University of the Philippines
SCHOOL OF ECONOMICS

Discussion Paper 7903 January 1979

IMPACT OF PUBLIC AGRICULTURAL LAND DISTRIBUTION ON FARM SIZE INEQUALITY IN PALAWAN, 1951-1975

by

Jovito G. Inoferio

ABSTRACT

The impact of public agricultural land distribution in the Philippines can be examined through an ex post facto analysis of the distribution of the resource. As differentiated from the redistribution of lands (e.g. land reform), the distribution confers benefits to certain social groups though the costs are not discernible on any particular set. Redistribution realizes thereafter the existence of an imbalance and therefore requires a direct loss to a certain group in order to make the other better off.

Public agricultural lands are disposable under the following types of grant: (a) homestead, (b) sales (individual and corporate), (c) free patent, (d) cadastral, (e) lease (individual and corporate), and (f) free title. Each has its own manner of acquisition as well as its maximum hectarage. Except for the free-patent, cadastral, and free-title concessions at least one-fifth of the agricultural land area must be cultivated prior to the release of the patents. Hence, farm-size inequality can be viewed either from two aspects: (a) inequality across public agricultural land grants due to differentials in the maximum hectarage, and (b) inequality in each type of concession due to differences in the levels of farm budget necessary to develop the stipulated land area. Where the public sector exercises minimal prerogative in the disposition of the resource, farm-size inequality is expected to be serious.

As expected, the Gini ratio is high in the free-paternt, cadastral, and sales (both individual and corporate) distributions. Relatively less inequality is seen in the other kinds of concessions.

In the original paper, the total Gini ratio is decomposed into within-set and between-set components to determine sources of variation through size group comparisons. Except in some few cases, however, less significance can be attributed to the decomposition analyses by demographic and non-demographic factors. Much as this researcher desires to incorporate such few significant constraints, results imposed by the methodology of the original paper do not permit such.

E R R A T U M

The word rentier has been erroneously conceptualized all throughout this paper. A rentier is supposed to be one who lives by receiving rents. Therefore, it should have been the term lessee which must be consistently utilized throughout. The author wishes to thank Dr. Mahar Mangahas for pointing out this mistake.

IMPACT OF PUBLIC AGRICULTURAL LAND DISTRIBUTION ON FARM SIZE INEQUALITY IN PALAWAN, 1951-1975

by

Jovito G. Inoferio*

This paper is based on a summative evaluation designed to examine the effect of the public agricultural land distribution program on the state of farm-size inequality in Palawan, Philippines,.[1/] The study is premised on an ex post facto experimental design which seeks to develop a set of farm-size inequality indicators of the program effectiveness relative to the goal of equitable distribution over time.

The first section describes the conceptual framework as well as the methodology of the study. It includes a discussion on the distribution scenario and the underlying equity consideration. The methodology portion consists of the explanation of the measurement technique used to evaluate farm-size inequality and the description of the data used. The second section presents the empirical findings

---

*Research Associate, ESIA/WID Micro Component Project. This research paper is based on the author's M.A. thesis. Thanks are due to Dr. R. L. Tidalgo for the criticisms on the early drafts and to Ms. Marulen Zara for the editing assistance extended. The author assumes responsibility for the views taken in this study.

[1/] A summative evaluation derives information after a program is adopted. Such information cover the effectiveness of the program for policymakers who are considering to adopt or revise it. See Weiss (1972).

of the study. The last section summarizes the whole paper and prescribes normative policies for the distribution of public agricultural lands.

I. CONCEPTUAL AND METHODOLOGICAL BASES

The Distribution Scenario

The extent of public lands in the Philippines is classified into three general categories, viz., (a) timber lands, (b) mineral lands, and (c) alienable or disposable lands (Noblejas 1965). In the course of public land utilization, timber lands may be appropriated for alternative uses (e.g., timber lands can be converted into alienable or disposable lands). Mineral resources are absolute property of the State; hence, the land utilization is not invested in the absolute ownership of private persons.

Alienable or disposable lands are classified according to their manner of utilization, viz., (a) agricultural, (b) residential, commercial, industrial, or for similar productive purposes, (c) educational, charitable, or other similar purposes, and (d) reservation for town sites and for public and quasi-public uses. The alienable or disposable lands suitable for agricultural production defines the set of public agricultural lands. Certain tracts of lands which are engaged in agricultural production even before the Bureau of Forestry classified them as such are still subject

to legal alienation under the Public Land Act.[2/] Under the said statute, public agricultural lands can be disposed through the following modes of concession with the respective salient characteristics, viz.,

(a) Homestead - The maximum of 24 hectares of public agricultural lands is allotted to any Filipino citizen of legal age who has not yet accumulated more than 24 hectares of land. At least one-fifth of the agricultural land area applied for must be cultivated within five years prior to the granting of the patent. The applicant must continuously reside for one year in the municipality or in an adjacent town where the agricultural land is located. No part of the agricultural land must be alienated or encumbered. An entry fee of five pesos is required upon application and a final fee of another five pesos must be paid for a homestead patent.

(b) Sales - Individuals of Filipino citizenship who are of legal age or heads of families (though not of legal age) can acquire a maximum of 144 hectares. Corporations or associations, where

---

[2/] The Bureau of Forestry (now called Bureau of Forest Development) declares specifically whether a certain area within the forest zone is alienable or disposable.

at least 60 per cent of the capital stock or any interest thereto must be owned by Filipino citizens, can purchase a maximum of 1,024 hectares. However, under the 1973 Constitution individuals can purchase a ceiling of 24 hectares only. Corporate acquisitions of public agricultural lands through purchase are also terminated. Henceforth, all such procurements are through lease.

The system of acquisition is through a public bidding where the bid price must be at least equal to the appraised value of the public agricultural land. The purchase price is payable in ten equal annual installments.

Within five years after the date of the award, at least one-fifth of the agricultural land area must be cultivated and actual occupancy must be proved in order for the sales patent to be granted.

(c) Lease - Any Filipino citizen of legal age and any corporation or association of which at least 60 per cent of the capital stock or any interest thereto must be owned by Filipino citizens can obtain through lease a maximum of 1,024 hectares of public agricultural lands. If the land is for grazing purposes, a maximum of 2,000 hectares is available for lease.

The manner of acquisition follows that of the sales grant, i.e., through public bidding, where the bid price must not be less

than three per cent of the appraised or reappraised value of the agricultural land.[3/]

The highest bid price constitute the annual rental of the agricultural land.

