

AN INVESTIGATION INTO AGRICULTURAL LAND ACQUISITION: A CASE STUDY OF PALAWAN

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This paper aims to investigate the correlates of hectareage accumulation of public agricultural land (homestead) from a set of demographic variables such as age, sex, household size, location, and period of cultivation before the settlers were granted land. It also looks into the constraints imposed by institutional factors. The study covers the homestead grant of public agricultural land in Palawan for 1975. The sample size is 85 households, representing fifty per cent of the population.

The results show that the age of the settler is positively associated with hectareage accumulation. Contrary to expectations, females accumulated more land than males do; this could probably be attributed to the institutional setup and predominantly male-sample size. Also, the larger the size of the household, the greater is the hectareage accumulated. The period of cultivation before the settlers are formally granted land has a positive relationship with hectareage. Lastly, distance was also shown to affect the hectareage demanded such that the farther the place from the central developed regions, the higher the hectareage accumulated by the settlers.

1. Introduction

Palawan is the second largest province in the Philippines and occupies five per cent of the Philippine territory. About 70 per cent of the total land area is still forested. Out of the total area of about 1.5 million hectares, only 0.45 million hectares (30 per cent of the total) are agricultural land of which about 83 thousand hectares are presently planted to various crops and 23 thousand hectares are kept for pasture land. Only 8,830 hectares or about 2 per cent of the agricultural area are titled and therefore the majority of the farmers are still considered squatters (Palawan, 1977). Since there is suffi-

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cient land for resettlement or ownership grant to the settlers, the level of inequality in farm sizes will be determined by the public policy regarding the distribution of agricultural land.

The objective of this paper is to investigate the correlates of hectareage accumulation of public agricultural land (homestead) from a set of demographic variables such as age, sex, household size, location, and period of cultivation before the settlers are granted land. The constraints imposed by institutional factors are also looked into. In the past, little attention has been paid to this problem. In view of recent social events arising from problems associated with distribution of natural resources, this study appears warranted. At the outset, social justice demands that larger household sizes may have to be allotted with a larger plot of land in order to keep them at least above subsistence levels.

The study covers only the homestead grant of public agricultural land in Palawan for 1975. The sample size is 85 households which covers fifty per cent of the population. Considering the data constraints and their reliability, the conclusions derived from the study are subject to the following major assumptions:

1. The settlers maximize their hectareage accumulation of public agricultural land within the limit prescribed by the Public Land Act and subject to their resource constraints (initial saving or capital and labor power). This is mainly due to the restriction that "Not more than one homestead *entry* shall be allowed to any *one* person, and no person to whom a homestead patent has been issued by virtue of the provisions of this (public land) Act regardless of the area of his original homestead, may again acquire a homestead."¹
2. The public authority allows the households' demand for agricultural land within the statutory limit if the settlers are qualified for such demand.
3. The quality of land is given and hence does not hinder the accumulation by the settlers.

¹"Provided, however, that any previous homesteader who has been issued a patent for less than twenty-four hectares and otherwise qualified to make a homestead entry, may be allowed another homestead which, together with his previous homestead shall not exceed an area of twenty-four hectares." (Section 19).

2. Statutory Constraints and Related Background

The process of land acquisition is specified in the Public Land Act (UP Law Centre, 1971). Any Filipino citizen of legal age (over 18 years), or the head of a family, can demand public agricultural land not exceeding a total of 24 hectares including his/her earlier lands. The constraints imposed by law to demand homestead grant are as follows:

1. Five pesos as entry fee and another final five pesos for entitlement of a patent.
2. Begin to work within six months after the date of approval.
3. Twenty per cent of total acquired land should be improved and cultivated in not less than one year nor more than five years from and after the date of approval.
4. Reside continuously for at least one year in the municipality in which the land is located or in a municipality adjacent to the same.
5. Not more than one homestead entry shall be allowed to any one person.

Under these given constraints, settlers can demand a maximum of 24 hectares of public agricultural land for homestead purpose. Among all others, condition number (3), "Twenty per cent improvement and development within five years," seems to be the most important determining factor which extremely limits the physical size of the land area to be acquired through the cost outlay level. If they (settlers) fail to fulfill these requirements, the land so obtained will be null and void. In order to overcome these constraints, settlers should possess a large pool of labor or initial saving or capital to cultivate and improve one-fifth of the demanded area within the period of five years; otherwise, they lose the grant and thus will be deprived of further acquisition. This implies practically that the cost of development instead of price determines the hectareage accumulated. These limiting factors obviously lead us to assume that the settlers maximize their demand for public agricultural land under the given physical and resource constraints.

