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THE DEMAND FOR TENURE SECURITY IN DEVELOPING COUNTRIES*

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We use survey data for Manila, the Philippines, to estimate hedonic functions for formal and squatter housing values. We show that on average a rented squatter unit in Manila would rent for 15 percent more if it were a formal sector unit. An owned squatter unit would sell for 25 percent more if it were a formal sector unit. These percentages are interpreted as eviction risk discount for squatter dwellings. We conclude that assistance projects that provide secure tenure over a wide area will bestow comparatively greater benefits on lower income households, and to those in newer less established settlements, since the risks that they bear initially are greater.

1. Introduction

Squatting is a major form of housing tenure in developing countries. Recent estimates indicate that from 20 to 40 percent of the population of the world's largest cities are squatter households who do not rent or legally own their housing dwellings [Grimes (1976), World Bank (1980)]. Given this reality, policy options for housing in these cities must be informed by an understanding of how the informal sector works and, indeed, thrives.

Until the early seventies governments viewed illegal squatter settlements as temporary aberrations in the urban landscape that needed to be eradicated [Peattie and Aldrete-Haas (1981)]. The common governmental response was

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to evict squatters by force and bulldoze their settlements with little concern for rehousing the evicted squatters. An infrequent alternative was to relocate squatters into public projects. Neither response was particularly successful. Forced eviction often failed because squatters removed from one settlement frequently turned up in another illegal settlement, usually in the same city. Relocation often failed because public housing projects were frequently more expensive than what squatters could afford to pay even when purchase prices or rent were greatly subsidized. Moreover, there were insufficient resources to build enough housing to be able to rehouse a significant number of squatters.

A more progressive policy towards squatter settlements, one which is gaining considerable support, is to integrate them with the formal, housing sector through legalization. Land is sold on concessionary terms to the residents of the settlements, usually on the condition that they upgrade their dwelling to some minimum standards. The government provides planning, lot layout and infrastructure such as paved roads, water and sewer lines. The normally required government subsidy is often much lower than the outlay required for conventional public projects.

Governments rarely know the value of the benefits they bestow on the legalized squatters and how much squatters are willing to pay for a legal title for their lot. Information on the amounts that different types of households are willing to pay for tenure security is vital for meaningful evaluation of the costs, benefits and distributional impacts of projects that legalize tenure security.

This paper develops a methodology for measuring potential benefits from legalization by estimating willingness-to-pay for secure tenure. Under the premise that formal and informal housing markets are reasonably well functioning, secure tenure in a particular site must be reflected in the value of the dwelling. Jimenez's (1984) is generalized and used to show that, with other attributes held constant, a rented squatter dwelling unit in Manila would, on average, rent for 15 percent more had it been in the formal sector; an owned squatter dwelling unit would sell for 25 percent more under analogous conditions. These percentages are interpreted as the risk premia on squatters dwellings.

Section 2 of the paper describes the analytical approach. Section 3 describes the empirical framework. The data and the sample are described in section 4. Section 5 describes the empirical results. Section 6 contains conclusions and policy recommendations.

2. The analytical approach

The representative household maximizes utility with respect to a vector $[h]$ of housing attributes, and a composite numeraire commodity, x, under the prices faced in the two sectors, the formal – legal – sector and the informal –

squatter – sector. Given its optimal consumption bundle in each of the two sectors, the household then chooses the mode of tenure (squatting or non-squatting) which yields the greater utility. Moreover, under the squatting mode, it chooses among sites that are associated with different eviction probabilities π.

The vector $[h]$ may be partitioned into two types of attributes, $h[q, z]$, where $q=[q_i]$ for $i=1,\ldots,m$ and $z=[z_j]$, where $j=m+1,\ldots,n$. The q_i's are attributes that are not correlated with the eviction probability π, such as most measures of housing quantity and quality. The z_j attributes are those correlated with π. These attributes are perceived as signals, albeit imperfect ones, that public authorities are less likely to evict the occupants. Type z attributes include the dwelling unit's age, availability of public utilities such as running water, and other infrastructure investment.

In a two-sector city a household must choose not only what bundle to consume but also in which sector to locate. In the formal sector the household maximizes utility $U(x, h)$ subject to the constraint $y=r(h)+x$, where y is household income and $r(h)$ is the hedonic rental value of housing services in the formal sector. The relationships between the market-determined hedonic schedule, $r(h)$, and willingness-to-pay can be derived using Rosen's (1975) framework.

