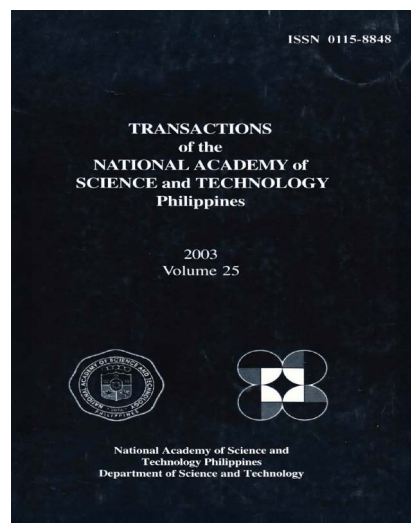


Transactions NAST PHL, is the official journal of the National Academy of Science and Technology Philippines. It has traditionally published papers presented during the Academy's Annual Scientific Meeting since 1979 to promote science-based policy discussions of and recommendations on timely and relevant national issues as part of its functions as a national science academy. Starting in 2021, this journal has been open to contributions from the global scientific community in all fields of science and technology.

---



# Demand for Housing in the Metropolitan Cities of the Philippines

Marife M. Ballesteros

Senior Research Fellow  
Philippine Institute for Development Studies

---

## Citation

Ballesteros MM. 2003. Demand for housing in the metropolitan cities of the Philippines. Transactions NAST PHL 25(2): 450-466. [doi.org/10.57043/transnastphl.2003.4751](https://doi.org/10.57043/transnastphl.2003.4751)

## Copyright

© 2003 Ballesteros MM

## **DEMAND FOR HOUSING IN THE METROPOLISES OF THE PHILIPPINES**

**Marife M. Ballesteros**

Senior Research Fellow

Philippine Institute for Development Studies

[mballesteros@mail.pids.gov.ph](mailto:mballesteros@mail.pids.gov.ph)

### **Abstract**

This paper adds to the existing literature on the housing demand behavior of households in the Philippines. Unlike previous studies on housing demand, the paper compares major metropolitan cities – Metro Manila, Metro Cebu and Metro Davao and uses a panel set of households instead of single year household data in the analysis. The results show that housing demand for owners or amortizing owners is income elastic for both poor and non-poor households in the key metropolises of the country. Even chronically poor households are willing to spend more of income on improvements in tenure and dwelling conditions. The rate of improvements, however, is also affected by location. Tenure change and improvements in dwelling in Metro Cebu and Davao City are modest compared to Metro Manila. In the case of renter households, demand for housing is income inelastic. Renter-households have less incentive to spend a higher proportion of additional income on housing. These findings suggest that shelter design projects of government should adopt a more realistic and variable basis of households housing expenditure. It also suggests the need to develop the low cost rental housing market where the bulk of subsidies should be channeled instead of programs on homeownership. This will not only provide efficient targeting but also lessen housing in illegal settlements.

**Key words:** housing demand, housing consumption, urban housing

### Introduction

The world population is becoming predominantly urban. Among developing countries, the Philippines has one of the highest rate of urbanization. Today, about 52% of the country's population lives in urban areas and by 2015 this proportion is projected to increase to 68% (UNCHS 2001). Recent trends also saw the emergence of new "metropolises" in other regions in the country. For a long time, the metropolitan character has only been associated with Manila, the premier city in the Philippines. In the 1990s, however, the word "metro" has been attached to other cities as well (e.g. Metro Cebu and Metro Davao). Although these new metropolises have not yet reached the megacity environment of Metro Manila, they displayed significant increases in population with urban settlements that have extended across several local government boundaries.<sup>1</sup>

The high rate of urbanization, however, has become a concern because this has not been matched by high per capita income as well as shift of labor employment from low to high productivity areas (the over urbanization phenomenon). Urban poverty and unemployment rates are thus high. Moreover, existing infrastructure within the metropolises has been least capable of supporting a growing population.

The above conditions have been visible in the housing conditions in the country. Slum and squatter settlements are growing and many households lack safe, secure and healthy shelter with basic infrastructure such as piped water, sanitation drainage and access roads.<sup>2</sup> In coping with this problem, government has devised a wide range of programs and policies to meet the need for decent shelter. The ability of the government to come up with appropriate or to improve on policy instruments, however, is tied to availability of basic information in particular, on the market behavior of households.

This paper provides additional information on the housing demand behavior of households in the Philippines. Unlike previous studies, the paper provides comparisons for major metropolitan cities – Metro Manila, Metro Cebu and Metro Davao and uses panel data instead of single year cross-section household data in the analysis. This paper further shows housing consumption patterns of urban households and estimates of income elasticity of housing demand and discusses the implications of the results on government housing programs and suggests some policy recommendations.