The lease shall run for a period of 25 years and is renewable for another same number of years. At least one-fifth of the land area must be cultivated within five years from the date of the award. If it is for grazing purposes, at least one-half of the entire area must be grazed at the rate of one head per hectare.

Any rentier who has complied with the requirements of the lease during its life can purchase the subject agricultural land upon compliance of the criteria for a sales grant.

(d) The confirmation of imperfect or incomplete title is of two kinds, viz., (1) administrative legalization or free patent, and (2) judicial legalization which is commonly termed as cadastral grant.

Free patent is issued to any natural-born citizen of the Philippines who possesses not more than 24 hectares of land. He or

---

[3/] If the rented land is utilized for grazing purposes, the annual rental shall not be less than 2% of the appraised or reappraised value thereof. Annual rental for reclaimed lands by the government must not be less than 4% of the appraised or reappraised value thereof

his predecessors-in-interest must have occupied and cultivated since 4 July 1926 the tract or tracts of public agricultural lands subject to disposition.

A cadastral grant covers the following Filipino citizens occupying certain portions of the public lands but whose titles are imperfect or incomplete, viz., (a) Those who have been occupying portions of the public domain since the transfer of sovereignty from Spain to the United States, and (b) Those who have settled certain areas of the public domain and whose claims thereto have been interrupted by war or force majeure. They may apply to the Court of First Instance of the province where the land is located for confirmation of their claims. If the conveyance is non-gratuitous, the purchase price must be paid by the occupant prior to the registration of the agricultural land.

(e) Free Title - This is the title granted in resettlement sites. The maximum hectarage is a function of the need of the individual settler and his family where the size of the family may be utilized to gauge the appropriate hectarage to be allotted.

Except for the sales and lease grants, only one patent is issued to any qualified applicant. In the case of public agricultural land purchasers and rentiers, they can apply for additional agricultural lands adjacent to their own if the maximum hectarage have not been reached yet.

Equity Consideration

There are two factors leading to the inequality in public agricultural farm sizes, viz., (a) The explicit maximum limits for public agricultural land concessions which vary across farms, and (b) The varying farm production budgets among the settlers. Individual public agricultural land ownership across types of distribution will reveal a serious state of farm-size inequality. Inclusion of corporate-farm acquisitions will magnify the level of such disparity. The key factor attributed to this behavior is the different levels of maximum hectarage that settlers, individual and corporate, can apply for.

In each kind of public agricultural land allocation, inequality in farm sizes will exist basically due to heterogeneity in the levels of farm outlays. The Public Land Act requires at least one-fifth of the agricultural land area applied for to be cultivated prior to the granting of the patent. Assuming that such a constraint is non-existent, settlers will accumulate the maximum allotted hectarage given that there is a sufficient supply of public agricultural lands. The existence of the "non-fifth improvement and development" clause, however, delimits the physical size of the agricultural land area acquired through the cost outlay level. In effect, the quantity of public agricultural lands procured will become a function of its costs of development.

Such condition is further aggravated by the absence of an efficient credit system in traditional economies. The accessibility of credit facilities can theoretically equalize the hectarage size distribution since individual budgets can be augmented by outside resources, ceteris paribus. Moreover, the level of income is a strong determinant in meeting the cost factor. The size distribution of hectarage in traditional economies, in a sense, can be a reflection of its income distribution.

A relatively lower maximum hectarage for accumulation by individual settlers, say 24 hectares, purports to distribute the resource to as many recipients as possible, i.e., this may be considered as the equity aspect of the distribution. The creation of higher maximum hectarage to accomodate well-off settlers, i.e., settlers possessing a higher level of farm capital, proceeds on the assumption that bigger scales of production result into bigger output which is desired relative to certain goals (e.g. self-sufficiency and the production of agricultural surplus). The latter may be considered as the efficiency aspect of the distribution. On an ex ante basis, the system of allocation of public agricultural lands is optimal since any distributive system functions on the premise that the norm, i.e., the rationale of the allocation blueprint, is an optimum one (Pen 1971).

The allocation scenario in each mode of concession partly results from the market mechanism, i.e., the supply and demand of the resource.[4/] According to microeconomic theory, each settler, i.e., individual and corporate, accumulates hectarage to the point when the additional output due to each factor of production are equal on the margin. In essence, hectarage differentials in each mode of concession is a function of the ability to meet the agricultural production costs.

An incidence of unacceptable skewness in the distribution, which will always be expected, will demand that there be a minimum level of hectarage to provide and maintain a decent standard of living to the settler and his family. The choice of a bottom-line which will generate such a welfare criterion entails the setting up of standards to identify the acceptable minimum. Although theoretically appealing, its practicality, however, is highly subjected to doubt.

[4/] One should note that the price mechanism hardly has a dent in the initial distribution of the resource. Acquisition is motivated primarily by the non-economic institutions rather than the market price of the resource. Any attempt to charge market prices for this public good will involve distributional inefficiency since in some cases the marginal cost of allowing settlers to utilize the resource is relatively insignificant.

Measurement of Farm-Size Inequality

The distribution of public agricultural lands takes the patent as the unit of analysis.[5/] In some public agricultural land grants (e.g. cadastral and lease), the patent is referred to as title. The application for more than one patent/title is strictly prohibited (in the case of homestead, free-patent, and cadastral grants) and is only permissible among the sales and lease grants when the maximum hectarage is not yet availed. It can be seen that the unit of analysis adopted in this study approximates a household (which is the common unit of analysis used in income distribution studies).

Farm-size inequality in the distribution of public agricultural lands by manner of concession can be seen through the differences in the hectarage shares received by hectarage class. It can also be viewed in terms of differences in the proportional shares of defined sets or groups to the total hectarage. Lastly, farm-size inequality can also be described through summary measures of inequality (Tan and Oshima 1975).

A summary measure of inequality is adopted to scale the degree of concentration of the hectarage within a particular distribution of patents/titles. Although such types of gauges conceal information on the relative position of particular hectarage class (e.g. quintile or decile) of patent-holders within a distribution, the summary indices are quite useful in comparative analyses (Tan, ibid.).

The index of inequality utilized in this paper is the Gini ratio which is written as[6/]

$$L = 1 - \sum_{k=1}^{N} (p_k^* - p_{k-1}^*)(h_k^* + h_{k-1}^*)$$

where

p_k^* = the cumulative proportional share of patents/titles from the smallest hectarage class up to the hectarage class k, k = 1, ..., N.

p_{k-1}^* = the cumulative proportional share of patents/titles from the smallest hectarage class up to the preceding hectarage class, i.e., hectarage class k-1.

h_k^* = the cumulative proportional share of hectarage from the smallest hectarage class up to the hectarage class k.

h_{k-1}^* = the cumulative proportional share of hectarage from the smallest hectarage class up to the preceding hectarage class, i.e., hectarage class k-1.