There is meagre literature on the subject. Some of the studies made include the following authors: Amerasinghe (1974), Barlowe (1972), Barton (1972), Dovring (1973), Lewis (1970), Lipton (1974), Rene (1958), and Williams (1977). In the case of the Philippines, the

study by Krinks (1974) and Inoferio (1978) are relevant and are briefly reviewed as a background in the following paragraphs.

Peter Krinks conducted a study on land settlement in the Philippines. Using a sample survey of fifty farm households in Mawab municipality of Davao Province in Mindanao, he found that while early homesteaders did significantly improve their conditions, the intense demand for land rapidly led to the development of squatting and tenancy. The earliest settlers mostly acquired homesteads of the maximum size of 24 hectares while some illicitly acquired more through homestead application by their wives or offsprings. The settlers' incomes are unequally distributed in favour of the longer established settlers. Among both wealthy and poor settlers, there has been little recent concern for investment in productivity-increasing innovation. Krinks noted that many of the early settlers who obtained large farms became very prosperous (p. 15). But capital accumulation has been much more difficult for the late arrivals and is rarely enough for major investment even if settlers are inclined to make them. Krinks (p. 17) concludes: "Because of these variable conditions there is no basis for assuming that the colonization of new land will automatically contribute solutions to agrarian problems or assist in broader economic development."

The study of Jovito G. Inoferio (1978) is directly related to this study. The major objective of his study was to evaluate the farm inequality within and among different forms of public agricultural land distribution in Palawan for the period 1951 to 1975. He attempted to establish a set of inequality indicators to evaluate the program's effectiveness relative to the goal of equitable distribution. Using Gini decomposition analysis, the degree of farm inequality was measured. It covers all kinds of concessions, namely, homestead, NARRA² homestead, Free Patent,³ Cadastral Grant,⁴ Sales and Lease. Since Inoferio's study is exploratory in nature, much attention was given to comparing the farm inequality by different demographic variables and by length of cultivation. Compared to other forms of disposal,

² Government-assisted land resettlement projects known as the National Rehabilitation and Resettlement Administration (NARRA).

³ Free patent is issued to any natural-born citizen of the Philippines who possesses not more than 24 hectares of land which he has continuously occupied and cultivated since 4 July 1926, either by himself or his predecessors-in-interest.

⁴ A cadastral grant covers the Filipino citizens occupying certain portions of the public lands but whose titles are imperfect or incomplete, and who may apply to the Court of First Instance of the province where the land is located for confirmation of their claims.

homestead grant is less unequal mainly because a ceiling of 24 hectares is prescribed. A majority of the public agricultural land recipients belonged to the relatively younger age cohorts except in the sales patent distribution. He found that the physical magnitude of the farm area improved over time varied across homestead farms due to differences in the level of accumulated farm capital. More than fifty per cent of total area distributed for homestead grants ranged from 5.0 to 9.99 hectares followed by 10.0 to 14.99 hectares. Mean hectarage varied from 7.72 to 9.44 for the period 1951 to 1975. The study concluded that the farm inequality was highly related with the initial capital holdings of the settlers and the length of cultivation.

3. Model Specification

The data on the distribution of agricultural land (homestead grant) represent a sample of such grants in Palawan for the year 1975. The demographic profiles of the patent-holders and the period of cultivation of the agricultural land are available. The sample size consists of 85 households which represent fifty per cent of the population. The data on the demographic characteristics of the grantees and the duration of the tillage were tabulated from the "Final proof of testimony."⁵ The data were gathered from the record books in the Data Verification Unit of the Bureau of Lands (Central Office). Considering the data limitation, the regression model to be estimated is based on the following function:

$$(1) \quad H = f(\text{AGE}, \text{SEX}, \text{SIZE}, \text{YEAR}, \text{LOC})$$

where H : hectarage accumulation of public agricultural land (homestead grant) by the settlers.

