2
married, hhead 50+, 3<hsize<6	100.0	34.0	63.4	2.6	100.0	60.1	38.9	1.0
married, hhead 50+, hsize 6+	100.0	38.2	59.9	1.9	100.0	59.2	39.8	1.1

Appendix 7. Housing Improvement By Lifecycle, Wall Materials.

	1985				1997			
	Total	Strong	Light	Makeshift	Total	Strong	Light	Makeshift
NCR								
single/separated, hhsz=1	100.0	54.3	45.7	-	100.0	80.2	10.0	9.8
single w/ hhsz>1	100.0	74.7	24.0	1.3	100.0	89.6	6.4	4.0
separated, hhsz>1	100.0	62.4	28.7	8.9	100.0	84.3	8.8	6.9
married, hhead<30, hsz< or =3	100.0	44.4	48.2	7.4	100.0	79.6	8.4	11.9
married, hhead<30, 3<hsz<6	100.0	44.0	47.6	8.4	100.0	80.4	9.2	10.4
married, hhead<30, hsz 6+	100.0	42.8	49.8	7.4	100.0	76.7	21.9	1.3
married, hhead 30-39, hsz< or =3	100.0	52.9	42.9	4.2	100.0	88.9	6.5	4.7
married, hhead 30-39, 3<hsz<6	100.0	59.8	33.2	7.0	100.0	84.0	9.7	6.2
married, hhead 30-39, hsz 6+	100.0	52.3	42.4	5.3	100.0	73.6	11.8	14.6
married, hhead 40-49, hsz< or =3	100.0	62.4	37.6	-	100.0	89.6	5.7	4.7
married, hhead 40-49, 3<hsz<6	100.0	57.4	37.6	5.0	100.0	90.5	5.8	3.7
married, hhead 40-49, hsz 6+	100.0	53.8	39.1	7.0	100.0	86.9	7.6	5.5
married, hhead 50+, hsz< or =3	100.0	72.6	24.0	3.4	100.0	90.1	4.8	5.1
married, hhead 50+, 3<hsz<6	100.0	72.2	25.0	2.8	100.0	86.9	8.1	5.0
married, hhead 50+, hsz 6+	100.0	60.8	34.4	4.9	100.0	90.5	4.4	5.1
Metro Cebu								
single/separated, hhsz=1	100.0	25.0	75.0	-	100.0	89.4	10.6	-
single w/ hhsz>1	100.0	71.4	28.6	-	100.0	80.7	11.5	7.8
separated, hhsz>1	100.0	100.0	-	-	100.0	68.0	32.0	-
married, hhead<30, hsz< or =3	100.0	33.4	66.6	-	100.0	52.9	47.1	-
married, hhead<30, 3<hsz<6	100.0	33.3	66.7	-	100.0	51.4	42.0	6.5
married, hhead<30, hsz 6+	100.0	33.3	33.3	33.3	100.0	44.9	40.7	14.3
married, hhead 30-39, hsz< or =3	100.0	25.0	50.0	25.0	100.0	77.5	22.5	-
married, hhead 30-39, 3<hsz<6	100.0	55.6	44.4	-	100.0	63.9	31.0	5.1
married, hhead 30-39, hsz 6+	100.0	35.3	64.7	-	100.0	64.2	31.5	4.3
married, hhead 40-49, hsz< or =3	100.0	-	100.0	-	100.0	38.0	59.2	2.8
married, hhead 40-49, 3<hsz<6	100.0	55.5	33.3	11.1	100.0	65.8	32.2	2.0
married, hhead 40-49, hsz 6+	100.0	50.0	42.9	7.1	100.0	64.3	30.6	5.0
married, hhead 50+, hsz< or =3	100.0	-	80.0	20.0	100.0	69.6	25.0	5.4
married, hhead 50+, 3<hsz<6	100.0	50.0	32.1	17.9	100.0	76.5	20.7	2.8
married, hhead 50+, hsz 6+	100.0	70.0	30.0	-	100.0	68.8	28.3	2.9
Davao City								
single/separated, hhsz=1	100.0	100.0	-	-	100.0	100.0	-	-
single w/ hhsz>1	100.0	32.4	67.6	-	100.0	79.5	10.3	10.3
separated, hhsz>1	100.0	73.1	26.9	-	100.0	93.6	-	6.4
married, hhead<30, hsz< or =3	100.0	43.6	56.4	-	100.0	81.1	9.4	9.4
married, hhead<30, 3<hsz<6	100.0	35.6	64.4	-	100.0	76.9	19.2	3.9
married, hhead<30, hsz 6+	100.0	50.0	16.7	33.3	100.0	26.3	73.7	-
married, hhead 30-39, hsz< or =3	100.0	50.0	50.0	-	100.0	91.2	8.8	-
married, hhead 30-39, 3<hsz<6	100.0	45.5	48.2	6.3	100.0	86.7	13.3	-
married, hhead 30-39, hsz 6+	100.0	39.7	38.8	21.5	100.0	90.4	6.2	3.4
married, hhead 40-49, hsz< or =3	100.0	16.7	66.7	16.7	100.0	75.7	24.3	-
married, hhead 40-49, 3<hsz<6	100.0	42.4	57.6	-	100.0	91.3	8.7	-
married, hhead 40-49, hsz 6+	100.0	49.0	51.0	-	100.0	76.3	20.8	2.9
married, hhead 50+, hsz< or =3	100.0	79.3	20.7	-	100.0	74.7	25.3	-
married, hhead 50+, 3<hsz<6	100.0	70.8	29.2	-	100.0	88.2	11.8	-
married, hhead 50+, hsz 6+	100.0	52.4	40.1	7.6	100.0	94.7	5.3	-

Appendix 8. Housing Improvement By Lifecycle, Toilet Facility.