Therefore, $p_k^* - p_{k-1}^* = p_k$ is the proportional share of patents/titles in the hectarage class k. Each distribution of patents/titles

---

[6/] See Bronfenbrenner (1971) for further details about the Gini ratio.

has N hectarage classes arranged from the smallest to the highest hectarage.

The Gini ratio is zero when the total hectarage is equally distributed in each type of public land concession. It is equal to one when the total hectarage is concentrated in one patent/title, i.e., a household, in each type of concession. If an estimate tends closer to zero it is said to be relatively equal; and, if it tends closer to one it is said to be relatively unequal. The interpretation of the right distribution must involve some assumptions on ethical norms.

Data Characteristics

The data on the distribution of public agricultural lands by kind of concession represent the annual population of public agricultural land grants in Palawan between 1951 and 1975. The basic data sources are the registry books available in the Data Verification Unit of the Bureau of Lands (Manila) and the Registry of Deeds in Puerto Princesa, Palawan.

The aggregation of the patents (and hence, of hectarage) into a single frequency distribution per period is avoided due to the heterogeneous quality of the data. Heterogeneity in the data quality refers to differences in the structure of the data set attributed to the varied maximum hectarage per type of concession.

Instead, mutually-exclusive sets of data distribution are constructed according to manners of concession.

II. EMPIRICAL RESULTS

Allocation By Mode of Disposal

Table 1 shows the percentage allocation of the aggregate public agricultural land grants in Palawan between 1951 and 1975. The different periods of coverage represented the time spans specific public agricultural land patents/titles were granted. The proportional shares of the patents/titles, as well as the hectarage, corresponded to the total patents/titles, (per type of disposal) distributed within 1951-1975.

At least one-half of the aggregate patents/titles that were distributed during the period were granted through voluntary or spontaneous homestead allocation. Less than two per cent of the aggregate patents/titles were accumulated by settlers occupying government-assisted land resettlement projects, i.e., the National Rehabilitation and Resettlement Administration (NARRA).

The NARRA was created by the defunct Congress of the Philippines under the Republic Act No. 1160 on June 18, 1954 (NARRA, Information Objective Brochure). It aimed to hasten the free distribution of the

Table 1. Percentage Distribution of the Aggregate Public Agricultural Land Grants in Palawan Between 1951 and 1975, By Type of Grant

	Type of Grant	Specific Period of Distribution	No. of Patents/ Titles (%)	Total Area (%)
1.	Homestead	1951-1975	§1.23	61.52
2.	NARRA Homestead	1956-1967	1.54	1.51
3.	Sales	1954-1975	1.95	10.42
4.	Lease	1966-1975	0.19	10.69
5.	Free Patent	1951-1975	12.89	12.25
6.	Cadastral	1955-1959	32.30	3.61
	Total		100.00	100.00

public agricultural lands to landless tenants and farm workers as well as to encourage migration to less-populated regions. However, it was considered a failure due to the lack of funds (Jacoby 1971). This was evident from the insignificant proportion of the NARRA homestead grants in Palawan during the period under study.

Approximately 32.2 per cent of the total patents/titles were judicially-legalized or cadastral titles. Apparently, a significant proportion of the public agricultural land grants was exclusively and

continuously occupied for quite a long period of time. However, the cadastral titles shared only 3.6 per cent of the aggregate public agricultural land area disposed within 1951-1975. One could therefore deduce that the average cadastral land size must be relatively smaller compared to other types of concessions.

About 12.9 per cent of the total patents/titles were accumulated by free-patent grants. This kind of public agricultural land disposal shared the same characteristics as the cadastral grant, i.e., the lengthy time of occupation and cultivation. Due to the excessive length of the time period in the acquisition process, the free patents and the cadastral titles are categorized as imperfect or incomplete titles.

A total of 2.1 per cent of the total patents/titles granted corresponded to the acquisition by sales and lease grants. These grants accumulated at least one-fifth of the aggregate alienated public agricultural hectarage within the period under study. This could be attributed to the entry of business corporations with a higher allotted maximum hectarage.

Trends in the Growth of the Mean Hectarage and Farm-Size Inequality Level: By Manner of Concession

Homestead. Table 2 illustrates the percentage distribution of the homestead patents and area by size of hectarage, mean hectarage as well as the computed Gini ratios. The entire time span (1951-1975) was subdivided into 5-year periods to present a trend in the growth of the

Table 2. Distribution of Homestead Patents and Area by Size of Hectarage in Palawan, Mean Hectarage and Gini Ratio, 1951-1975

Hectarage	1951-55		1956-60		1961-65		1966-70		1971-75	
	No. of Patents (%)	Total Area (%)	No. of Patents (%)	Total Area (%)	No. of Patents (%)	Total Area (%)	No. of Patents (%)	Total Area (%)	No. of Patents (%)	Total Area (%)
Below 5.00 has.	16.05	6.93	14.13	5.53	10.84	4.08	9.52	3.88	13.16	5.24
5.00 - 9.99	69.21	63.92	61.48	56.04	65.24	57.76	61.90	51.88	61.47	54.22
10.00 - 14.99	8.52	12.73	18.29	25.10	17.38	23.55	20.63	26.69	18.60	25.38
15.00 - 19.99	2.73	6.33	4.67	9.51	4.29	8.73	4.41	8.67	4.23	8.53
20.00 has. and above	3.49	10.08	1.42	3.83	2.25	5.87	3.53	8.88	2.54	6.63
T o t a l	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Mean Hectarage	7.72 has.		8.39 has.		8.40 has.		8.89 has.		9.44 has.	
Gini Ratio	0.2053		0.1953		0.1889		0.1980		0.2025	

Source: Raw data tabulated from the Bureau of Lands, Manila.

mean hectarage and the farm-size inequality level.

Homestead mean hectarage depicted a consistent rise from 7.72 hectares to 9.44 hectares during the period examined. The average growth of the mean area was 5.2 per cent per 5-year span. The Gini ratios declined by an average of 1.6 percentage points between 1951 and 1965 and increased thereafter. Compared to other non-government assisted public agricultural land grants, the farm-size inequality indicator depicted a relatively less state of inequality.