The first-order conditions are: $U_i/U_x=r_i$, $i=1,\ldots,m$ and $U_j/U_x=r_j$, $j=m+1,\ldots,n$, where U_i and U_j are the marginal utilities of q_i and z_j respectively, their implicit marginal prices are r_i and r_j. U_x is the marginal utility of the numeraire. Solving for the optimal values of q_i, z_j and x would yield the indirect utility function V which defines the highest level of utility that a household can obtain in the formal sector, given the hedonic price structure, $r(h)$:

$$V=V(y, r(h)). \tag{1}$$

The same household, if it were to locate in a squatter area, faces two budget constraints, depending upon whether or not it is evicted. We assume that a squatter household must precommit itself and spend money on housing services ex ante before the household finds out whether it is evicted or not. Thus, an evicted squatter would lose whatever it has spent on the dwelling, would have to find and pay for an alternative accommodation somewhere else, and possibly have to pay an amount F for a fine and moving costs. A 'successful' squatter, one that is not evicted, must spend an amount $s(h)$ on housing and faces a budget constraint $y=x^{\mathrm{N}}+s(h^{\mathrm{N}})$, where the superscript N signifies the state of nature 'not evicted'. If evicted, the budget constraint is $y=x^{\mathrm{E}}+s(h^{\mathrm{E}})+F$, where the superscript E signifies the state of nature 'evicted'. Because of the precommitment assumption the hedonic relationship in the squatter sector is established ex ante, before it is known whether the

household will be evicted. Therefore the price structure in the squatter sector is: $s(h^E) = s(h^N) = s(h^S)$. The superscript 'S' signifies squatting mode of tenure.

The perceived probability of eviction associated with any given dwelling unit, $\pi = \pi(z)$, is assumed to be accepted by the squatter household as given. Faced with the two possible budget constraints and the probability that one would apply rather than the other, the squatter household is assumed to choose its ex post consumption bundle by maximizing expected utility: $EU = \pi U(x^E, h^E) + (1-\pi)U(x^N, h^N)$. Solving for x^E and x^N, substituting them into EU and maximizing would yield optimal bundle of h^s. Substituting this optimal h^s into EU would yield the expected indirect utility function from squatting, EV^s:

$$EV^s = \pi V^E + (1-\pi)V^N, \tag{2}$$

where $V^E = V^e(y, F, s(h^s), s(z^s))$, $V^n = V^n(y, F, s(h^s), s(z^s)$ and V^E and V^N are the indirect utility functions under the states of nature E and N. Since an evicted household is poorer than a non-evicted household V^E is smaller than V^N.

Equilibrium conditions require that households move from one location to the other until, at the margin, $EV^s = V$. Households in this simple model choose to squat if $EV^s > V$. Otherwise, they choose a formal location. Because of the risks inherent in being a squatter, formal sector households must pay more for housing. [See Jimenez (1984) for a more formal statement of this condition.]

3. Empirical framework

The main goal of this paper is to estimate the market-determined risk premium for squatter dwellings in the metropolitan area of Manila, the Philippines. We do that by estimating hedonic rent functions for the formal and the squatter sectors of the housing market and using them to estimate what would be the value of a squatter dwelling had it been located in the formal sector. The difference between actual and estimated values is interpreted as the market-determined risk premium.

From the framework above, the simplest model to be estimated assumes that the squatter and formal sectors have the same hedonic price equation with the exception of the intercept term. We pool observations from the two sectors together and add to the hedonic equation a dummy variable that indicates whether an observation is a squatter unit. A negative coefficient is expected on this variable, reflecting our hypothesis that, if squatter units are discounted for risk, units with insecure tenure should be valued less than similar secure units. It is possible, however, that old squatter units are

perceived as de facto secure from eviction, even if their de jure title is unclear. To allow for this possibility, the intercept of the squatter function is allowed to vary with the unit's age. A positive coefficient of the interaction variable combined with a negative coefficient of the squatter dummy will enable computation of the length of time it takes for a squatter dwelling to gain a de facto 'legal' status. Different squatter units may have different risk discounts according to their varying perceived risk of eviction.