AGE : age of the settlers' household head in years.
Age is coded 1 if settlers' age is i , 0 otherwise, where i is coded as,

- 1 = 21 to 30 years
- 2 = 31 to 40 years
- 3 = 41 to 50 years
- 4 = 51 to 60 years
- 5 = 61 years and over

SEX : sex of the settlers' household head. It is coded as,

⁵This document is signed by the settlers to signify their intention of acquiring the public agricultural land.

0 = male

1 = female

SIZE: size of the settlers' household.

YEAR: period of cultivation in years before the settlers are granted public agricultural land. Year is coded 1 if settlers' period of cultivation is i , 0 otherwise, where i is coded as,

1 = 5 years and less

2 = 6 to 10 years

3 = 11 to 15 years

4 = 16 to 20 years

5 = 21 years and over.

LOC: location of the settlers where they own the land, measured in terms of distance from the provincial capital, Puerto Princesa City, and Narra where land distribution offices are stationed. It is coded as,

1 = Puerto Princesa City and Narra

2 = Aborlan

3 = Quezon, Brooke's Point and Roxas

4 = Dumaran and Elnido

5 = Balabac and Coron

The linear form of equation (1) can be expressed as follows:

$$(2) \quad H = a_0 + a_1 AGE + a_2 SEX + a_3 SIZE + a_4 YEAR + a_5 LOC + e_1$$

where e_1 is the error term distributed normally and independently with mean zero and constant variance σ^2 , i.e., $E(e_1) = 0$, and $E(e_1 e_1') = \sigma^2 I$.

The coefficients of the independent variables are estimated by using ordinary least squares method.

4. The Results

Table 1 shows the estimates of linear regression model based on grouped data as specified earlier. The coefficient of AGE is positive as expected and the t value is significant at the 10 per cent level. Age of the settlers is positively associated with hectareage accumulation. This may be due to the fact that the older the settlers are, the better

TABLE I - ESTIMATES OF LOG-LINEAR REGRESSION, 1970

Explanatory Variables	Regression 1		Regression 2		Regression 3	
	Coefficients	Elasticity at means	Coefficients	Elasticity at means	Coefficients	Elasticity at means
AGE	0.561 (1.55)*	0.19	0.573 (1.53)*	0.10		
SEX	4.281 (3.30)***	0.05	4.607 (3.45)***	0.05	4.055 (3.12)***	0.04
SIZE	0.833 (2.02)**	0.23	0.877 (2.06)**	0.24	1.046 (2.67)***	0.29
YEAR	0.203 (0.49)	0.08	-5.233 (-0.12)	-0.02	0.418 (1.06)	0.17
LOCATION	0.966 (2.61)***	0.26			0.972 (2.60)***	0.27
Constant	1.497		4.476		1.925	
R ²	0.2401		0.1747		0.2168	
F Value	4.99		4.23		5.54	
df	79		80		80	

Note: Figures in parentheses are *t* values.

*** *t* Significant at 1% level.

** *t* Significant at 5% level.

* *t* Significant at 10% level.

skills and experience they could gain which encourages them to demand more agricultural land. In other words, young settlers demand less hectarage, as compared to the matured settlers mainly because they lack sufficient skill to develop more land. It will be recalled that the Public Land Act required that twenty per cent of total acquired land should be improved and cultivated in not less than one year nor more than five years. It follows that additional land will necessitate further skills and labor time to satisfy the above requirement, and it is reasonable to suppose this constraint to be more binding on the part of the young settlers.

The sign of the coefficient for SEX is positive and its t value is highly significant (at the 1 per cent level). Contrary to our expectation, females accumulate more land than males do. Land settlement requires more difficult working conditions in such a pioneering frontier making males more likely to participate in such adventures as compared to females who are normally supposed to perform house work and then assist in outside work. Without offering an explanation for this result, we note the following information from the data. The number of female-headed households is quite small in the sample. Out of a total of 85 households, only 8 household heads are female. Inoferio (1978, p. 88) conjectures that this phenomenon is more the product of institutions rather than an offshoot of economic factors.