	1985						1997					
	Total	Water-sealed	Closed-pit	Open-pit	Others (pail system, etc)	None	Total	Water-sealed	Closed-pit	Open-pit	Others (pail system, etc)	None
TYPE OF TOILET FACILITY												
Philippines												
single/separated, hhsz=1	100.0	50.9	8.7	17.0	3.2	20.2	100.0	60.2	9.6	11.8	3.7	14.7
single w/ hhsz>1	100.0	60.8	14.9	11.1	2.5	10.7	100.0	75.2	9.2	5.9	3.9	5.8
separated, hhsz>1	100.0	58.4	12.8	12.3	5.3	11.3	100.0	70.3	10.6	5.8	2.7	10.6
married, hhead<30, hsize< or =3	100.0	33.0	21.7	21.2	3.8	20.2	100.0	56.8	15.0	11.3	4.4	12.4
married, hhead<30, 3<hsize<6	100.0	40.5	17.0	17.0	4.4	21.1	100.0	50.8	14.3	12.5	4.6	17.8
married, hhead<30, hsize 6+	100.0	40.1	18.1	18.2	6.0	17.6	100.0	54.6	11.6	15.1	3.7	15.0
married, hhead 30-39, hsize< or =3	100.0	60.4	11.0	11.4	4.1	13.1	100.0	63.7	11.2	9.8	3.6	11.6
married, hhead 30-39, 3<hsize<6	100.0	53.2	17.6	14.1	3.8	11.3	100.0	64.7	10.7	10.0	4.2	10.4
married, hhead 30-39, hsize 6+	100.0	44.0	17.3	17.3	3.6	17.8	100.0	53.7	14.6	11.8	4.3	15.7
married, hhead 40-49, hsize< or =3	100.0	50.2	16.3	16.1	4.7	12.7	100.0	68.1	10.3	7.2	4.2	10.3
married, hhead 40-49, 3<hsize<6	100.0	56.6	16.2	11.6	3.6	12.1	100.0	70.5	11.0	8.0	3.5	7.1
married, hhead 40-49, hsize 6+	100.0	53.5	16.4	15.7	3.7	10.7	100.0	61.6	13.6	11.4	3.5	9.9
married, hhead 50+, hsize< or =3	100.0	48.6	17.9	15.8	2.6	15.1	100.0	62.8	12.0	8.9	3.1	13.2
married, hhead 50+, 3<hsize<6	100.0	58.3	15.2	12.1	3.3	11.0	100.0	71.1	11.9	7.5	2.8	6.8
married, hhead 50+, hsize 6+	100.0	60.3	16.9	12.2	3.2	7.3	100.0	71.3	10.1	8.8	3.3	6.5
Urban												
single/separated, hhsz=1	100.0	83.7	9.0	0.6	1.7	5.0	100.0	76.2	6.2	5.7	3.1	8.7
single w/ hhsz>1	100.0	77.4	10.9	4.8	2.7	4.2	100.0	84.5	8.0	2.1	3.3	2.1
separated, hhsz>1	100.0	73.5	8.8	4.1	5.4	8.2	100.0	78.3	8.7	2.0	3.5	7.5
married, hhead<30, hsize< or =3	100.0	59.7	12.1	7.8	7.3	13.1	100.0	71.4	9.2	6.2	6.4	6.8
married, hhead<30, 3<hsize<6	100.0	59.4	14.1	7.7	5.2	13.5	100.0	67.5	11.6	4.9	5.8	10.1
married, hhead<30, hsize 6+	100.0	53.5	13.2	11.3	6.5	15.5	100.0	68.8	9.9	8.2	3.8	9.4
married, hhead 30-39, hsize< or =3	100.0	74.5	9.3	8.9	3.5	3.8	100.0	78.9	7.7	4.6	4.5	4.4
married, hhead 30-39, 3<hsize<6	100.0	71.1	12.1	6.6	4.5	5.7	100.0	76.4	7.8	4.4	4.6	6.7
married, hhead 30-39, hsize 6+	100.0	64.6	13.4	8.0	3.9	10.2	100.0	69.3	11.3	5.5	4.6	9.2
married, hhead 40-49, hsize< or =3	100.0	66.8	11.9	10.0	3.7	7.6	100.0	79.9	7.0	4.0	2.4	6.7
married, hhead 40-49, 3<hsize<6	100.0	75.7	11.4	4.1	3.7	5.1	100.0	81.3	8.0	3.7	3.3	3.7
married, hhead 40-49, hsize 6+	100.0	69.6	12.3	7.3	3.7	7.1	100.0	75.7	9.4	5.6	4.0	5.4
married, hhead 50+, hsize< or =3	100.0	69.7	13.8	7.9	0.1	8.5	100.0	77.9	7.7	4.6	3.4	6.5
married, hhead 50+, 3<hsize<6	100.0	77.5	9.4	5.6	2.9	4.6	100.0	82.2	7.4	3.8	3.3	3.2
married, hhead 50+, hsize 6+	100.0	76.2	11.0	5.2	3.7	3.8	100.0	81.0	6.9	4.9	3.2	4.0
Rural												
single/separated, hhsz=1	100.0	32.3	8.6	26.3	4.1	28.8	100.0	39.2	14.0	19.7	4.5	22.6
single w/ hhsz>1	100.0	43.2	19.0	17.9	2.4	17.6	100.0	58.7	11.2	12.8	5.0	12.3
separated, hhsz>1	100.0	36.0	18.7	24.4	5.1	15.7	100.0	55.2	14.1	13.0	1.0	16.6
married, hhead<30, hsize< or =3	100.0	21.8	25.8	26.9	2.3	23.2	100.0	44.7	19.9	15.6	2.8	17.1
married, hhead<30, 3<hsize<6	100.0	31.7	18.4	21.3	4.1	24.5	100.0	37.6	16.5	18.5	3.6	23.8
married, hhead<30, hsize 6+	100.0	32.0	21.0	22.4	5.6	18.9	100.0	40.1	13.3	22.1	3.6	20.8
married, hhead 30-39, hsize< or =3	100.0	50.5	12.2	13.1	4.5	19.6	100.0	46.5	15.3	15.9	2.6	19.8
married, hhead 30-39, 3<hsize<6	100.0	39.9	21.7	19.6	3.3	15.5	100.0	53.1	13.5	15.6	3.8	14.0
married, hhead 30-39, hsize 6+	100.0	34.5	19.1	21.6	3.5	21.3	100.0	43.2	16.8	16.0	4.0	20.0
married, hhead 40-49, hsize< or =3	100.0	41.0	18.8	19.5	5.2	15.5	100.0	56.4	13.5	10.4	5.9	13.7
married, hhead 40-49, 3<hsize<6	100.0	42.2	19.8	17.2	3.5	17.3	100.0	58.4	14.3	12.9	3.6	10.8
married, hhead 40-49, hsize 6+	100.0	44.2	18.8	20.5	3.7	12.9	100.0	49.9	17.2	16.2	3.2	13.5
married, hhead 50+, hsize< or =3	100.0	40.6	19.4	18.8	3.5	17.6	100.0	53.2	14.8	11.7	2.9	17.5
married, hhead 50+, 3<hsize<6	100.0	47.0	18.7	16.0	3.6	14.8	100.0	61.3	15.8	10.8	2.3	9.9
married, hhead 50+, hsize 6+	100.0	47.7	21.6	17.8	2.9	10.0	100.0	61.8	13.2	12.5	3.4	9.1

Appendix 8. Housing Improvement By Lifecycle, Toilet Facility.