The data showed that a greater proportion of the homestead patents was concentrated in the second quintile. A significant degree of government regulation curtailed the possession of more than the size a non-government assisted settler could manage given the available resources. Though the fees involved are minimal, i.e., five pesos each as entry and final fees, the costs of development and improvement of the agricultural parcel depend on the settler's given resources. As stipulated, before the patent is granted at least one-fifth of the land area must be improved and cultivated within five years from the date of the approval of the application. The absence of large deviations in the hectarage within the statutory 24-hectare limit might be due to the relatively scarcity of ample inputs to widen the production base

In the early stages of land settlement, pioneers are normally the nuclear-type of families (Rubio 1974) equipped with basic inputs like family labor and savings. Initial savings is intuitively the most

accesible source of farm capital in a non-government assisted settlement.[6/] This could be supplemented by external source of income during off-farm seasons. However, the difficult access to the nearest source of employment due to distance and the absence of infrastructures restrained the settler to augment the farm budget.

Resource constraints might be the basic reason why majority of the homesteads were only partly developed and cultivated as of 1961-1962 (NARRA, Annual Report FY 1961-1962). One should not omit also the effects of risks faced by the pioneer settlers in the frontier region. Farm production set-backs due to negative contributions of risks and uncertainties lead to abandonment of the settlement or the non-cultivation of the farms.

NARRA Homestead. Table 3 illustrates the distribution of the NARRA homestead patents and area by size of hectarage, mean hectarage and the Gini ratios in 1956-1958 and 1961-1967. The data show that majority of the patents granted were concentrated in the 6.00-7.99 hectare class. The government-guided resettlement project showed smaller mean hectarage as compared to the self-financed homestead

---

[6/] In a study conducted by James, the settler's initial farm capital both in the government and non-government assisted homestead settlements has been found to have a positive significant relationship with the size of the improved farm holding. See William James, "An Economic Analysis of Public Land Settlement-in the Philippines," (mimeo., initial data - 1978).

Table 3. Distribution of NARRA Homestead Patents and Area by Size of Hectarage in Palawan, Mean Hectarage and Gini Ratio: 1956-1958 and 1961-1967

Hectarage	1956-1958		1961-1967	
	No. of Patents (%)	Total Area (%)	No. of Patents (%)	Total Area (%)
Below 4.00 has.	4.65	2.47	3.57	2.01
4.00 - 5.99	23.26	18.52	25.00	18.89
6.00 - 7.99	59.30	60.27	46.43	47.24
8.00 - 9.99	8.14	10.67	21.43	26.48
10.00 has. and above	4.65	8.07	3.57	5.38
Total	100.00	100.00	100.00	100.00
Mean Hectarage	6.69 has.		6.89 has.	
Gini Ratio	0.1137		0.1102	

Source: Raw data tabulated from the Bureau of Lands, Manila.

settlements. Moreover, the NARRA resettlement project depicted a relatively lesser degree of farm size inequality.

A resettlement reservation could be opened and activated only as a settlement project after a reconnaisance is conducted by the Bureau of Lands. The survey determines the extent of the physical, social, and other factors that would affect the resettlement activities. Then the agricultural lands of the reservation would be subdivided into farm and home lots. The NARRA employed the contractual services of private surveyors as well as its pool of surveyors and that of the Bureau of Lands.

The settlers in the NARRA projects usually came from highly-tenanted areas as well as from densely-populated regions. In almost all phases of the resettlement, these screened settlers relied on the government in coping with the initial and the ensuing costs of establishment.

The NARRA programmed standard direct and indirect sets of assistance to every settler-family (ibid.). The direct aids were in kinds, viz., (a) transportation from the community of origin to the resettlement site, (b) food and housing materials, (c) medical assistance, (d) farm inputs such as work animals, seeds and seedlings, farm implements, etc., and (e) technical assistance. Loans which were charged to the settler's account were also part of the direct aids. These were amortized for a period of ten years with the initial

payment beginning three years after the settler's arrival in the resettlement area. No interest whatsoever was charged on the settler's loans.

The indirect assistance came in the form of roads and bridges which facilitated marketing of farm crops. Artesian wells as the source of potable water were constructed. Schools were also established. Moreover, logging concessions and sawmill operations were maintained by specific resettlement projects to supply the NARRA with the lumber requirements of the settlers.

The establishment of government-assisted resettlement projects through well-directed parcelling of the public agricultural lands and the presence of resettlement complementary factors of production resulted in a relatively low level of farm-size inequality. Theoretically, the rationale of the well-surveyed agricultural farm sizes is to generate economic returns which cover, at least, the opportunity costs of the acreened settlers had they opted to stay in their communities of origin (Lewis 1966). Generating such incentive, however, needed the constant transfusion of public sector investment to assure its permanency.

Free Patent. Table 4 states that an average of 55 per cent of the free patents distributed within 1951-1975 were in the smallest class group, i.e., below five hectares.

However, the proportional share of the total area of different hectarage size groups showed varying concentrations. A greater fraction

Table 4 . Distribution of Free Patents and Area by Size of Hectarage in Palawan, Mean Hectarage and Gini Ratio, 1951-1975

Hectarage	1951-1955		1956-1960		1961-1965		1966-1970		1971-1975	
	No. of Patents (%)	Total Area (%)	No. of Patents (%)	Total Area (%)	No. of Patents (%)	Total Area (%)	No. of Patents (%)	Total Area (%)	No. of Patents (%)	Total Area (%)
Below 5.00 hectares	48.00	14.63	62.63	17.17	70.13	22.75	49.52	15.71	44.67	11.33
5.00 - 9.99	28.62	30.73	17.17	23.33	14.29	20.16	28.57	31.22	24.00	20.77
10.00 - 14.99	9.85	16.31	8.75	18.11	5.19	13.54	9.52	16.32	10.67	15.45
15.00 - 19.99	6.77	16.99	5.05	16.17	6.49	24.23	4.76	12.10	8.67	18.57
20.00 has. and above	6.77	21.35	6.40	25.21	3.90	19.32	7.62	24.65	12.00	33.88
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Mean Hectarage	7.02 has.		5.61 has.		4.71 has.		6.89 has.		8.10 has.	
Gini Ratio	0.4367		0.5275		0.5356		0.4387		0.4623	

Source: Raw data tabulated from the Bureau of Lands, Manila.

of the free-patent hectarage granted in 1951-1955 and 1966-1970 was in the size group 5.00-9.99 hectares. In 1956-1960 and 1971-1975, majority of the hectarage distributed were in the top quintile and about 24.2 per cent of the aggregate area released in 1961-1965 were in the class group 15.00-19.99 hectares. Relative to the stable concentration of the patent-shares in the first quintile, the variation of the area-shares in the upper quintiles would partly influence the mean hectarage distributed within each 5-year period through significant deviations over time.