---

<sup>1</sup> Metropolis refers to a large urban settlement with at least one million population. The United Nations has defined some metropolis having a population of 8 million and over as megalopolies or megacities.

<sup>2</sup> This condition has been referred to as "housing poverty", a concept introduced by the UNCHS (Habitat) in the 1996 Global Report on Human Settlements.

### Data and Methods

The paper uses panel data of 17,896 households in the Philippines made available by the National Statistics Office (NSO). The households include subsamples of the 1997 Family Income and Expenditures Survey (FIES) and the 1998 and 1999 Annual Poverty Indicators Surveys (APIS). From the panel data, a study of movements in and out of poverty has been conducted from which the chronic poor, the transient poor and non-poor households have been identified.<sup>3</sup> Based on the poverty threshold measures, chronic poor are those households who are poor in 1997, 1998 and 1999 (PPP) while non-poor households are those households who remained non-poor on the years indicated (NNN). The transient poor include those households who are non-poor in 1997 or 1998 and poor in 1999. The distribution of the panel household data based on these categories is presented in Table 1. For this paper we only include those households in the three major cities, Metro Manila, Metro Cebu and Metro Davao.<sup>4</sup>

**Table 1. Number and Percent of Families by status of Poverty**

Status of Poverty a/	Total (Philippines)		Metro Manila		Metro Cebu		Davao City	
	No. of Families	%	No. of Families	%	No. of Families	%	No. of Families	%
PPP Poor, Poor, Poor	3,881	21.7	60	3.6	16	5.0	14	7.3
PPN Poor, Poor, Non-poor	665	3.7	29	1.7	2	0.6	3	1.6
PNP Poor, Non-poor, Poor	578	3.2	20	1.2	2	0.6	3	1.6
PNN Poor, Non-Poor, Non-poor	488	2.7	22	1.3	6	1.9	3	1.6
NPP Poor, Non-Poor, Non-poor	1,551	8.7	74	4.4	19	5.9	15	7.9
NPN Poor, Non-Poor, Non-poor	1,154	6.4	107	6.4	23	7.2	10	5.2
NNP Poor, Non-Poor, Non-poor	1,277	7.1	129	7.7	24	7.5	18	9.4
NNN Non-poor, Non-Poor, Non-poor	8,302	46.4	1,230	73.6	228	71.3	125	65.4
<b>TOTAL</b>	<b>17,896</b>	<b>100</b>	<b>1,671</b>	<b>100</b>	<b>320</b>	<b>100</b>	<b>191</b>	<b>100</b>

a/ Refer to status of poverty for the years 1997 to 1999. Matched Public Use Files of the 1997 FIES and 1998 & 1999 APIS

<sup>3</sup> The period in review correspond to those years when poverty incidence is about 40% (1998 and 1999). While three years may be too short to define chronic poor, data constraints do not permit an alternative definition. For a detailed account of the classification of households based on poverty status refer to the paper by Reyes (2002).

<sup>4</sup> Metro Cebu is composed of Cebu City, Lapu-lapu and Mandaue. For Metro Davao, three metropolitan models are proposed- Model 1 includes only Davao City; Model 2 consists of Davao City, Panabo and Sta. Cruz; and Model 3 consist of Davao City, Tagum and Davao Oriental (Manasan 2001). For this paper, we adopt Model 1 due to data availability.

Descriptive statistics and econometric analysis have been employed to measure the demand for housing in specific cities in the Philippines. In particular, the econometric analysis on housing demand is based on Alonso's classic utility maximization framework whereby a household's choice of 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 analyze individual household's decision in the case of housing services (Strazheim 1975). Households are assumed to choose a set of housing attributes 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). In this study we used a simple model of housing demand assuming constant taste and that household size dominates other demographic variables. The estimating equation is as follows:

$$R = R(Y, H), \text{ where } R \text{ is rent (} R = \text{Price} \times \text{Quantity});$$

Y is income and  
H is household size

A straightforward logarithmic specification is as follows:

$$\ln R = a + E_y (\ln Y) + b \ln H + u,$$

Where  $E_y$  is the income elasticity of demand:  $a$ ,  $b$  are regression coefficients and  $u$  is an estimated disturbance allowance.

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 is shown to be the relevant variable in consumers' housing decision and total household expenditure has been commonly used to approximate permanent income (Friedman et al 1988).

While it is desirable to include other demographic variables and price, this is not possible because of data limitation. The major limitations of such specification are well known, however, the results of the simple housing demand model and comparisons made with results from a complete model showed that such specification is free of major biases (Malpezzi and Mayo 1987).

The estimation method used for the panel data is the random effects or generalized least square technique. Simple regression analysis on panel data has been shown to provide bias estimates and does not incorporate the effects of time or variation in demand across time (Pindyck and Rubinfeld 1998). The results of OLS and generalized least square technique are provided for comparison.