	1985						1997					
	Total	Water-sealed	Closed-pit	Open-pit	Others (pail system, etc)	None	Total	Water-sealed	Closed-pit	Open-pit	Others (pail system, etc)	None
NCR												
single/separated, hhsz=1	100.0	91.4	8.6	-	-	-	100.0	85.6	1.7	2.8	3.5	6.4
single w/ hhsz>1	100.0	83.4	10.9	1.4	4.3	-	100.0	86.4	8.1	1.1	4.4	-
separated, hhsz>1	100.0	74.6	9.7	4.3	9.2	2.2	100.0	81.7	11.0	0.9	3.3	3.1
married, hhead<30, hsize< or =3	100.0	71.6	9.9	5.3	10.5	2.7	100.0	80.9	6.7	0.7	9.2	2.6
married, hhead<30, 3<hsize<6	100.0	76.5	4.4	3.0	8.8	7.4	100.0	77.5	10.8	1.1	8.2	2.4
married, hhead<30, hsize 6+	100.0	67.2	9.7	10.3	4.8	8.0	100.0	82.4	10.0	3.6	4.0	-
married, hhead 30-39, hsize< or =3	100.0	80.6	8.3	4.4	6.6	-	100.0	83.6	8.3	0.9	5.9	1.3
married, hhead 30-39, 3<hsize<6	100.0	75.5	9.5	5.1	7.0	2.9	100.0	83.3	6.4	1.4	6.2	2.7
married, hhead 30-39, hsize 6+	100.0	78.2	10.4	2.5	5.0	3.8	100.0	79.6	9.5	1.6	5.3	3.9
married, hhead 40-49, hsize< or =3	100.0	69.5	7.6	7.8	3.5	11.7	100.0	86.1	7.8	-	3.7	2.4
married, hhead 40-49, 3<hsize<6	100.0	82.2	7.0	2.2	6.8	1.8	100.0	84.1	8.8	1.1	4.6	1.4
married, hhead 40-49, hsize 6+	100.0	80.3	7.4	1.2	5.3	5.8	100.0	87.7	6.1	2.4	3.1	0.8
married, hhead 50+, hsize< or =3	100.0	88.8	6.7	1.4	-	3.1	100.0	88.2	6.8	-	3.5	1.5
married, hhead 50+, 3<hsize<6	100.0	85.0	8.0	0.9	3.9	2.2	100.0	89.7	4.7	1.0	4.4	0.1
married, hhead 50+, hsize 6+	100.0	82.2	7.4	3.6	5.8	1.1	100.0	87.3	4.6	2.3	4.6	1.2
Metro Cebu												
single/separated, hhsz=1	100.0	100.0	-	-	-	-	100.0	76.7	11.3	-	-	12.1
single w/ hhsz>1	100.0	85.7	14.3	-	-	-	100.0	56.1	22.4	3.0	-	18.5
separated, hhsz>1	100.0	100.0	-	-	-	-	100.0	60.2	-	7.7	3.1	28.9
married, hhead<30, hsize< or =3	100.0	33.3	-	33.3	-	33.3	100.0	49.5	7.3	17.9	6.7	18.5
married, hhead<30, 3<hsize<6	100.0	66.7	11.1	-	-	22.2	100.0	63.5	13.3	-	5.1	18.1
married, hhead<30, hsize 6+	100.0	33.3	-	33.3	33.3	-	100.0	50.5	-	8.6	-	40.8
married, hhead 30-39, hsize< or =3	100.0	50.0	-	-	-	50.0	100.0	92.5	-	-	-	7.5
married, hhead 30-39, 3<hsize<6	100.0	72.2	-	5.6	-	22.2	100.0	72.0	8.8	4.4	9.6	5.1
married, hhead 30-39, hsize 6+	100.0	70.6	5.9	-	-	23.5	100.0	66.8	10.3	-	8.8	14.0
married, hhead 40-49, hsize< or =3	100.0	100.0	-	-	-	-	100.0	43.7	14.9	16.3	3.9	21.2
married, hhead 40-49, 3<hsize<6	100.0	66.7	-	11.1	11.1	11.1	100.0	78.5	7.5	5.8	3.3	4.9
married, hhead 40-49, hsize 6+	100.0	82.1	7.1	7.1	-	3.6	100.0	64.2	11.6	7.2	1.3	15.6
married, hhead 50+, hsize< or =3	100.0	20.0	-	40.0	-	40.0	100.0	59.5	3.5	18.1	1.5	17.5
married, hhead 50+, 3<hsize<6	100.0	71.4	7.1	14.3	-	7.1	100.0	73.3	10.8	3.1	8.6	4.2
married, hhead 50+, hsize 6+	100.0	90.0	-	3.3	-	6.7	100.0	73.9	3.4	9.2	2.4	11.2
Davao City												
single/separated, hhsz=1	100.0	100.0	-	-	-	-	100.0	100.0	-	-	-	-
single w/ hhsz>1	100.0	45.1	32.4	22.5	-	-	100.0	69.2	10.3	20.5	-	-
separated, hhsz>1	100.0	86.5	-	-	13.5	-	100.0	83.5	-	10.6	-	5.9
married, hhead<30, hsize< or =3	100.0	81.8	-	18.2	-	-	100.0	71.7	-	9.4	9.4	9.4
married, hhead<30, 3<hsize<6	100.0	71.1	-	17.0	11.9	-	100.0	69.9	3.9	14.7	3.9	7.6
married, hhead<30, hsize 6+	100.0	66.7	-	16.7	16.7	-	100.0	100.0	-	-	-	-
married, hhead 30-39, hsize< or =3	100.0	50.0	-	50.0	-	-	100.0	82.4	-	8.8	-	8.8
married, hhead 30-39, 3<hsize<6	100.0	70.7	7.7	18.5	3.2	-	100.0	77.0	3.5	9.8	1.8	7.9
married, hhead 30-39, hsize 6+	100.0	50.7	8.9	35.1	5.2	-	100.0	78.9	-	5.6	3.1	12.4
married, hhead 40-49, hsize< or =3	100.0	66.7	-	16.7	16.7	-	100.0	85.4	-	-	-	14.6
married, hhead 40-49, 3<hsize<6	100.0	63.6	21.2	15.2	-	-	100.0	88.4	-	8.3	-	3.3
married, hhead 40-49, hsize 6+	100.0	55.7	12.7	25.2	-	6.4	100.0	68.2	8.1	5.5	2.9	15.3
married, hhead 50+, hsize< or =3	100.0	67.0	12.2	20.7	-	-	100.0	68.2	6.4	16.4	-	8.9
married, hhead 50+, 3<hsize<6	100.0	67.3	9.7	22.9	-	-	100.0	68.0	-	25.1	-	6.9
married, hhead 50+, hsize 6+	100.0	72.9	8.7	15.9	2.5	-	100.0	91.9	3.2	-	-	4.9

Appendix 9. Housing Improvement By Lifecycle, Source of Water Supply.