While the mean free-patent hectarage declined until 1965, the Gini index increased by an average of five percentage points up to the same period. From 1966-1970 to 1971-1975, there was a marked rise in the mean hectarage which was accompanied by a drop in inequality during the first half of the period and an increase thereafter.

The statutory length of time for the possession of the public agricultural land by the settler or his predecessors-in-interest gives rise to two phenomena, viz., (a) The accumulation of additional lands due to increased farm capital, and (b) The fragmentation of the public agricultural landholding caused by encumbrances or inheritances. The first is seen as a positive correlation between the period of cultivation and the size of the hectarage, while the second is viewed as a negative correlation between the two variables.[7/]

[7/] The author calculated the correlation coefficient to be equal to r=0.27 which is significant at 5%. The sample used was the 1955 free patent data. Thus, the 1955 free patent sample depicted an increasing size in hectarage as period of cultivation lengthened.

Excessive fragmentation could be explained partly by the mechanics of the inheritance system and the pressure of explanding rural population (Binns 1966). Unlike the primogeniture concept adopted in certain European as well as Asian contexts, a fixed system defines the division of the land property among the beneficiaries in the Philippines. The effect of inheritance on the size of the inherited properties depends upon the number of heirs and the physical extent of the landholding, other things being equal. On the whole, differentials in the size of the family which could be assumed as a proxy to the number of heirs, and the physical extent of the agricultural land would contribute to the level of farm-size inequality. In a relatively unexploited territory, the laws of inheritance might emphatically account for the gradual diminution of farm sizes rather than an increasing density of the rural population.

However, the 1955 free-patent sample data revealed that excessive fragmentation did not have a significant effect on the sizes of the farms. In fact, farm size increased as period of cultivation lengthened (see footnote 7). The increase in farm area could be attributed to a rise in productivity or the economies of scale introduced through factor-sharing.[8/]

Cadastral. Table 5 depicts the size distribution of cadastral titles and areas by size of hectarage, mean hectarage, and the Gini indices.

8/ In traditional agricultural economies, the bayanihan system is an alternative source of farm development.

Table 5. Distribution of Cadastral Titles and Area by Size of Hectarage in Palawan, Mean Hectarage and Gini Ratio: 1955 and 1956-1959

Hectarage	1955		1956-1959	
	No. of Titles (%)	Total Area (%)	No. of Titles (%)	Total Area (%)
below 0.30 has.	30.56	7.32	30.32	5.05
0.30 - 0.59	29.79	2.02	21.94	13.15
0.60 - 0.89	14.46	16.08	19.68	19.70
0.90 - 1.19	8.41	13.21	10.32	14.29
1.20 has. and above	16.78	61.37	17.74	47.80
TOTAL	100.00	100.00	100.00	100.00
Mean Hectarage	0.66 has.		0.76 has.	
Gini Ratio	0.5912		0.4603	

Source: Raw data tabulated from the Registry of Deeds, Puerto Princesa, Palawan.

The period of distribution was subdivided into two, viz., 1955 and 1956-1959. More than 50 per cent of the cadastral titles distributed fell in the first two quintiles. The data show that mean cadastral hectarage in both periods were below one hectare. Farm-size inequality was relatively high in 1955 (Gini index = 0.591) and declined by 13 percentage points in 1956-1959.

A greater proportion of the cadastral grants in Palawan was located in the island-municipality of Cuyo. This area attained a marked level of development before the main island of Palawan did. The pressures of increasing population density resulted into the parcelling of the public agricultural lands into dwarf sizes.[9/] Counter measures such as extensive forest clearing and cultivation of virgin lands to maintain the mean hectarage would be ultimately ineffective due to the population increase.

The serious fragmentation of the public agricultural lands led to the outflow of human resources from the over-populated island. As of September 1973, the municipality of Cuyo ranked first in the number of families emigrating from the different towns of the province. (Palawan Economic Development Council, Palawan Long Range Comprehensive Development Plans: FY 1977-1986 Part I).

The cadastral title is characterized by common ownership to the titled land. The co-owners represent the inheritors to the agricultural land. Given the average size of a cadastral farm, which is less than a hectare, the hectarage per inheritor would be very minimal considering the

---

9/ The same characteristic has been noticed by Pelzer (1945) in Java.

large rural families. One might conjecture that agricultural crops are of the perennial type (e.g. coconuts).[10/] Obvious reasons for cultivating this kind of crop would range from the difficult working conditions due to parcelling (especially if the work is carried on at different times or by different persons and using farm implements) to technical difficulties in the agricultural production (Binns, op. cit.).

It is also highly possible that a certain proportion of the possessors of the extremely limited farm lots takes agriculture as a subsidiary occupation (Neale 1962). The migration of the manpower from Cuyo Island tends to support this. The farm owners might have engaged in non-farm economic activities outside of the municipality. Another possible reason could be that the owners might have moved to the main island or other frontier regions to open up additional settlements.

Related to the problem of fragmentation is the presence of badly-shaped fields or "strip" farms (Jacoby 1966) ill-suited for the optimal allocation of agricultural resources. A rational agricultural policy would opt for a consolidation of the small landholdings into units economic enough to shift toward cash crops and adopt new farm practices and improved inputs. The displaced agricultural workers could be partly absorbed in alternative economic activities.[11/]

[10/] This is supported by the findings of Hausherr when he found the cultivation of coconuts in irregular patterns of fields in Basilan before the government surveys were started. See Hausherr (1968/1969).

[11/] As mentioned, this idea is theoretically appealing. It is just the implementation that will expectedly create serious consequences especially that those affected are the relatively poor.

Sales. Table 6 presents the allocation of the aggregate sales patents according to types of ownership. Approximately 93.5 per cent of the total sales patents distributed within 1964-1975 were awarded to individual purchasers. However, the average size of public agricultural lands bought by business corporations was about 15 times bigger than the individual mean acquisition. This is expected since individuals could avail of a maximum of 144 hectares only while the corporations could purchase a maximum of 1,024 hectares.

Table 6. Distribution of Aggregate Sales Patent and Hectarage in Palawan by Type of Ownership, 1954-1975

Type of Ownership	No. of Patents (%)	Total Area (%)	Mean Area (in hectares)
Individual	93.53	52.76	17.91
Corporate	6.47	47.24	267.24
T o t a l	100.00	100.00	

Source: Raw data tabulated from the Bureau of Lands, Manila.