## Results and Discussion

### Tenure Change and Housing Improvements in Key Urban Areas

How do households adjust their housing consumption given factors that place them out of equilibrium? Housing adjustments may be done by relocating to another unit, modifying an existing unit or change in tenure status (e.g. renting to homeownership).

Table 2. presents tenure change of households across income levels during the period 1997 to 1999.

In general, both the chronic poor and non-poor households tend toward obtaining what may be considered the best tenure status, i.e. homeownership of house and lot. However, the ability of households to do so differs across income and locality. In Metro Manila, the poor has a greater ability to move to homeownership and are less vulnerable to economic downturns compared to the poor in Metro Cebu and Davao City. Between 1997 and 1999, about 21% of the chronic poor households in Metro Manila acquired ownership or have become amortizing owners of house and lot. These poor households used to rent or were staying in housing rent-free or in illegal settlements prior to homeownership. On the other hand, in Metro Cebu, the economic downturn in 1998 has adversely affected homeownership. Poor households who are amortizing homeowners in 1997/1998 were unable to sustain ownership and moved to housing in illegal settlements. A similar trend is noted in Davao City although many households moved in or occupied housing units rent free.

In the case of non-poor households, the natural progression as expected is toward homeownership. This is noted for NCR, Metro Cebu and Davao City. In Davao City, however, homeownership is more vulnerable to economic shocks. In general, non-poor households move out of renting or rent-free status to homeownership or housing in informal settlements. Except in Davao City where the cost of rental housing is comparatively low, the preference for renting among households in Metro Manila and Metro Cebu is very low.

Housing in illegal settlements is observed to be the main alternative to homeownership in all metropolises and across income class. Unlike in developed countries where rental housing is the alternative to homeownership, in developing countries such as the Philippines, illegal settlement (or squatting) is the more common alternative housing. This may be attributed to the following conditions: first, the high cost of rental housing in metropolises; second, government pro-

Table 2. Tenure Trends by Poverty Status, 1997-1999 (In % of families)

	PPP		Total Percent		NNN		Total Percent Increase (Decrease)
	1997	1998	1999	Increase (Decrease)	1997	1998	
<b>Metro Manila</b>							
Own or amortizing house and lot	100.0	100.0	100.0		100.0	100.0	100.0
Rent house/room including lot	36.7	50.0	58.3	21.7	51.1	58.0	57.2
Own house, rent lot	26.7	16.7	18.3	(8.3)	25.3	24.3	23.9
Own/rent-free house, rent-free lot with consent of owner	3.3	1.7	3.3	0.0	5.4	3.7	2.7
Own/rent-free house, rent-free lot w/o consent of owner	15.0	15.0	6.7	(8.3)	12.8	9.1	10.4
	18.3	16.7	13.3	(5.0)	5.4	4.8	5.8
<b>Metro Cebu</b>							
Own or amortizing house and lot	100.0	100.0	100.0		100.0	100.0	100.0
Rent house/room including lot	56.3	62.5	43.8	(12.5)	49.1	53.5	61.0
Own house, rent lot	6.3	6.3	6.3	0.0	10.1	11.4	10.5
Own/rent-free house, rent-free lot with consent of owner	18.8	12.5	6.3	(12.5)	12.3	14.9	10.5
Own/rent-free house, rent-free lot w/o consent of owner	6.3	6.3	12.5	6.3	18.9	13.6	11.8
	12.5	12.5	31.3	18.8	9.6	6.6	6.1
<b>Davao City</b>							
Own or amortizing house and lot	100.0	100.0	100.0		100.0	100.0	100.0
Rent house/room including lot	35.7	42.9	35.7	0.0	61.6	73.6	62.4
Own house, rent lot	7.1	7.1	14.3	7.1	8.0	7.2	9.6
Own/rent-free house, rent-free lot with consent of owner	28.6	21.4	-	(28.6)	8.0	6.4	5.6
Own/rent-free house, rent-free lot w/o consent of owner	28.6	28.6	42.9	14.3	19.2	12.8	9.6
	-	-	7.1	7.1	3.2	-	12.8

Source of basic data: Matched Public Use Files of the 1997 FIES and the 1998 APIS

grams such as the Community Mortgage Program, which allow households in informal settlements to buy the land they are currently occupying using highly subsidized government funds, provide an incentive to households even among non-poor households. As noted in various studies, non-poor households exist in depressed settlements. For instance, a study of depressed settlements in Metro Manila indicated a mean monthly income of P25,440 (median of P17,080) in squatter settlements (non-CMP) as of 2001 (PADCO 2002). Considering a household size of 6.75 (average HH size in depressed communities), the annual per capita income of P30,364 is much higher than the annual per capita poverty threshold of P19,484 in 2001 in Metro Manila.<sup>5</sup>