	1985									1997								
	Total	Own use, faucet	Shared, faucet,	Own use,	Shared,	Spring, river	Rain	Peddler		Total	Own use, faucet	Shared, faucet,	Own use,	Shared,	Spring, river	Rain	Peddler	
		community water system	community water system	tubed/piped well	tubed/piped well						community water system	community water system	tubed/piped well	tubed/piped well				Dugwell
SOURCE OF WATER SUPPLY																		
Philippines																		
single/separated, hsize=1	100.0	18.7	20.1	11.9	17.2	21.1	8.8	0.8	1.4	100.0	27.6	17.9	10.8	21.8	12.8	4.8	0.8	3.5
single w/ hsize>1	100.0	30.7	16.6	15.6	14.4	13.0	6.0	0.8	2.9	100.0	34.8	17.9	16.1	12.1	7.8	6.8	0.9	3.6
separated, hsize>1	100.0	31.7	14.3	17.7	18.0	9.2	6.4	-	2.6	100.0	33.0	20.0	12.1	21.0	7.9	2.2	0.4	3.5
married, hhead<30, hsize< or =3	100.0	10.0	17.1	8.8	23.1	23.1	14.6	1.3	2.0	100.0	15.1	23.8	12.0	23.0	10.5	10.2	0.4	5.1
married, hhead<30, 3<hsize<6	100.0	12.8	18.0	11.6	23.2	20.5	11.0	0.9	2.0	100.0	14.1	22.8	10.0	25.9	13.2	9.7	0.2	4.1
married, hhead<30, hsize 6+	100.0	18.0	21.0	7.9	23.6	14.4	10.4	1.0	3.8	100.0	19.8	23.7	9.2	21.6	10.8	10.4	-	4.4
married, hhead 30-39, hsize< or =3	100.0	21.6	15.8	14.2	18.6	16.7	8.9	2.2	2.0	100.0	22.1	23.8	12.9	18.9	9.3	10.1	0.1	2.7
married, hhead 30-39, 3<hsize<6	100.0	20.6	18.7	14.9	17.3	16.3	8.0	1.0	3.1	100.0	21.1	22.6	13.6	21.0	10.4	7.4	0.4	3.5
married, hhead 30-39, hsize 6+	100.0	13.5	17.7	16.1	18.6	20.2	11.0	0.9	2.1	100.0	15.0	22.0	12.2	22.5	14.0	11.0	0.2	3.1
married, hhead 40-49, hsize< or =3	100.0	16.7	15.5	15.0	16.5	22.4	8.4	3.1	2.5	100.0	26.1	19.5	14.5	18.1	10.3	9.0	0.4	2.1
married, hhead 40-49, 3<hsize<6	100.0	23.2	17.8	16.5	14.5	15.6	9.3	1.5	1.7	100.0	28.0	18.6	17.2	16.8	10.0	6.4	0.3	2.7
married, hhead 40-49, hsize 6+	100.0	17.8	18.5	17.4	14.7	18.4	9.6	1.2	2.4	100.0	19.6	21.1	14.2	19.0	13.6	9.0	0.3	3.2
married, hhead 50+, hsize< or =3	100.0	14.0	18.7	19.4	15.9	18.6	10.9	1.3	1.2	100.0	18.7	19.9	16.5	17.2	14.0	10.4	0.8	2.4
married, hhead 50+, 3<hsize<6	100.0	20.4	14.9	20.5	15.1	16.8	8.9	1.7	1.6	100.0	24.0	18.8	19.8	16.2	11.1	7.4	0.4	2.3
married, hhead 50+, hsize 6+	100.0	24.0	16.2	22.0	13.2	14.3	7.8	0.8	1.8	100.0	24.3	16.7	21.0	15.8	11.2	8.3	0.2	2.4
Urban																		
single/separated, hsize=1	100.0	38.7	25.5	13.3	7.8	8.9	1.9	-	3.9	100.0	40.5	19.1	10.5	16.7	5.8	2.5	-	5.0
single w/ hsize>1	100.0	53.6	14.8	11.0	11.0	3.9	0.5	0.3	4.9	100.0	48.6	17.8	14.0	9.9	3.1	1.4	-	5.1
separated, hsize>1	100.0	47.5	13.7	12.2	18.6	4.7	-	-	3.3	100.0	45.8	19.3	10.1	14.0	4.8	0.8	0.1	5.1
married, hhead<30, hsize< or =3	100.0	29.1	32.3	8.9	15.1	6.1	2.8	2.2	3.5	100.0	28.3	29.3	8.0	17.8	4.7	1.4	0.2	10.1
married, hhead<30, 3<hsize<6	100.0	32.3	25.5	6.8	20.1	8.7	0.9	-	5.6	100.0	26.7	28.0	9.0	19.8	5.5	2.7	0.1	8.1
married, hhead<30, hsize 6+	100.0	34.9	30.6	3.8	16.6	4.6	1.7	-	7.9	100.0	32.1	28.8	8.7	15.8	5.8	2.7	-	6.0