For the reasons outlined above, housing attributes may be valued differently in each sector. Thus, the above model is tested statistically in comparison to another model where all the coefficients of the hedonic equation are allowed to differ between the two sectors:

$$r = r(h,\ z,\ \text{random error}), \tag{3}$$

$$s = s(h^s,\ (z^s,\ \text{random error}). \tag{4}$$

The value of a squatter dwelling unit with attributes h^s and z^s is compared to its value had it been in the formal sector by using the estimated coefficient of eq. (3) and the attributes h^s and Z^s:

$$\hat{r}^s = \hat{r}(h^s, z^s). \tag{5}$$

The value of the ratio $(\hat{r}^s/s)$ is then interpreted as the market-determined premium for location in a formal, legal area.[1]

If all households are alike, or if statistical methods are employed to control for differences in socioeconomic characteristics, the market-determined premium, as estimated above, can be interpreted as the willingness-to-pay for a more secure dwelling.

However, if household characteristics are not held constant, the estimated market-determined premium will likely be an overestimate of a given household's willingness-to-pay for tenure security. The reason is that the same squatter household would consume a different bundle of housing attributes if it were to locate in the formal sector, whereas the calculation of the market-determined premium is done assuming the same bundle of attributes.

An exact measure of the willingness-to-pay for additional 'safety' requires

[1]A similar approach was used by Lapham (1971) and many other authors to study effects of racial discrimination in U.S. housing markets.

the estimation of the structure of preferences.[2] While this is beyond the scope of hedonic function analysis, it is possible to learn about the structure of demand by determining for which types of household the premium each confronts is greater. A regression of risk premia on household attributes will reveal preferences about risk.

4. Data

Household and housing data are from a 1983 random sample of 1,688 households from the cities and municipalities of the Metro Manila area in the Philippines. There are 942 owners, 25 percent of which are squatters, and 746 renters, of which 13 percent are squatters.

The difference between squatter and formal housing units can be concisely described by a logistic regression relating the probability that a dwelling unit will be classified as a 'formal unit' to a set of housing and infrastructure variables. This function is shown in table 1. The resulting equation classifies correctly over 70 percent of the sample dwelling units to either 'formal' or 'squatter' using 12 variables (and their interactions). The estimated equation indicates that a unit is more likely to be 'formal' if it is on a large lot with fenced yard. It has solid foundations, with a conventional floor and durable walls. Such a unit is also connected to public electricity, water and sewer lines and has a toilet, bathing facilities and a sink in the kitchen. Other variables associated with 'formal' status are the age of the unit and paved streets. All variables except lot size and dwelling unit age are dummy (0–1) variables. Therefore, their relative size indicates their importance.

The difference between formal and squatter households is concisely summarized in table 2, which shows an estimated logit equation relating the probability of being a squatter to household characteristics. The logistic regression indicates that households are more likely to be squatters if they are poor, large households with high school or lower education. On the other hand, new immigrants to Manila, households with full college or graduate degree and high-income households, are unlikely to be squatters.

[2]There are a number of methods of doing this: (a) Segment the sample into subsamples of homogeneous households which can be presumed to have similar preferences. Hedonic functions can then be estimated and compared for each of the samples. (b) Derive marginal prices from r and s for each of the n attributes and use the results as the price term in a system of demand equations for housing attributes with household type held constant. (c) Assume a utility function and use the estimated first-order conditions to estimate willingness-to-pay directly [see, for example, Quigley (1982)]. Each of these methods has drawbacks. Implementing (a) requires that the subsamples be large enough to support a hedonic regression, our sample is insufficient for this purpose. Both (b) and (c) require complex estimation methods which may not be supported by the data. Given these difficulties and the relatively narrow range of the estimated bounds in which the willingness to pay must fall, these methods were not attempted here. However, the discussion of the results will take into account the theoretical issues that necessitate the consideration of these methods.

Table 1

Logit function of the probability of a dwelling being squatter unit.[a]

Variable	Estimated coefficient
Intercept	−2.814 (0.285)[b]
DU age	−0.014 (0.006)[b]
Lot size	−0.006 (0.001)[b]
Fenced yard	0.575 (0.178)[b]
Concrete foundations	−0.755 (0.198)[b]
Solid floor	−0.651 (0.225)[b]
Durable walls	−1.751 (0.456)[b]
Sewer connection	−0.639 (0.186)[b]
Water connection	0.684 (0.226)[b]
Street lights	−0.810 (0.190)[b]
Toilet	−1.053 (0.446)[b]
Bathroom/shower	−1.138 (0.378)[b]
Paved streets	−0.612 (0.199)[b]
Sewer * toilet	0.856 (0.493)
Bath * water	1.066 (0.453)[b]
Floor * walls	1.615 (0.502)[b]

[a]Standard errors in parentheses. −2 log-likelihood at zero 1057.2, at convergence 592.5. Model Chi-square 464.7.
[b]Significance level: 0.01.