Table 3 presents the extent of improvements in the dwelling conditions of households in major metropolitan areas. In general, dwelling conditions for both poor and non-poor households improved considerably despite economic crisis. Improvements are highest among poor households specifically in terms of structure and toilet facilities. In Metro Manila housing made of makeshift walls declined by 35 percent and 1.4 percent for poor and non-poor households, respectively. Moreover, about 17 percent of poor households have acquired water-sealed toilets. In terms of water facility, however, a large percentage (40%) of the poor households is still dependent on peddled water and the proportion has increased through time. Poor households are paying more for peddled water than those households connected to a community water system (ADB 2000). Unfortunately, the poor water infrastructure in the country makes it difficult for the poor to access piped water. This problem also confronts some non-poor households specifically those in hilly areas where the cost of installing piped water is very high.

In Metro Cebu, improvements in dwelling conditions are modest. Although there have been an increase in households with water-sealed toilets and with own faucet system, the proportion of households with no toilets and household dependent on peddled water increased by a greater proportion. This has also been observed in some instances among non-poor households. There were also households who used to occupy housing with strong walls but are now occupying makeshift housing. It is important to note that these changes are independent of a change in tenure status. Thus, this does not imply that housing conditions have worsened but that better conditions of dwelling may have been given up for more secure tenure (e.g. from renting to ownership).

In Davao City, there is very little improvement in dwelling conditions for the poor and non-poor households. However, in the case of the non-poor households, the proportion of households with water-sealed toilets and own piped-water system is already high compared Metro Cebu and Metro Manila. For instance, about 92 percent of households in Davao City have water-sealed

---

<sup>5</sup>Per capita poverty threshold for 2001 estimated using a 10% inflation rate on the 2000 poverty threshold.



Table 3. Tenure Trends by Poverty Status, 1997-1999 (In % of families)

	PPP		Total Percent		NNN		Total Percent Increase (Decrease)
	1997	1998	1999	Increase (Decrease)	1997	1998	
<b>National Capital Region</b>							
Strong Wall	48.3	66.7	86.7	38.3	89.6	91.2	94.6
Makeshift Wall	36.7	15.0	1.7	(35)	3.3	2.8	2.0
Water-sealed Toilet	70.0	71.7	86.7	16.7	88.0	89.1	95.7
No Toilet	13.3	6.7	5.0	(8.3)	0.8	0.8	0.9
Own usc. Faucet							
Community Water System	16.7	8.3	20.0	3.3	56.6	54.1	57.2
Peddler	30.0	35.0	40.0	10.0	8.4	9.9	12.4
<b>Metro Cebu</b>							
Strong Wall	37.5	56.3	43.8	6.3	77.2	86.0	68.4
Makeshift Wall	12.5	-	18.8	6.3	1.3	2.2	7.9
Water-sealed Toilet	18.8	31.3	25	6.3	82.5	81.6	84.6
No Toilet	43.8	62.5	68.8	25.0	0.4	9.2	11.0
Own usc. Faucet							
Community Water System	-	18.8	18.8	18.8	26.8	27.2	39.0
Peddler	12.5	6.3	37.5	25.0	11.4	1.3	5.3
<b>Davao City</b>							
Strong Wall	71.4	64.3	71.4	-	94.4	88.8	95.2
Makeshift Wall	-	-	7.1	-	0.8	1.6	1.6
Water-sealed Toilet	50.0	57.1	57.1	7.1	92.8	87.2	92.8
No Toilet	-	35.7	21.4	14.3	-	3.2	0.8
Own usc. Faucet,							
Community Water System	7.1	7.1	14.3	7.1	64.8	64.8	76.0
Peddler	-	7.1	-	-	6.4	2.4	4.8

Source of basic data: Matched Public Use Files of the 1997 FIES and the 1998 APIS

toilets compared to only 84 percent in Metro Cebu. Also, while 76 percent of households in Davao have their own faucet and are connected to community water system, only 57 percent of households in Metro Manila enjoy such facility.

Improvements in dwellings have not been limited to households with secure tenures (Tables 4 and 5). Urban households occupying informal dwellings have likewise showed much improved housing conditions. For instance, in Metro Manila and Metro Cebu poor households in illegal settlements have significantly improved wall material and water facility. In Davao City, the proportion of poor households with water-sealed toilet facility increased. It is important to note that poor households who are in rental housing enjoy better toilet and water facilities compared to those who own/amortize their homes.

### **Income Elasticity of Housing Demand in Key Urban Cities**

Housing demand to a large extent has been dictated by income. Income elasticity of housing demand differs between owners and renters. For owners or amortizing owners, income elasticity estimates range from 1.05 to 1.12 in Metro Manila, 1.38 to 1.65 in Metro Cebu and 1.33 to 1.48 in Davao City (Figure 1). These estimates show that housing demand is income elastic for the key metropolises in the country. Income elastic demand implies that housing expenditure of owner or amortizing owner households are highly responsive to a change in income. These households are most likely to spend higher percentage of additional income on housing.