married, hhead 30-39, hsize< or =3	100.0	37.9	15.9	20.0	12.6	6.0	4.6	-	3.1	100.0	36.2	28.9	9.6	13.8	4.7	2.4	0.2	4.2
married, hhead 30-39, 3<hsize<6	100.0	39.3	21.6	11.8	13.6	5.8	1.2	0.2	6.5	100.0	35.5	23.5	11.2	16.2	5.4	2.2	0.1	5.9
married, hhead 30-39, hsize 6+	100.0	30.6	24.8	14.4	14.3	8.1	2.5	0.3	4.9	100.0	29.4	25.5	9.6	18.6	7.6	2.8	0.1	6.4
married, hhead 40-49, hsize< or =3	100.0	39.0	19.2	15.0	12.7	4.8	2.6	1.0	5.7	100.0	42.5	20.3	11.4	13.5	5.2	3.4	0.3	3.4
married, hhead 40-49, 3<hsize<6	100.0	43.6	20.6	12.2	11.8	6.9	1.7	0.4	2.8	100.0	45.3	18.4	13.3	12.8	4.1	1.4	0.1	4.5
married, hhead 40-49, hsize 6+	100.0	35.8	23.1	13.2	12.8	7.4	1.8	0.3	5.6	100.0	34.8	22.0	12.4	15.6	6.9	2.5	0.1	5.8
married, hhead 50+, hsize< or =3	100.0	35.2	21.3	19.3	12.6	7.7	1.3	0.3	2.3	100.0	37.7	19.0	16.5	12.5	6.5	2.7	0.2	5.0
married, hhead 50+, 3<hsize<6	100.0	44.1	15.2	16.0	11.8	6.9	1.3	0.7	4.0	100.0	41.4	16.8	17.4	13.0	5.3	1.7	0.1	4.3
married, hhead 50+, hsize 6+	100.0	45.1	17.1	17.3	9.8	5.3	1.2	0.4	3.7	100.0	40.4	16.2	17.6	13.9	5.4	2.2	0.1	4.2
Rural																		
single/separated, hsize=1	100.0	7.3	17.0	11.1	22.5	28.0	12.7	1.3	-	100.0	10.7	16.4	11.2	28.5	21.9	7.8	1.8	1.6
single w/ hsize>1	100.0	6.3	18.4	20.6	18.1	22.6	11.8	1.4	0.7	100.0	10.1	18.0	19.9	16.1	16.2	16.3	2.6	0.9
separated, hsize>1	100.0	8.5	15.1	25.9	17.1	15.9	15.8	-	1.7	100.0	8.7	21.1	15.8	34.2	13.8	4.9	1.1	0.4
married, hhead<30, hsize< or =3	100.0	1.9	10.8	8.8	26.5	30.2	19.6	0.9	1.4	100.0	4.1	19.2	15.3	27.3	15.3	17.5	0.5	0.8
married, hhead<30, 3<hsize<6	100.0	3.9	14.5	13.8	24.6	25.9	15.7	1.3	0.4	100.0	4.2	18.7	10.8	30.6	19.2	15.2	0.3	0.9
married, hhead<30, hsize 6+	100.0	7.9	15.2	10.4	27.8	20.2	15.5	1.5	1.4	100.0	7.4	18.6	9.6	27.5	15.8	18.3	-	2.8
married, hhead 30-39, hsize< or =3	100.0	10.1	15.7	10.2	22.8	24.2	12.1	3.7	1.3	100.0	6.0	18.1	16.6	24.8	14.5	18.9	-	1.0
married, hhead 30-39, 3<hsize<6	100.0	6.8	16.5	17.2	20.0	24.1	13.1	1.6	0.6	100.0	6.7	21.7	16.1	25.8	15.4	12.5	0.7	1.1
married, hhead 30-39, hsize 6+	100.0	5.5	14.4	16.9	20.6	25.7	15.0	1.2	0.8	100.0	5.2	19.6	14.0	25.2	18.4	16.5	0.3	0.9
married, hhead 40-49, hsize< or =3	100.0	4.2	13.4	15.1	18.6	32.2	11.6	4.2	0.7	100.0	10.0	18.8	17.5	22.6	15.3	14.4	0.5	0.9
married, hhead 40-49, 3<hsize<6	100.0	7.9	15.6	19.7	16.5	22.1	15.0	2.3	0.8	100.0	8.6	18.8	21.5	21.2	16.6	12.0	0.6	0.7
married, hhead 40-49, hsize 6+	100.0	7.4	15.8	19.8	15.8	24.8	14.0	1.7	0.6	100.0	7.0	20.3	15.8	21.8	19.2	14.4	0.4	1.1
married, hhead 50+, hsize< or =3	100.0	5.9	17.7	19.5	17.1	22.8	14.5	1.7	0.8	100.0	6.8	20.5	16.5	20.2	18.7	15.3	1.2	0.7
married, hhead 50+, 3<hsize<6	100.0	6.5	14.8	23.2	17.1	22.5	13.4	2.2	0.2	100.0	8.6	20.6	22.0	19.1	16.1	12.5	0.6	0.6
married, hhead 50+, hsize 6+	100.0	7.1	15.4	25.6	15.8	21.4	13.1	1.2	0.3	100.0	8.5	17.2	24.3	17.7	16.9	14.3	0.4	0.7