Table 7 states the size distribution of the patents and the area by size of hectarage, mean hectarage, and the Gini indices of the individual sales grants in Palawan. A greater proportion of the individual sales patents released within 1954-1975 was concentrated in

Table 7. Distribution of Individual Sales Patents and Area by Size of Hectarage in Palawan, Mean Hectarage and Gini Ratio: 1954-1975

	1954-1960		1961-1965		1966-1970		1971-1975	
	No. of Patents (%)	Total Area (%)	No. of Patents (%)	Total Area (%)	No. of Patents (%)	Total Area (%)	No. of Patents (%)	Total Area (%)
below 5.00 has.	5.26	0.56	5.88	0.49	5.13	1.04	19.64	5.59
5.00 - 9.99	47.37	12.06	29.41	6.74	51.28	18.10	48.21	31.99
10.00 - 19.99	10.53	4.93	29.41	17.20	23.08	16.52	21.43	29.74
20.00 - 39.99	10.53	13.00	5.88	4.81	5.13	8.19	7.14	17.36
40.00 has. & above	26.32	69.44	29.41	70.75	15.38	56.15	3.57	15.32
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Mean Hectarage	29.88 has.		25.63 has.		18.09 has.		9.96 has.	
Gini Ratio	0.5113		0.4722		0.5075		0.3817	

Source: Raw data tabulated from the Bureau of Lands, Manila.

the 5.00-9.99 hectare group. However, during the period 1961-1965 the patents were equally distributed in the second, third, and fifth quintiles. Previous to 1971, the individually-purchased public agricultural lands were accumulated in the range 40 hectares and above.

The mean hectarage dropped from 29.88 hectares in 1954-1960 to 9.96 hectares in 1971-1975. However, farm-size inequality level fluctuated within the same time span. The Gini ratios were 0.511 in 1954-1960, 0.472 in 1961-1965, 0.508 in 1966-1970, and 0.382 in 1971-1975. Noticeable in the latter period is a drop in the Gini level by 12.6 percentage points with an almost 50 per cent decrease in the average hectarage from 1966-1970. This was basically due to the restructured maximum hectarage embodied in the 1973 Philippine Constitution where individuals could purchase up to 24 hectares of public agricultural lands only.

Table 8 illustrates the size distribution of the corporate sales patents and area by size of hectarage, mean hectarage, and the estimated Gini index in the period 1963-1973. While majority of the corporate sales patents issued were accumulated by the relatively smallest hectarage range, 72.82 per cent of the total hectarage distributed were concentrated in the size group 300.00 hectares and above. The average hectarage was 215.52 hectares and the index of farm size inequality was relatively high at 0.451.

Table 8. Distribution of Corporate Sales Patents and Area by Size of Hectarage in Palawan, Mean Hectarage and Gini Ration: 1963-1973

Hectarage	No. of Patents (%)	Total Area (%)
below 150.00 has.	55.56	14.25
150.00 - 299.99	11.11	12.93
300.00 has. and above	33.33	72.82
Total	100.00	100.00
Mean hectarage	215.52 has.	
Gini ratio	0.4509	

Source: Raw data tabulated from the Bureau of Lands, Manila.

Table 9 and 10 derive the mean values per hectare given the mean costs per patent and the mean areas of individual and corporate purchases, respectively. The mean costs per patent, i.e., individual and corporate, reflected the awarded prices during the bidding proceedings. The data showed that no significant differences existed between the mean values per hectare awarded to individual public agricultural land purchasers except those granted relative to the 1957 individual sales patents.[12/] The data further revealed that no significant differences

[12/] The author used the Wilcoxon two-sample test to determine the presence of significant differences between the possible combinations of the mean values per hectare. Relative to the 1957 mean value per hectare, the 1963 and 1971 mean values per hectare were significantly different at 5% and 0.1%, respectively. Individual and corporate mean values per hecta were significantly different only in 1957 and 1971 at 5% level of significanc

Table 9. Mean Value per Patent, Mean Area and Derived Mean Value per Hectare of Individual Sales Grants in Palawan: 1957, 1963 1967 and 1971

Year (1)	Mean Value per Patent (Pesos/Patent) (2)	Mean Area (in hectares) (3)	Mean Value per Hectare (Pesos/Hectare) (4) = (2)÷ (3)
1957	₱ 491.90	29.54	₱ 16.65
1963	873.33	27.87	31.34
1967	150.00	5.73	26.18
1971	620.37	8.26	75.11

Source: Raw data tabulated from the Bureau of Lands, Manila

Table 10. Mean Value per Patent, Mean Area and Derived Mean Value per Hectare of Corporate Sales Grants in Palawan: 1971

Year (1)	Mean Value per Patent (Pesos/Patent) (2)	Mean Area (in hectares) (3)	Mean Value per Hectare (Pesos/Hectare) (4) = (2)÷(3)
1971	₱ 3,750.00	50.00	₱ 75.00

Source: Raw data tabulated from the Bureau of Lands, Manila.

could be attributed to the mean values per hectare granted to both individual and corporate public agricultural land vendees except those granted relative to the 1957 distribution. No further inferences could be deduced from the data. It is just important to note that there is no specific provision in the Public Land Act which offers differential rates per hectare between the individual and corporate purchasers. The difference between the accumulated hectarage of the two sets of purchasers would be a function of their respective farm budgets, i.e., other things constant.

The relatively lower levels of awarded public agricultural land prices could be attributed to two factors, viz., (a) The abundant supply of public agricultural lands in Palawan which could always provide numerous alternative patterns of demand decisions to the settler, and (b) The prohibition of speculation in the acquisition of the resource as provided in the Public Land Act. The competitive price war, as in ordinary bidding proceedings, is prevented through explicit conditions in the statute. Moreover, it is the cost of developing at least one-fifth of the agricultural land area within five years from the date of the award that determines, more or less, the true price of the resource. The notion of the consumer surplus is important then in evaluating the settler's willingness to pay for the resource (Mazzola 1958).

Among the public agricultural land purchasers, the inequality in farm sizes is explained by the different maximum hectarage that could be acquired by the individual and corporate settlers. Among individual

public agricultural land vendees, however, farm-size inequality is attributed to inequality in the level of initial farm capital necessary in the cultivation of at least 20 per cent of the agricultural area applied for. The same explanation would hold true for the corporate purchasers of public agricultural lands.