On the other hand, renter households have income inelastic demand for housing. Point estimate of income elasticity of renters is less than unity for Metro Manila, Metro Cebu and Davao City (Figure 2). This has also been noted in both poor and non-poor households. This implies that renter-households spend less of additional income on housing. There is less incentive to improve on dwelling conditions as expected because households do not own the dwelling.

Table 4. Housing Improvement by Tenure, Chronic Poor Households (PPP) (in % of families)

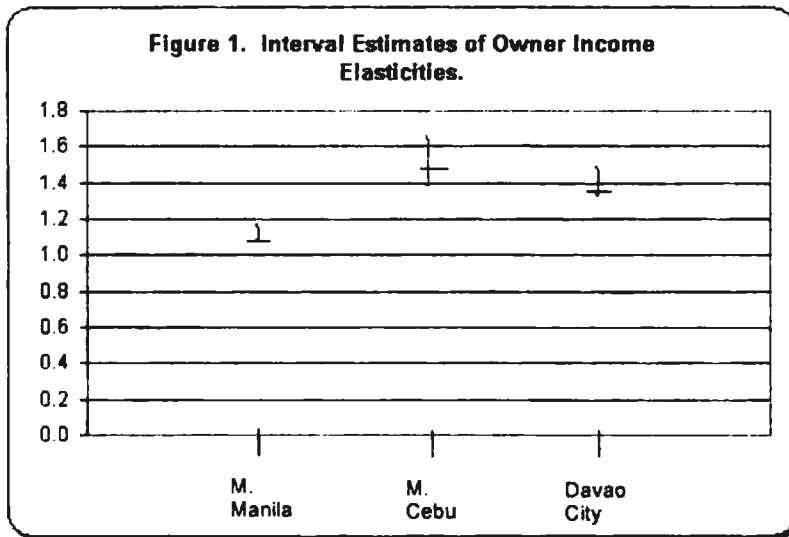
	Wall Material						Toilet Facility						Source of Water Supply						
	Strong Walls		Makeshift Walls		Water-sealed Toilet		No toilet		Own use faucet, community water system		Podded Water		Own use faucet, community water system		Podded Water				
	1997	1998	1999	1997	1998	1999	1997	1998	1999	1997	1998	1999	1997	1998	1999	1997	1998	1999	
<b>National Capital Region</b>																			
Own or amortizing house and lot	50.0	63.6	90.9	36.4	13.6	4.5	77.3	86.4	86.4	4.5	-	9.1	27.3	4.5	18.2	18.2	40.9	45.5	
Rent house/room including lot	37.5	93.8	87.5	43.8	6.3	-	81.3	68.8	93.8	-	6.3	-	18.8	18.8	25.0	25.0	25.0	37.5	
Own house, rent lot	100.0	100.0	100.0	-	-	-	50.0	100.0	100.0	-	-	-	-	-	50.0	50.0	50.0	50.0	
Own/rent-free house, rent-free lot with consent of owner	66.7	33.3	77.8	22.2	33.3	-	55.6	77.8	77.8	22.2	-	11.1	11.1	11.1	11.1	33.3	22.2	22.2	
Own/rent-free house, rent-free lot w/o consent of owner	36.4	54.5	81.8	45.5	18.2	-	54.5	36.4	81.8	45.5	27.3	-	-	-	18.2	54.5	45.5	45.5	
<b>Metro Cebu</b>																			
Own or amortizing house and lot	22.2	44.4	55.6	11.1	-	11.1	-	-	-	55.6	88.9	100.0	-	-	-	11.1	11.1	55.6	
Rent house/room including lot	100.0	-	100.0	-	-	-	100.0	100.0	100.0	-	-	-	-	-	-	-	-	-	
Own house, rent lot	66.7	100.0	33.3	33.3	-	33.3	66.7	33.3	33.3	33.3	33.3	33.3	-	66.7	33.3	-	-	-	
Own/rent-free house, rent-free lot with consent of owner	-	-	-	-	-	-	-	-	-	100.0	100.0	100.0	-	-	-	100.0	-	100.0	
Own/rent-free house, rent-free lot w/o consent of owner	50.0	100.0	-	-	-	50.0	-	100.0	100.0	-	-	-	-	-	50.0	100.0	-	-	
<b>Davao City</b>																			
Own or amortizing house and lot	100.0	80.0	80.0	-	-	-	60.0	80.0	80.0	-	-	-	20.0	-	20.0	-	-	-	
Rent house/room including lot	-	100.0	100.0	-	-	-	100.0	100.0	100.0	-	-	-	-	-	100.0	100.0	-	-	
Own house, rent lot	50.0	50.0	25.0	-	-	25.0	50.0	50.0	25.0	-	50.0	25.0	-	-	-	-	-	-	
Own/rent-free house, rent-free lot with consent of owner	75.0	50.0	100.0	-	-	-	25.0	25.0	50.0	75.0	50.0	-	-	-	-	-	-	25.0	
Own/rent-free house, rent-free lot w/o consent of owner	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Source of basic data: Matched Public Use Files of the 1997 Family Income and Expenditures Survey, and the 1998 and 1999 Annual Poverty Indicators Survey