Appendix 9. Housing Improvement By Lifecycle, Source of Water Supply.

	1985									1997								
	Total	Own use, faucet community water system	Shared, faucet, community water system	Own use, tubed/piped well	Shared, tubed/piped well	Dugwell	Spring, river stream, etc.	Rain	Peddler	Total	Own use, faucet community water system	Shared, faucet, community water system	Own use, tubed/piped well	Shared, tubed/piped well	Dugwell	Spring, river stream, etc.	Rain	Peddler
NCR																		
single/separated, hsize=1	100.0	64.6	25.7	-	-	-	-	-	9.7	100.0	51.5	18.5	3.4	14.0	2.1	-	-	10.4
single w/ hsize>1	100.0	65.3	11.6	5.4	4.4	2.8	-	-	10.5	100.0	58.3	18.9	7.4	6.8	0.7	-	-	8.0
separated, hsize>1	100.0	71.4	14.0	2.7	6.9	-	-	-	5.1	100.0	52.2	24.3	4.4	8.3	3.2	-	-	7.6
married, hhead<30, hsize< or =3	100.0	47.4	37.1	2.4	5.2	-	-	-	7.9	100.0	40.1	31.4	1.6	11.4	-	-	-	15.4
married, hhead<30, 3<hsize<6	100.0	48.6	29.3	-	8.7	4.0	-	-	9.4	100.0	36.0	30.9	4.3	11.7	2.1	-	-	14.9
married, hhead<30, hsize 6+	100.0	46.8	35.8	-	10.1	-	-	-	7.4	100.0	49.1	32.1	2.8	4.4	-	-	-	11.6
married, hhead 30-39, hsize< or =3	100.0	57.1	16.9	8.7	6.0	4.2	-	-	7.0	100.0	42.3	33.0	4.4	9.9	1.0	-	-	9.4
married, hhead 30-39, 3<hsize<6	100.0	53.4	22.9	4.0	5.4	2.1	-	-	12.2	100.0	44.6	27.0	5.9	9.9	1.5	-	-	11.1
married, hhead 30-39, hsize 6+	100.0	45.8	31.2	3.4	6.3	4.0	-	-	9.4	100.0	34.8	32.4	3.0	12.0	3.6	-	-	14.1
married, hhead 40-49, hsize< or =3	100.0	67.9	19.0	4.9	-	-	-	-	8.2	100.0	61.3	18.0	5.6	7.4	2.4	-	-	5.2
married, hhead 40-49, 3<hsize<6	100.0	60.9	23.0	1.8	6.9	2.5	-	-	5.0	100.0	55.9	20.4	5.4	7.6	1.8	-	-	8.8
married, hhead 40-49, hsize 6+	100.0	51.9	23.4	5.3	4.7	3.2	-	-	11.5	100.0	44.9	25.1	4.2	9.0	3.9	-	-	13.0
married, hhead 50+, hsize< or =3	100.0	50.9	21.6	11.9	4.7	1.8	-	-	9.1	100.0	54.3	22.0	6.6	5.5	3.1	-	-	8.6
married, hhead 50+, 3<hsize<6	100.0	62.5	12.4	6.7	6.2	4.2	-	-	8.0	100.0	55.7	16.9	8.9	9.0	0.5	-	-	9.0
married, hhead 50+, hsize 6+	100.0	61.7	19.0	6.5	3.0	1.7	-	-	8.1	100.0	57.4	16.6	8.6	6.9	1.5	-	-	9.0
Metro Cebu																		
single/separated, hsize=1	100.0	25.0	-	25.0	25.0	25.0	-	-	-	100.0	61.7	-	-	30.7	-	7.7	-	-
single w/ hsize>1	100.0	57.1	28.6	-	14.3	-	-	-	-	100.0	47.2	23.7	3.0	5.5	13.0	-	-	7.8
separated, hsize>1	100.0	50.0	-	-	50.0	-	-	-	-	100.0	48.3	23.5	8.1	3.1	6.1	-	-	10.8
married, hhead<30, hsize< or =3	100.0	-	100.0	-	-	-	-	-	-	100.0	10.4	21.9	3.9	12.5	19.2	7.3	-	24.8
married, hhead<30, 3<hsize<6	100.0	22.2	33.3	-	11.1	11.1	-	-	11.1	100.0	28.4	21.2	6.8	17.0	8.7	-	-	17.8
married, hhead<30, hsize 6+	100.0	-	66.6	33.4	-	-	-	-	-	100.0	15.0	7.9	10.6	46.5	5.7	-	-	14.3
married, hhead 30-39, hsize< or =3	100.0	-	25.0	25.0	25.0	-	25.0	-	-	100.0	23.7	19.4	14.4	15.7	11.2	7.5	-	8.2
married, hhead 30-39, 3<hsize<6	100.0	33.3	27.8	11.1	22.2	-	-	-	5.6	100.0	33.5	17.3	8.6	12.1	9.5	1.6	-	17.4
married, hhead 30-39, hsize 6+	100.0	41.2	35.3	-	5.9	5.9	-	-	5.9	100.0	29.5	30.1	2.6	23.2	8.4	1.7	-	4.6
married, hhead 40-49, hsize< or =3	100.0	50.0	50.0	-	-	-	-	-	-	100.0	11.0	14.9	2.8	17.1	14.3	31.8	-	8.1
married, hhead 40-49, 3<hsize<6	100.0	66.7	22.2	-	11.1	-	-	-	-	100.0	27.1	22.5	11.7	13.6	10.1	4.3	-	10.7
married, hhead 40-49, hsize 6+	100.0	28.6	39.3	10.7	14.3	-	-	-	7.1	100.0	23.3	18.9	8.7	22.5	12.1	4.3	-	10.3
married, hhead 50+, hsize< or =3	100.0	-	80.0	-	20.0	-	-	-	-	100.0	16.7	12.5	23.8	8.2	12.2	16.8	-	9.7
married, hhead 50+, 3<hsize<6	100.0	28.6	32.1	14.3	17.9	-	3.6	-	3.6	100.0	30.8	19.3	12.6	14.6	13.3	3.9	-	5.5
married, hhead 50+, hsize 6+	100.0	60.0	13.3	20.0	3.3	3.3	-	-	-	100.0	23.7	24.7	15.4	15.5	10.5	1.6	-	8.5
Davao City																		
single/separated, hsize=1	100.0	50.0	20.5	-	-	29.5	-	-	-	100.0	84.6	-	15.4	-	-	-	-	-
single w/ hsize>1	100.0	22.5	-	-	-	22.5	54.9	-	-	100.0	46.4	11.4	-	16.0	-	10.3	10.3	5.7
separated, hsize>1	100.0	59.7	13.4	-	13.4	-	-	-	13.4	100.0	55.9	10.6	-	16.5	6.4	-	10.6	-
married, hhead<30, hsize< or =3	100.0	56.4	25.4	-	-	-	18.2	-	-	100.0	-	54.7	-	17.0	-	-	-	28.3
married, hhead<30, 3<hsize<6	100.0	35.5	23.7	-	-	28.9	-	-	11.9	100.0	43.5	34.1	-	11.5	-	-	7.0	3.9
married, hhead<30, hsize 6+	100.0	33.3	50.0	-	-	-	-	-	16.7	100.0	100.0	-	-	-	-	-	-	-
married, hhead 30-39, hsize< or =3	100.0	50.0	-	-	-	50.0	-	-	-	100.0	55.9	44.1	-	-	-	-	-	-
married, hhead 30-39, 3<hsize<6	100.0	44.1	9.4	4.5	12.2	6.3	3.2	4.5	15.8	100.0	52.2	29.3	-	8.4	3.5	1.8	3.2	1.8
married, hhead 30-39, hsize 6+	100.0	30.8	7.3	-	10.5	3.7	19.4	19.4	8.9	100.0	38.8	30.1	-	28.0	-	-	-	3.1
married, hhead 40-49, hsize< or =3	100.0	50.0	33.3	-	-	-	-	-	16.7	100.0	48.6	19.4	-	-	17.4	-	-	14.6
married, hhead 40-49, 3<hsize<6	100.0	21.2	21.2	21.2	-	10.6	-	15.2	10.6	100.0	68.1	12.0	-	6.5	1.8	3.3	6.5	1.8
married, hhead 40-49, hsize 6+	100.0	40.0	14.2	7.8	17.6	6.4	7.5	3.8	2.6	100.0	48.9	17.0	5.2	17.6	2.9	-	2.6	5.8
married, hhead 50+, hsize< or =3	100.0	54.8	8.5	-	-	-	24.5	12.2	-	100.0	37.6	14.3	3.6	19.3	-	12.8	-	12.5
married, hhead 50+, 3<hsize<6	100.0	43.9	4.0	-	9.7	5.7	17.2	15.5	4.0	100.0	35.5	21.7	-	8.8	2.5	13.3	13.3	4.9
married, hhead 50+, hsize 6+	100.0	39.0	20.2	6.2	5.1	8.7	3.6	9.8	7.6	100.0	46.7	6.3	-	21.1	7.1	13.0	3.2	2.6

Appendix 10. Estimated Parameters^{a/} of Housing Demand Functions.