The variable SIZE has a positive sign with t values significant at the 5 per cent level. The significance of the coefficient is further improved in regression 3 where we dropped the AGE variable. As expected, the larger the size of the household, the greater is the hectarage accumulated. This supports the hypothesis that larger households necessitate more land, mainly due to their subsistence needs. Likewise, a large family implies a larger labor pool which can cultivate more land. With respect to the elasticity at means, SIZE has the largest magnitude. A one per cent increase in SIZE of family, *ceteris paribus*, increases the demand of hectarage by as much as 0.23, 0.24, and 0.29 per cent in regressions (1), (2) and (3), respectively.

YEAR (the period of cultivation before they are formally granted the land) has a positive relationship with hectarage except in regression 2 where we deleted the variable LOC. It is in line with our expectation, even though t values are statistically insignificant. In the absence of income data on the household, the variable YEAR is used as proxy for income. It is because of the evidence that the data on farm size and tenure suggest that settlers' income are likely to be

unequally distributed in favor of the longer established settlers (Krinks 1974, p. 10). Krinks' findings showed that there is a very high correlation between income and period of cultivation; and also hectareage accumulation. The main occupation of settlers is farming, and the longer the period of cultivation, the higher is the income of settlers. This enables settlers to accumulate more hectares of public agricultural land. In addition, this variable also reflects the experience of the settlers.

LOC, measured in terms of distance, can also affect the hectareage demanded. In regional studies, the distance has a deterrent effect on movement. The normal expectation is that the central developed regions (Puerto Princesa City and Narra) where land distribution offices are located reflect the information effect so that the nearer they are, the better are the settlers' access to information in order to acquire land. The other factor affecting the demand may be the market for the sale of their surplus output. But *LOC* is positive and statistically significant throughout the regressions. The positive coefficient indicates, contrary to our expectation, that the farther the place is from Puerto Princesa City and Narra, the higher is the hectareage accumulated by the settlers. This is perhaps due to the fact that more land is available for distribution the farther the distance from urban centers.

From the preceding analysis, we do not know at what particular group of age, size and years of cultivation the demand for agricultural land increases or decreases. We try an alternative specification using dummy variables for age, size and years of cultivation.

Table 2 gives the ordinary least squares estimates of the coefficients. These results simply reflect the earlier findings.

5. Concluding Remarks

This paper set out to examine the correlates of public land acquisition in Palawan. The study was severely hampered by the lack of a rich data set. Future studies based mainly on field surveys are highly desirable and they should include several variables like level of education of settlers, their initial income or capital, size of family (specified how many members are in the labor force), government policies and programs, availability of social infrastructure, classification of land quality, and sources of capital that settlers may have access to.

The gravity of problems occasioned by existing policies on distribution of public lands requires serious and rigorous studies that can provide the basis for reform of resettlement policies.

Table 2 — Estimates of Regression Using Dummy Variables, 1975

Explanatory Variables	Regression 1	Regression 2	Regression 3	Regression 4
AGE ₁	1.048 (0.51)			
AGE ₂	-0.627 (0.41)	-1.426 (-0.93)		
AGE ₃	0.749 (0.54)	-0.070 (-0.05)		
AGE ₄	1.616 (1.01)	0.929 (0.51)		
AGE ₅		-0.820 (-0.32)		
SIZE ₁	-2.677 (-1.76)**	-2.558 (-1.77)**	-3.179 (-2.33)**	
SIZE ₂	-3.633 (-2.33)**	-3.130 (-2.11)**	-4.335 (-3.31)**	-1.156 (-1.10)
SIZE ₃	-3.255 (-2.36)**	-3.204 (-2.41)***	-3.478 (-2.70)***	-0.300 (-0.29)
SIZE ₄				3.179 (2.33)**
YEAR ₁	0.769 (0.26)			
YEAR ₂	0.590 (0.37)	0.579 (0.21)		
YEAR ₃	-0.276 (-0.21)	0.314 (0.11)		
YEAR ₄	0.638 (0.49)	1.175 (0.43)		
YEAR ₅		0.838 (0.29)		
LOCATION		0.972 (2.43)***		
Constant	10.760	8.547	11.726	8.547
R ²	0.1831	0.2454	0.1210	0.1210
F. Value	1.49	1.95	3.72	3.72
df	71	70	80	80

Note: Figures in parenthesis are *t* values.

*** *t* values significant at 1% level.

** *t* values significant at 5% level.

* *t* values significant at 10% level.

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