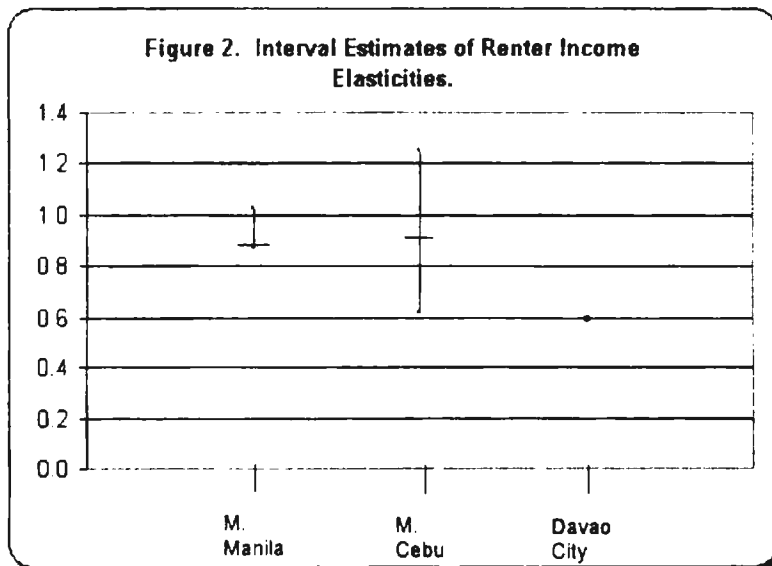
Table 5. Housing Improvement by Tenure, Non-Poor Households (NNN) (in % of families)

	Wall Material				Toilet Facility				Source of Water Supply									
	Strong Walls		Makeshift Walls		Water-sealed Toilet		No toilet		Own use faucet, community water system		Peddled Water							
	1997	1998	1999	1997	1998	1999	1997	1998	1999	1997	1998	1999						
<b>National Capital Region</b>																		
Own or amortizing house and lot	91.7	93.2	95.7	2.4	2.2	1.0	88.9	89.3	96.3	0.5	0.3	0.2	63.5	58.6	63.5	5.3	8.1	10.8
Rent house/room including lot	90.0	92.6	93.9	4.2	2.9	2.3	89.4	92.0	93.9	0.3	1.0	1.9	55.9	53.4	52.7	9.0	10.0	10.6
Own house, rent lot	88.1	92.5	95.5	-	1.5	1.5	82.1	89.6	100.0	1.5	1.5	-	59.7	59.7	68.7	1.5	17.9	7.5
Own/rent-free house, rent-free lot with consent of owner	85.4	84.2	91.8	4.4	5.7	5.1	88.6	0.3	95.6	1.9	1.3	1.3	45.6	49.4	50.6	10.1	7.0	14.6
Own/rent-free house, rent-free lot w/o consent of owner	78.8	81.8	93.9	9.1	3.0	3.0	78.8	1.0	93.9	3.0	3.0	3.0	16.7	21.2	21.2	37.9	25.8	34.8
<b>Metro Cebu</b>																		
Own or amortizing house and lot	88.4	91.1	80.4	0.9	1.8	6.3	84.8	84.8	86.6	-	8.9	9.8	33.0	27.7	44.6	2.7	0.9	0.9
Rent house/room including lot	78.3	78.3	73.9	4.3	8.7	4.3	95.7	78.3	100.0	-	13.0	-	21.7	26.1	34.8	4.3	-	4.3
Own house, rent lot	67.9	78.6	53.6	-	3.6	3.6	89.3	75.0	89.3	-	-	7.1	17.9	25.0	42.9	14.3	3.6	-
Own/rent-free house, rent-free lot with consent of owner	62.8	83.7	58.1	2.3	-	9.3	69.8	79.1	72.1	2.3	14.0	20.9	20.9	20.9	23.3	23.3	2.3	18.6
Own/rent-free house, rent-free lot w/o consent of owner	59.1	81.8	40.9	-	-	22.7	72.7	81.8	77.3	-	9.1	13.6	22.7	40.9	18.2	36.4	-	9.1
<b>Davao City</b>																		
Own or amortizing house and lot	98.7	97.4	100.0	-	1.3	-	96.1	90.9	94.8	-	1.3	-	77.9	79.2	85.7	5.2	1.3	3.9
Rent house/room including lot	80.0	90.0	100.0	-	-	-	80.0	90.0	90.0	-	10.0	-	50.0	70.0	70.0	10.0	10.0	10.0
Own house, rent lot	90.0	70.0	70.0	-	-	10.0	90.0	90.0	90.0	-	-	-	40.0	50.0	60.0	-	-	-
Own/rent-free house, rent-free lot with consent of owner	87.5	66.7	91.7	4.2	4.2	-	87.5	75.0	87.5	-	4.2	4.2	37.5	25.0	58.3	8.3	4.2	4.2
Own/rent-free house, rent-free lot w/o consent of owner	100.0	100.0	75.0	-	-	25.0	100.0	75.0	100.0	-	25.0	-	75.0	50.0	50.0	25.0	-	25.0