	Philippines		Urban		Rural		Metro Manila		Metro Cebu		Davao City ^{c/}	
	Owners	Renters	Owners	Renters	Owners	Renters	Owners	Renters	Owners	Renters	Owners	Renters
Constant	-4.846 (0.065)	-4.494 (0.245)	-4.330 (0.079)	-4.396 (0.258)	-4.504 (0.121)	-2.096 (0.994)	-4.242 (0.198)	-4.772 (0.396)	-2.137 (0.465)	-2.371 (1.074)	-3.313 (0.583)	-2.286 (1.639)
Income	1.035 (0.008)	1.032 (0.026)	1.043 (0.009)	1.043 (0.027)	0.975 (0.015)	0.546 (0.119)	1.026 (0.019)	1.118 (0.037)	0.874 (0.051)	1.005 (0.112)	0.933 (0.067)	0.590 (0.160)
Size	-0.375 (0.010)	-0.285 (0.030)	-0.385 (0.012)	-0.280 (0.030)	-0.340 (0.016)	-0.157 (0.137)	-0.314 (0.026)	-0.305 (0.043)	-0.250 (0.072)	-0.462 (0.128)	-0.309 (0.094)	-0.109 (0.151)
Housing Price ^{b/}	0.420 (0.006)	0.332 (0.019)	0.343 (0.007)	0.300 (0.020)	0.458 (0.010)	0.756 (0.105)	0.341 (0.021)	0.235 (0.030)	0.320 (0.043)	0.092 (0.060)	0.376 (0.059)	0.726 (0.135)
Price Elasticity ^{c/}	-0.300	-0.450	-0.430	0.500	-0.240	0.260	-0.038	-0.425	-0.420	-0.775	-0.320	0.825
R ²	0.745	0.620	0.742	0.600	0.600	0.590	0.735	0.557	0.693	0.651	0.710	0.584
Adjusted R ²	0.745	0.619	0.742	0.599	0.600	0.580	0.735	0.556	0.690	0.636	0.706	0.558

a/ All parameters significant at $s = 0.01$.

b/ Price data based on computed hedonic price by type of housing in each city.

c/ Price elasticity is obtained by untangling the price of land from structure using the following relationship:

$$E_p = b/K_L - 1 \quad \text{where } b = \text{parameter for land}$$

$$K_S = \text{share of structure housing: } 0.60$$

Appendix 11. Percentage Distribution of Household Expenditure.

Income Class	FOOD	ALBEV & TBCCO	FUEL	TRCOM	HOPER & PRCRE	CLOTH	EDUC	MEDIC	HOUSE	OTHERS
Philippines										
under 10,000	65.6	2.0	7.7	1.7	4.9	1.7	0.2	1.3	8.0	7.0
10,000-19,999	65.3	2.9	6.3	2.2	4.6	2.2	0.5	1.4	7.5	6.9
20,000-29,999	64.3	3.3	6.1	2.4	4.8	2.6	1.0	1.4	7.0	7.2
30,000-39,999	62.4	3.6	5.8	2.5	5.1	3.0	1.2	1.6	7.1	7.6
40,000-49,999	61.2	3.6	5.6	2.8	5.1	3.3	1.4	1.6	7.5	8.0
50,000-59,999	58.8	3.3	5.4	3.0	5.2	3.3	2.0	1.8	8.4	8.6
60,000-79,999	56.1	3.4	5.7	3.4	5.3	3.4	2.4	1.7	9.8	8.8
80,000-99,999	53.3	3.0	5.7	3.9	5.4	3.5	2.7	1.8	10.9	9.7
100,000-149,999	48.9	2.5	5.7	4.5	5.4	3.6	3.5	2.0	12.3	11.6
150,000-249,999	43.3	1.9	5.4	5.3	5.6	3.5	4.4	2.4	14.0	14.1
250,000-499,999	36.0	1.4	4.9	7.0	6.0	3.5	5.3	2.4	15.7	17.6
500,000 & over	21.9	0.7	4.4	10.0	6.2	2.6	4.8	2.7	25.3	21.4
Urban										
under 10,000	68.5	2.0	7.4	1.1	4.8	1.0	0.2	0.5	9.5	5.0
10,000-19,999	63.2	2.3	6.8	2.4	4.9	2.4	0.7	2.0	9.2	6.2
20,000-29,999	62.5	3.0	6.7	2.4	5.2	2.5	1.1	1.6	8.7	6.2
30,000-39,999	61.5	3.5	6.3	2.6	5.2	2.8	1.3	1.7	9.2	6.1
40,000-49,999	60.5	3.4	6.0	3.0	5.3	3.1	1.4	1.6	9.2	6.5
50,000-59,999	58.5	3.1	5.7	3.1	5.4	3.1	1.8	1.8	10.2	7.4
60,000-79,999	55.9	3.2	5.9	3.5	5.4	3.2	2.3	1.6	11.0	7.9
80,000-99,999	53.3	3.0	5.9	3.9	5.5	3.3	2.7	1.9	11.2	9.3
100,000-149,999	48.8	2.4	5.9	4.5	5.5	3.4	3.7	2.0	12.6	11.1
150,000-249,999	42.3	1.9	5.4	5.3	5.9	3.5	4.8	2.4	13.4	15.1
250,000-499,999	35.2	1.4	4.8	7.3	6.5	3.6	5.9	3.2	13.8	18.3
500,000 & over	25.9	0.9	4.1	9.6	6.8	3.2	6.4	3.9	15.7	23.4
Rural										
under 10,000	65.3	2.0	7.7	1.7	4.9	1.8	0.2	1.4	7.8	7.2
10,000-19,999	65.7	3.0	6.2	2.2	4.6	2.2	0.4	1.3	7.1	6.9
20,000-29,999	64.7	3.3	5.9	2.4	4.7	2.7	1.0	1.3	6.6	7.4
30,000-39,999	62.8	3.7	5.6	2.5	5.0	3.1	1.3	1.5	6.5	8.2
40,000-49,999	61.5	3.7	5.4	2.7	5.0	3.4	1.5	1.5	6.7	8.5
50,000-59,999	59.2	3.5	5.2	3.0	5.2	3.5	2.1	1.8	7.3	9.4
60,000-79,999	56.4	3.6	5.2	3.2	5.2	3.8	2.7	1.8	8.2	9.9
80,000-99,999	53.4	3.1	5.0	3.8	5.3	3.9	3.3	2.0	8.8	11.4
100,000-149,999	48.1	2.7	4.7	4.2	5.3	4.1	4.1	2.5	9.2	15.0
150,000-249,999	42.8	2.2	4.4	4.7	5.6	4.0	5.0	3.1	9.9	18.4
250,000-499,999	35.0	1.8	4.0	6.0	5.6	4.0	5.9	2.4	11.8	23.5
500,000 & over	26.5	1.7	3.1	9.1	5.6	3.6	6.6	3.6	12.0	28.2