Households who lived in the Manila Metropolitan area for ten years or less are less likely to live in squatter areas than the established Manilans. The common belief that squatter areas are created by new immigrants who cannot find housing in formal areas of major developing cities is not supported by this evidence.

Table 2

Logistic regression: The probability of a household locating in squatter area.[a]

Variable	Estimated coefficient
Intercept	−0.446 (0.185)[b]
Income	
1st quartile	0.205 (0.163)
3rd quartile	−0.426 (0.188)[c]
4th quartile	−0.958 (0.239)
Head's education	
less than high school	0.197 (0.233)
some college or vocational school	−0.838 (0.169)[b]
university degree	−1.932 (0.256)[b]
Head's age	
less than 30	−0.059 (0.219)
46–60	−0.352 (0.162)[c]
over 61	−0.841 (0.250)[b]
Household size	
1–4	−0.050 (0.167)
10 or more	0.437 (0.203)[c]
Years in Manila	
less than 5	−0.485 (0.254)[c]
6–10	−0.236 (0.232)
21–30	0.121 (0.207)
31 or more	0.027 (0.182)

[a]Standard error in parentheses. −2 log-likelihood at zero 1665.2. Model Chi-square 226.8. Reference category: household in 2nd income quartile, high school ducation, age 31–45, size 5–10, 11–20 years in Manila.

[b]Significance level 0.01.

[c]Significance level 0.05.

5. Empirical results

5.1. Hedonic estimates

Since there are no theoretical priors about the functional form of the hedonic relationships we used the Box–Cox statistical technique to determine the most appropriate form [for a similar application of the Box–Cox technique see Blackley, Follain and Ondrich (1984)]. This technique enables the analyst to transform the data and search across alternative forms. The general form is

$$R^{(\lambda)}=\beta_0+\sum_{i=1}^{m}\beta_i q_i+\sum_{j=m+1}^{n}\beta_j z_j+U, \tag{6}$$

where $R^{(\lambda)}=(R^{\lambda}-1)/\lambda$, R=rent or value, b_i and b_j are parameters to be estimated and u is the random error term. When λ approaches zero, eq. (6) becomes a semilog function [that is, $R^{(\lambda)}=\ln(R)$]. The Box–Cox search for our sample resulted in a λ very close to zero. This indicates that the hedonic relationship in Manila can be approximated by the semilog functions which are discussed below.

The first hypothesis to be tested is that tenure insecurity induces an intercept shift in the hedonic equation and that the size of the shift coefficient declines with time. The model was estimated on a pooled sample of squatter and formal units. The hypothesis is tested by the significance and sign of the coefficients of *Sqtarea*, a dummy variable for locations in a squatter area, and *Sqt* * *Age*, an interaction variable between *Sqtarea* and the age, in years of the dwelling unit. The equation for the owner sample is shown in table 3. The equation for the renter sample is shown in table 4. For owners the coefficient of *Sqt* * *Age* is negative and the coefficient of the interaction term is positive. Both are highly significant. Together they indicate that a formal dwelling unit is more valuable than a similar squatter unit and that the price differential declines as the squatter unit becomes more established. The value of a new squatter dwelling is only 66 percent of the value of a similar formal unit of any age. That is, an owned new unit must be discounted by 34 percent if it is located in a squatter area; a ten year old unit is discounted by only 25 percent. As a squatter unit ages, the discount declines and vanishes completely after 31 years. For renters the analogous discount in monthly rent is 11 percent, significant only at the 15 percent level. It does not vanish as the unit ages.

The difference between the risk discounts on owned and rented squatter units is consistent with expectations: the rent in a squatter area should be lower than rent in a formal area. One source of this difference is that a renter household must be compensated for the inconvenience of possibly having to move, if evicted from a squatter area. On the other hand, the price discount

Table 3

Hedonic index, owners.[a]