The existence of amply supply of farm capital plus access to credit facilities enable corporate settlers to meet higher production budgets. Relative to the desired levels of agricultural production, corporate farming has access to competent management, abundant cheap labor, and the existence of large-scale complementary services. In the long run, corporate farmers operate under lower production costs due to external economies generated by acquired and induced technological innovations.

The social cost in terms of the displacement of potential settlers from the public agricultural lands might be weighted against the resulting efficiency in corporate farm production. There exists a trade-off between efficiency, i.e., relative to goals of national self-sufficiency and the creation of agricultural surplus, and equity, i.e., the distribution of equally-parcelled public agricultural lands to a wider base of agricultural tillers. An alternative development path would opt for an intensive small-scale agricultural production thus eliminating the strict trade-off between efficiency and equity. Clearly, this alternative is desirable if equitable distribution is given primary consideration.

The existence of large grants aggravated the land tenure system in the country (Pelzer, op. cit.). Prior to the enactment of Republic Act No. 6389 (The Land Reform Code), cases of absentee landlordism were common in the rural areas where large agricultural tracts of lands were subdivided and cultivated by tenants. Share tenancy was one of the practical alternatives of landless agricultural workers who lacked the required inputs, through opportunity or otherwise, to possess farm lands themselves. A profit-concious landlord would maximize the rent from the agricultural land when such is subdivided among several tenants. This would result into a higher total rent (Cheung 1969). Though share tenancy provided a source of income for the landless, this was a misdirected palliative to the problem of equity which discouraged the tenant-farmer from producing more, i.e., the disincentive effect.

Lease. Table 11 presents the allocation of the aggregate lease titles in Palawan between the individual and corporate rentiers. In the entire period of the study, 42.9 per cent of the lease titles were granted to individual lessees. These titles were released specifically in 1966 and 1971 only. Business corporation engaged only in renting public agricultural lands in Palawan in 1972, 1973, and 1975. The significant difference between the mean hectarage rented by business corporations to that of the individual rentiers is seen from the 25:1 ratio (as computed from the table).

Table 11. Distribution of Lease Titles and Hectarage In Palawan Released Between 1966 and 1975, By Type of Rentier

Type of Rentier	No. of Titles (%)	Total Area (%)	Mean Area (in hectares)
Individual	42.86	2.93	26.60
Corporate	57.14	97.07	662.16
T o t a l	100.00	100.00	

Source: Raw data tabulated from the Bureau of Lands, Manila.

The disparity in the mean hectarage between individual and business rentiers is quite important since both types of lessees face the same constraints on the maximum hectarage, i.e., 1,024 hectares or 2,000 hectares if it is for grazing purposes.[13/]

The manner of acquisition through lease follows the same pattern as that of the sales distribution, i.e., through public bidding. Each applicant (regardless of whether it is an individual or corporation) is supposed to submit a bid price which must be at least equal to three per cent of the appraised or reappraised value of the agricultural land. The lease is granted to the highest bidder. No less than one-fifth of the agricultural land area must be developed and cultivated within five years from the date of the award. If the acquisition is

[13/] Individual rentiers are limited to acquire a maximum of 500 hectares of public agricultural lands as modified in the 1973 Philippine Constitution.

intended for grazing purposes, at least one-half of the total area must be grazed at the rate of one head per hectare. It is clearly seen that the disparity across the rented farm lands is partly due to the inequality in the level of initial resources among the rentiers. Also, no further distinction has been set in the Public Land Act to ensure a judicious allocation of public agricultural lands between the two types of rentier.

Tables 12 and 13 show the size distributions of lease titles and areas by size of hectarage for both individual and corporate lease-holders in Palawan, respectively. The tables further provide the mean hectarage and the estimated Gini ratios.

The data reflected that individual lease grants displayed much lower farm-size inequality than the corporate-rented farm lands. There is a need, however, to examine further the lease distribution in other provinces since the high maximum hectarage allowable for disposition would certainly permit a high level of farm-size inequality.

Furthermore, rentiers have the option to purchase the leased public agricultural lands after the initial 25 years of cultivation. Since this would lead into the establishment of property ownership of the agricultural lands, its fragmentation is to be expected partly through the inheritance system. It is highly probable that this would aggravate the state of farm-size inequality.

Table 12. Distribution of Individual Lease Titles and Area by Size of Hectarage in Palawan, Mean Hectarage and Gini Ratio: Released in 1966 and 1971

Hectarage	No. of Titles (%)	Total Area (%)
below 24.00 has	50.00	44.89
24.00 - 24.99	16.67	15.66
25.00 has. and above	33.33	39.45
T o t a l	100.00	100.00
Mean Hectarage	26.60 has.	
Gini Ratio	0.0646	

Source: Raw data tabulated from the Bureau of Lands, Manila

Table 13. Distribution of Corporate Lease Titles and Area by Size of Hectarage in Palawan, Mean Hectarage and Gini Ratio: Released in 1972, 1973, and 1975

Hectarage	No. of Titles (%)	Total Area (%)
below 700.00 has.	37.50	15.64
700.00 - 899.99	37.50	46.59
900.00 has. and above	25.00	37.77
T o t a l	100.00	100.00
Mean Hectarage	662.16 has.	
Gini Ratio	0.2437	

Source: Raw data tabulated from the Bureau of Lands, Manila.

III. SUMMARY AND CONCLUSION

Resumé

The following are the major findings of the study, viz.,

(a) The public agricultural land distribution policy in the Philippines can be categorized as follows, viz., (1) regulatory, and (2) resettlement-oriented. The first is manifested through various rules and regulations embodied in the Public Land Act. Such rules and regulations govern the manner of acquisition of voluntarily-occupied agricultural areas of the public domain as well as the system of disposal of large tracts through purchase and lease. The second involves investment by the public sector in resettlement projects to ease congestion in highly-tenanted areas, as well as to hasten the utilization of agricultural land resources in sparsely-populated regions. Public sector activity is significantly visible in resettlement areas in the form of public expenditures.

The data illustrate that regulation of the maximum hectarage allowable for cultivation significantly curbs the rise in farm-size inequality. In a relatively less populated region, the absence of a legal constraint to cultivate a certain proportion of the agricultural land area applied for means that settlers cultivate or possess the maximum hectarage permitted. Hence, the size distribution per type of public agricultural land concession will be absolutely equal relative to those who acquire public agricultural lands, other things remain equal. This will mean a lesser number of settlers and the inefficient utilization of public agricultural lands. Settlers will indiscriminately acquire the maximum hectarage regardless of

whether they possess the production inputs to develop said tracts. In order to regulate inefficient public agricultural land utilization, the government ensures that only capable and qualified settlers acquire public agricultural lands by stipulating a minimum percentage of the agricultural land area to be cultivated prior to the grant.