ALBEV	alcoholic beverages	EDUC	education
TBCCO	tobacco	MEDIC	medical care
FUEL	fuel, light & water	HOUSE	rental of occupied dwelling unit and repair
TRCOM	transportation & communication services		
HOPER	household operation		
PRCRE	personal care & effects		
CLOTH	clothing, footwear, etc.		

Source: Family Income and Expenditure Survey, National Statistics Office 1997.

Appendix 11. Percentage Distribution of Household Expenditure. (con't)

Income Class	FOOD	ALBEV & TBCCO	FUEL	TRCOM	HOPER & PRCRE	CLOTH	EDUC	MEDIC	HOUSE	OTHERS
under 10,000	...	...	...	...	...	...	...	...	...	...
10,000-19,999	58.7	6.1	8.3	0.0	4.0	2.2	0.0	0.4	20.2	0.0
20,000-29,999	59.3	1.6	7.4	2.4	4.9	2.2	0.3	1.4	18.3	2.2
30,000-39,999	51.3	2.4	8.8	2.1	5.8	2.2	0.3	2.5	20.9	3.6
40,000-49,999	57.4	2.7	6.8	2.9	5.2	2.7	0.6	2.7	16.8	2.0
50,000-59,999	54.6	2.4	7.6	4.0	5.0	3.2	1.1	1.7	16.5	4.0
60,000-79,999	55.8	3.0	7.5	3.9	5.2	2.6	1.1	1.3	14.8	4.9
80,000-99,999	53.3	2.6	7.0	4.0	5.3	3.1	1.3	1.3	15.6	6.8
100,000-149,999	50.1	2.3	6.7	4.9	4.9	3.2	2.2	1.3	15.9	8.4
150,000-249,999	45.1	1.7	6.0	5.9	5.1	3.1	3.2	2.0	17.9	9.9
250,000-499,999	37.2	1.3	5.4	7.2	5.6	3.3	4.6	1.7	19.2	14.8
500,000 & over	20.2	0.6	4.6	10.2	6.0	2.3	4.1	2.1	29.7	20.0
Metro Cebu										
under 10,000	...	...	...	...	...	...	...	...	...	...
10,000-19,999	65.8	1.6	3.6	4.5	4.3	1.2	0.4	2.9	11.9	3.8
20,000-29,999	62.5	2.2	5.5	4.5	5.1	2.2	2.3	3.0	11.5	1.2
30,000-39,999	61.8	2.0	5.1	2.8	3.9	1.3	2.1	1.4	16.7	2.8
40,000-49,999	63.5	3.0	5.8	3.6	4.7	2.2	0.8	0.7	12.4	3.4
50,000-59,999	61.2	3.1	5.0	2.9	6.1	2.3	1.9	0.9	13.7	2.9
60,000-79,999	58.9	2.7	6.1	3.6	5.3	2.7	1.8	0.8	12.4	5.9
80,000-99,999	57.7	2.8	5.7	4.0	6.0	2.3	1.0	0.7	12.2	7.5
100,000-149,999	52.5	2.1	5.6	4.5	5.0	2.6	2.1	2.2	15.3	8.1
150,000-249,999	48.3	2.1	5.7	4.7	5.4	2.6	2.4	1.3	13.9	13.5
250,000-499,999	38.9	1.1	4.8	6.3	7.4	3.1	4.1	2.0	18.3	13.9
500,000 & over	25.3	0.5	4.1	14.3	6.2	2.1	3.1	6.2	23.9	14.0
Metro Davao										
under 10,000	...	...	...	...	...	...	...	...	...	...
10,000-19,999	58.9	0.2	4.1	1.0	5.6	4.0	0.0	3.0	15.4	7.9
20,000-29,999	55.8	1.2	4.9	1.5	5.1	3.8	0.2	4.0	17.3	6.2
30,000-39,999	60.5	6.2	4.6	3.9	4.9	3.1	2.9	2.3	9.0	2.7
40,000-49,999	61.0	4.6	4.2	3.7	4.6	3.2	0.9	2.5	10.9	4.4
50,000-59,999	55.2	3.3	4.8	3.5	5.2	3.1	2.3	1.6	8.4	12.4
60,000-79,999	55.3	4.3	4.2	4.1	5.4	4.1	1.5	2.8	9.2	9.1
80,000-99,999	53.5	3.3	4.4	4.7	5.6	3.8	2.5	2.4	8.7	11.0
100,000-149,999	50.8	2.9	4.4	5.2	5.5	4.5	3.3	2.0	11.2	10.2
150,000-249,999	41.9	1.8	4.4	7.7	5.9	4.1	3.9	2.7	12.9	14.8
250,000-499,999	33.8	1.4	4.4	10.3	6.8	4.1	4.3	2.1	11.8	21.0
500,000 & over	25.4	0.9	3.3	12.8	5.4	3.0	3.8	4.4	11.9	29.1

ALBEV	alcoholic beverages	EDUC	education
TBCCO	tobacco	MEDIC	medical care
FUEL	fuel, light & water	HOUSE	rental of occupied dwelling unit and repair
TRCOM	transportation & communication services		
HOPER	household operation		
PRCRE	personal care & effects		
CLOTH	clothing, footwear, etc.		

Source: Family Income and Expenditure Survey, National Statistics Office 1997.