Variable	Estimated coefficient			Variable	Estimated coefficient		
	All	Formal	Squatter		All	Formal	Squatter
Intercept	7.667	7.684	6.417	Glass windows	0.222	0.217	0.330
	(0.153)[b]	(0.179)[b]	(0.368)[b]		(0.077)[b]	(0.085)[b]	(0.175)
Sqtarea	−0.417	n.a.	n.a.	*N* Floor	0.090	0.036	0.307
	(0.114)[b]				(0.060)	(0.071)	(0.198)[c]
*Sqt * Age*	0.013	n.a.	0.011	Rooms	0.170	0.185	0.149
	(0.004)[b]		(0.005)[c]		(0.030)	(0.031)[b]	(0.070)[c]
Toilet	0.555	0.539	0.767	Rooms area	0.003	0.002	0.008
	(0.082)[b]	(0.086)[b]	(0.282)[b]		(0.001)[b]	(0.001)[c]	(0.005)
N baths	0.307	0.261	0.627	Lot size	0.005	0.049	0.122
	(0.058)[b]	(0.062)[b]	(0.159)[b]	($100\,m^2$)	(0.017)	(0.016)[b]	(0.136)
Sink	0.407	0.477	0.097	Street lights	0.189	0.208	0.198
	(0.073)[b]	(0.087)[b]	(0.137)		(0.077)	(0.098)[c]	(0.123)
Concrete foundation	0.201	0.199	0.359	*AvgInc*	0.019	0.023	0.198
	(0.071)[b]	(0.083)[c]	(0.190)	(1000 pesos)	(0.077)[b]	(0.098)	(0.123)
Concrete walls	0.514	0.485	0.584	Dist. CBD	−0.004	0.000	−0.013
	(0.087)[b]	(0.098)[b]	(0.186)[b]	(time)	(0.002)	(0.003)	(0.006)[c]
Solid floor	0.244	0.218	0.100	*R*-square	0.70	0.63	0.59
	(0.093)[b]	(0.117)	(0.164)	*SSE*	619.0	448.5	144.5
Bad roof	−0.514	−0.284	−0.550	*N* cases	867	655	212
	(0.142)[b]	(0.183)	(0.237)[c]				
Fenced yard	0.136	0.160	0.105				
	(0.071)	(0.082)[c]	(0.147)				

[a]Standard errors in parentheses.
[b]Significance level 0.01.
[c]Significance level 0.05.

Table 4

Hedonic index, renters.[a]

Variable	Estimated coefficient		
	All	Formal	Squatter
Intercept	4.540	4.455	5.017
	(0.177)[b]	(0.125)[b]	(0.437)
Sqtarea	−0.118	n.a.	n.a.
	(0.077)		
DU age	0.0020	0.003	0.002
	(0.002)	(0.002)	(0.006)
Toilet	0.234	0.258	0.006
	(0.052)[b]	(0.055)[b]	(0.157)
N baths	0.438	0.453	0.034
	(0.062)[b]	(0.064)[b]	(0.268)
Sink	0.186	0.197	0.188
	(0.060)[b]	(0.066)[b]	(0.153)
Concrete foundations	0.197	0.186	0.450
	(0.048)[b]	(0.050)[b]	(0.186)
Solid floor	0.221	0.267	0.207
	(0.066)[b]	(0.072)[b]	(0.191)
Glass window	0.181	0.159	0.290
	(0.051)[b]	(0.054)[b]	(0.185)
Rooms	0.164	0.173	0.057
	(0.023)[b]	(0.025)[b]	(0.084)
Rooms area	0.003	0.005	0.007
	(0.001)[c]	(0.002)[b]	(0.004)
AvgInc	0.016	0.016	0.008
(1000 pesos)	(0.007)[c]	(0.007)[c]	(0.106)
Paved road	0.151	0.130	0.282
	(0.049)[b]	(0.052)[b]	(0.145)
Dist. CBD	0.000	−0.000	0.007
	(0.002)	(0.002)	(0.006)
Ln (Linger)	−0.186[b]	−0.197[b]	−0.115
	(0.030)	(0.030)	(0.069)
R square	0.55	0.55	0.45
SSE	222.1	112.4	6.2
N Cases	521	472	49

[a]Standard errors in parentheses.
[b]Significance level 0.01.
[c]Significance level 0.05.

on owned units in squatter areas should compensate for the possible loss of the housing capital, in addition to moving cost.

Another difference between the owner and the renter equation is the term Ln (Linger) which allows for a length of residence discount in the renter equation. Many studies of hedonic functions for renters have found that established tenants get rent discounts and normally pay lower rents than new tenants would pay. In Manila this discount is estimated to be 17 percent for each year of residency in a given unit.

After allowing for different intercepts (including the $Sqt * Age$ interaction) a covariance analysis was performed to test for equality of implicit prices in the two sectors of the market. For the owner sample the homogeneity hypothesis was rejected at the 1 percent significance level. For the renter sample the hypothesis was not rejected.