Source of basic data: Matched Public Use Files of the 1997 Family Income and Expenditures Survey, and the 1998 and 1999 Annual Poverty Indicators Survey



**Figure 1. Interval Estimates of Owner Income Elasticities**



**Figure 2. Interval Estimates of Owner Income Elasticities**

Source: See Appendix Tables 1, 2 & 3 for details.

An income elastic demand for housing is noted for both poor and non-poor households but this is observed mainly in Metro Cebu and Davao City (Table 6). In these metropolises, chronically poor households are willing to spend more of income on improvements in housing tenure and dwelling conditions. On the other hand, chronically poor households in Metro Manila, have inelastic demand for housing. There is less of additional income spent on housing probably because the cost of living in Metro Manila is higher than in Metro Cebu and Davao City.

**Table 6. Income Elasticity of Housing Demand by Income Group, Owners and Renters**

City	Owners		Renters	
	Chronic Poor	Non-Poor	Chronic Poor	Non-Poor
<b>Metro Manila</b>				
Income Elasticity Point Estimate	0.9883	1.1214	0.9345	0.9432
Income Elasticity Interval Estimate	0.8845-1.0922	1.0784-1.1645	0.7760-1.0930	0.8641-1.0222
z-stat	18.69 a/	51.09	11.56	23.39
<b>Metro Cebu</b>				
Income Elasticity Point Estimate	1.5521	1.5740	-	0.8694
Income Elasticity Interval Estimate	1.2157-1.8885	1.4305-1.7175	-	0.5570-1.1820
z-stat	9.12 a/	21.55 a/	-	5.46
<b>Davao City</b>				
Income Elasticity Point Estimate	1.3821	1.3480	-	-
Income Elasticity Interval Estimate	1.2263-1.5379	1.2618-1.4342	-	-
z-stat	17.39	30.65	-	-

a/ Estimated using OLS see Appendix Tables 4, 5, & 6 for details of results.  
 - test not significant due to limited sample

The income elasticity estimates are consistent with recent literature on housing demand in Metro Manila using single year household data (Table 7). The use of panel data, however, yielded less divergent results. Studies in the early 1980s from special household survey data showed an income inelastic demand for housing. Active government intervention in the housing market and other institutional reform may have provided changes in households demand behavior.

**Table 7. Summary of Previous Housing Demand Studies in the Philippines**

Author	Place	Survey Year	Income Elasticity
Angeles	Philippines (HDMF or Pag-ibig members)	1982 a/	0.26 (owners) 0.074 (renters)
Malpezzi and Mayo	Manila City	1983	0.57 (owners) 0.56 (renters)
	Davao	1979	0.99 (owners) 0.88 (renters)
Aalan Development Bank	Metro Manila Philippines	1997 FIES	1.11 (pooled owners & renters) 1.32 (pooled owners & renters)
Ballesteros	Metro Manila	1997 FIES	1.14 (owners) 1.17 (owners)
	Metro Cebu		1.31 (owners) 1.16 (owners)
	Davao		1.15 (owners) 0.91 (owners)
Cacnio	Metro Manila & Region 4 (CMP Sites)	2000	0.99 (owners)

a/ results based on mailed questionnaires

HDMF = Home Development and Mutual Fund

FIES = Family Income and Expenditure Survey

CMP = Community Mortgage Program

### **Implications of Results for Shelter Project Design**

Government strategies on housing evolved into an extensive list of policy instruments that include direct production, pricing subsidies, security in land tenure, tax and credit incentives, financial subsidies, zoning and building regulation and rent controls. Duebel (2000) shows that the Philippine government has spent substantially more on housing subsidies than on any other welfare program in the country.<sup>6</sup> By and large, however, such housing policies and programs did not work. Public housing did not reach most of the rapidly growing urban areas because the high subsidy scheme has not been sustainable and thus could only be extended to a few. Moreover, public housing did not respond to the real demands of households – i.e. location and/or basic infrastructures are poor and thus these houses are often left unoccupied.