Examination of the coefficients of the owner's equation in table 3 reveals interesting patterns. The combined effect of the sanitation and water variables (toilet, bathrooms, sink) is larger in the squatter sector than in the formal sector. Likewise, within each sector, units with concrete foundations, with more than one storey, and located in higher income areas are valued relatively more in the squatter sector than in the formal sector. These variables are apparently perceived as signals that the eviction risk of the unit is low even if its owner has no legal title. These are the variables that were denoted as z_j in section 2 and it appears that their contribution to value is larger in the squatter sector than in the formal sector. 'Bad roof', has a much larger negative effect in the squatter sector. Apparently, dwellings' makeshift material roofs signal a higher than average eviction probability. There are also some q_i type variables – variables that are not correlated with eviction risk and are valued similarly in the two sector: number and size of the rooms are two such variables.

5.2. *Market-determined risk premia*

The formal sector hedonic equation can be used to estimate the value of a squatter unit had it been in the formal sector. This estimated value, $\hat{r}(z^s, q)$, can be compared with the actual value of the unit, that is, the differences in overall prices needed to compensate for unmeasured differences between the two sectors, such as eviction risk.

The above procedure is necessary only for computing the risk premium for owners. This is because the covariance analysis for owners indicated that the hedonic functions for the formal and the squatter sectors are not parallel. The risk premium for renters can be computed directly from the pooled equation, since the hypothesis that the hedonic functions for renters are parallel was not rejected. Based on this equation we found that the risk premium in the renters' market is 11 percent. However, since a 10 percent confidence interval of this risk estimate includes the zero, we conclude that the evidence for the existence of a risk premium for renters is weak.

The mean ratio $\hat{r}(h^s, z^s)/\hat{s}(h^s, z^s)$ for owner is 1.23, implying that on average the risk premium for squatter dwellings is 23 percent (the standard error of estimate is 6.6 percent). The risk premium varies from unit to unit based on the quantity of z_j type variables available in the unit.

One would expect risk-averse households to bid for the units that are relatively more secure. Risk aversion is normally associated with higher income and with older age. Therefore, the risk premia for units owned by

Table 5

Regression of premia on household characteristics.[a]

Variable	Estimated coefficient
Intercept	2.956 (0.604)[b]
Ln normal income	−0.340 (0.083)[b]
Ln household size	0.091 (0.048)[c]
Age < 30	0.586 (0.234)[b]
Age 46–60	0.009 (0.138)
Age > 60	−0.143 (0.138)
R square	0.15
SSE	174.1
N	224

[a]Standard errors in Parentheses. The dependent variable is the price ration $\hat{r}(q^s, z^s)/\hat{s}(h^s, z^s)$. Mean dependent variable: 0.211.
[b]Significance level 0.01.
[c]Significance level 0.05.

better-off and older households should be smaller than the premia for units occupied by poorer and younger households. In addition, large households might be expected to choose more risky bundles, since they will be trading space for tenure security. These hypotheses were tested by regressing risk premia on household normal income, age, and size. The results (for owners only) are shown in table 5. Risk premia are indeed negatively related to income: for every 10 percent increase in income the risk premium declines by 3.4 percent. Households with heads younger than 30 and larger households select bundles with greater risk.

The discussion has been based on market valuations of secure tenure. To obtain the willingness-to-pay for secure tenure by particular household type it is necessary to hold constant household characteristics. While this is left for future work, this paper has indicated an upper bound on the willingness-to-pay for less risky bundles the estimated market risk premium.

6. Conclusions

We used data from Manila to confirm earlier results [Jimenez (1984)] for another Philippine city, Davao, that there are significant differences in housing values between squatter and formal sectors of the housing market, even when housing characteristics are held constant. On average dwelling units in the squatter sector of Manila would rent for 11 percent more or sell

for 23 percent more had they been in the formal sector. These magnitudes are similar to the figures of 18 percent and 58 percent found for Davao. We also found that older squatter units are apparently perceived to be safer than newer squatter units, as the price differential for the former is lower than for the latter. In addition, it appears that attributes such as concrete foundation, water and sanitation connections, a good roof and more than one storey signal low eviction risk. Therefore, the implicit prices for these characteristics are higher in the squatter sector than in the formal sector.

In Manila, as in Davao, higher income households tend to outbid poorer ones for safer (as measured by low risk premia) locations. This implies that projects that provide secure tenure over a wide area will bestow comparatively greater benefits on lower income households, since the risks that they bear initially are greater. Since risk premia are greater for owners than for renters, increasing security of tenure confers differential benefits by tenure group. Similarly, benefits will be expected to be greater for newer, less established, squatter areas than for older, more established, areas.

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