A major shortcoming of these projects is the poor assessment of housing affordability of households. The most common assumption is that low-to-moderate income households specifically those in the informal sector could spend an average of 25% of incomes for shelter and related services. Results show that while some households have very low affordability levels the income elastic demand for housing implies that the share of housing expenditures tend to increase with increases in income. Households' expenditure for housing is highly variable and thus affordability estimates should not be pegged to a constant proportion of income. Instead, a careful socio-economic profiling of beneficiaries or target population should be done and subsidies be targeted to those who are needy.

The incomes of poor households are volatile. The kinds of intervention that may be needed are provision of livelihood, insurance and income stabilization policies. While government insurance and income stabilization policies are at work, an alternative housing is necessary and this highlights the importance of low cost rental housing as a "staging area". Rental housing can provide poor families with better housing facilities than housing in illegal settlements. Rental housing can be designed to provide more secure tenure and possibilities of ownership as incomes improve. Subsidies thus should be channeled in the rental housing market than in financing homeownership. Under the current program of homeownership (including that of the Community Mortgage Program), studies have shown that the bulk of subsidies are mainly captured by middle and high income households (Llanto and Orbeta 2001; Ballesteros 2002).

The income elastic demand and the heterogeneity of households also imply that adopting an overall strategy of homeownership to low-and-moderate income households is inappropriate. This bias on homeownership tends to distort the

---

<sup>6</sup> For instance, public retail mortgages exposure in the Philippines, including developer guaranty amount to about 4.5% of GDP for the period 1994-1999 Duebel (2000).



market by encouraging housing in settlements without consent of owners. The development of the rental market has been limited by these programs and government has to shift its thinking with regard to housing the poor.

Finally, government has to view the housing problem in its entirety and not simply a welfare issue. Demand and supply constraints that contribute to the housing problem must be given as much attention as subsidy. On the demand side, financing and population issues have major impact on housing solutions. On the other hand, constraints in the supply side include inefficiencies in the land market, the financial market and in regional/infrastructure development.

### References

Angeles F. 1985. Public policy and the Philippine housing market. Monograph Series No. 7. Philippine Institute for Development Studies: Makati City, Metro Manila

Asian Development Bank. 2000. Philippine water and sanitation sector study. ADB: Manila

\_\_\_\_\_. 2000. Asian Development Outlook. 1999. London: Oxford University Press

\_\_\_\_\_. 2001. Housing sector profile: Philippines. Asian Development Bank: Manila

Ballesteros M. 2002. The dynamics of housing demand in the Philippines: income and lifecycle effects. Research Paper Series 2002-01. Philippine Institute for Development Studies: Makati City, Metro Manila.

\_\_\_\_\_. 2002. Rethinking institutional reforms in the housing sector. Discussion Paper 2002-21. Philippine Institute for Development Studies: Makati City, Metro Manila

Cacnio F. 2001. Microfinance approach to housing: the community mortgage program. Discussion Paper 2001-28. Philippine Institute for Development Studies: Makati City, Metro Manila.

Duebel A 2000. Separating homeownership subsidies from finance: traditional mortgage market policies, recent reforms and lessons for subsidy reform. Land and Real Estate Initiative 14. Urban and Local Government Sector. The World Bank.

Friedman J, Jimenez E, Mayo S. 1988. Demand for tenure security in developing countries. *J. Development Economics* 29: 185-198

Llanto D, Orbeta A. 2001. The state of Philippine housing programs: a critical look at how Philippine housing subsidies work. Philippine Institute for Development Studies: Makati City, Metro Manila.

Malpezzi S, Mayo S. 1987. The demand for housing in developing countries: empirical estimates from household data. *Economic Development and Cultural Change* 35: (4): 687-721.

Manasan R. 2002. Managing urbanization under a decentralized governance Framework. Philippine Institute for Development Studies: Manila

Pindyck R, Rubinfeld D. 1991. *Econometric models and econometric forecast*, 3rd Ed. Singapore, McGraw Hill

Planning and Development Collaborative International (PADCO). 2002. Metro manila urban services for the poor. Asian Development Bank and HUDCC: Manila

Reyes C. 2002. The poverty fight: have we made an impact?. Discussion Paper No. 2002-20. Philippine Institute for Development Studies: Makati City, Metro Manila.

Straszheim M. 1975. An economic analysis of the urban housing market. National Bureau of Economic Research, Urban and Regional Studies No. 2. New York: Columbia University Press

Struyk R, Hoffman M, Katsura H. 1990. The market for shelter in Indonesian cities. Washington: The Urban Land Institute.

United Nations Centre for Human Settlements. 2001. The state of the world's cities. UNCHS: Nairobi.