Such stipulation gives rise to different farm sizes acquired since settlers have different levels of resources. This is the reason for the farm-size inequality. Such inequality can only be regulated through the adoption of a lower maximum hectarage since differences then across farm sizes will be lower too. Moreover, farm size differences can be lessened by augmenting the farm budget through efficient credit facilities and factor-sharing.

(b) Free-patent and cadastral grants are basically described as imperfect or incomplete titles due to the characteristic time length of occupation or possession of the public agricultural lands. The recognition of legal ownership is based on the proof of continuous and exclusive possession of the agricultural land by the applicant or his predecessors-in-interest. The continuous and exclusive possession of public agricultural lands results into two possible phenomena, viz., (1) The accumulation of additional hectarage due to increased farm capital and less factor costs due to the bayanihan-type of factor utilization, and (2) The fragmentation of the farm lands partly through inheritance, encumbrance, and other factors.

The 1955 free-patent data revealed that there existed a significant positive correlation between the period of cultivation and the size of the hectarage. Hence, this statistical significance tends to corroborate the hypothesis that improved farm area is a function of the availability of farm capital. Farm capital might significantly increase over time as a result of increased factor productivity. On the other hand, the cadastral distribution showed excessively smaller farm sizes. Through the statutory length of the time period, one could deduce that these minimal farm sizes are attributed to the fragmentation of the original farms through hereditary succession, encumbrances, and population increase.

There is a growing possibility that the Gini index would taper off as the period of cultivation lengthened. The free-patent data partly showed this and the phenomenon is illustrated among the cadastral farms. Improvement in the level of farm capital due to increased agricultural productictivity could improve the size distribution of the free-patent agricultural lands. On the other hand, there might exist a minimum level, i.e., a threshold, below which further fragmentation of the farm is avoided due to social and economic non-profitability of the land-holding. Settlers would avoid parcelling the agricultural lands below this threshold and, instead, cultivate the land as a whole and divide the output among themselves. This possibility deserves further examination.

Recommendations

The following are the normative policy measures designed to intervene in the pattern of land acquisition with the general aim of altering the present pattern of agricultural land distribution, viz.

(a) Public sector investment on government-assisted resettlement projects must be stepped-up. This is to ensure a levelling of the farm sizes to a wider base of settlers. The data revealed that less than two per cent of the aggregate hectarage released within 1951-1975 were accumulated by the NARRA homesteads. By contrast, 20 percent of the aggregate hectarage were obtained through sales and lease grants though the proportion of vendess and rentiers to the total population was only about two per cent. Rela ive to this, a measure of benefit should be geared towards the consumption of small settlers through protective measures. This will imply a regulation on the entry of business corporations in public agricultural land acquisition.

(b) There should be a revision of the maximum hectarage to accomodate as many recipients as possible.[14/] This would be a direct step toward lessening the disparity across farms. An optimum welfare policy would work for a lowering of the maximum hectarage allowable under each type of grant without impairing the farmer's incentives to increase output. Particularly, a uniform level among

---

14/ The revision under the 1973 Philippine Constitution is a step toward this goal.

the different public agricultural land concessions would ease the disparity among the different types of settlers.

Inasmuch as this is an initial attempt toward the evaluation of public sector participation in public agricultural land distribution vis-a-vis the equity criterion, more still is to be desired in terms of analyzing thoroughly the institutional millieu in the distribution process. Also, there is a need to discover causal linkages which determine farm-size inequality. Lastly, it may be academically attractive to investigate the relationship of public agricultural land distribution and income distribution.

REFERENCES

Binn, Sir Bernard O. (1966). "Causes and Effects of Land Fragmentation," in Selected Readings in Getting Agriculture Moving, Vol. 1 by Raymond Borton (ed.). The Agricultural Development Council, Inc.: New York.

Bronfenbrenner, Martin (1971). Income Distribution Theory. Aldine-Atherton: Chicago.

Buchanan, James M. (1968). The Demand and Supply of Public Goods. Rand McNally and Company: Chicago.

Bureau of Lands (1960). Statistical Bulletin (mimeo.).

Chapin, F. Stuart. (1947). Experimental Designs in Sociological Research. Harper & Brothers: New York.

Cheung, Steven N.S. (1969). The Theory of Share Tenancy. The University of Chicago Press: Chicago.

Fernando, Enrique (1974). The Constitution of the Philippines. Phoenix Press, Inc.: Manila.

Hausherr, Klaus (1968/1969). Agricultural Colonization in Kapatagan Basin. Yearbook of the South Asia Institute: Heidelberg University.

Jacoby, Erich H. (1971). Agrarian Unrest in Southeast Asia. Greenwood Press: Westport, Connecticut.

_____ (1966). "Economic and Technical Consideration in Land Reform," in Selected Readings in Getting Agriculture Moving, Vol. 1 by Raymond Borton (ed.). The Agricultural Development Council, Inc.: New York.

James, Williams (1978). "An Economic Analysis of Public Land Settlement in the Philippines," (mimeo., initial data).

Lewis, W.A. (1966). "Thoughts on Land Settlement," in Selected Readings in Getting Agriculture Moving, Vol. 1 by Raymond Borton (ed.). The Agricultural Development Council, Inc.: New York.

Mazzola, Ugo (1958). "The Formation of the Prices of Public Goods," in Classics in the Theory of Public Finance by Richard Ruggles et al. (eds.). The MacMillan Company: New York.

National Resettlement and Rehabilitation Administration. Information Brochure.

_____. Annual Report FY 1961-1962.

Neale, Walter C. (1962). Economic Changes in Rural Tenure and Reform in Uttar Pradesh, 1800-1955. Yale University Press: New Haven.

Noblejas, Antonio H. (1965). Land Titles and Deeds. Villanueva Publishing House: Manila.

Oshima, Harry T. (1975). "Perspectives in Income Distribution Research," in Income Distribution Employment and Economic Development in Southeast and East Asia a joint publication by Japan Economic Research Center and Council for Asian Manpower Studies.

Palawan Economic Development Council. Palawan Long Range Comprehensive Development Plans: FY 1977-1986 Part I.

Pelzer, Karl J. (1945). Pioneer Settlement in the Asiatic Tropics: Studies in Land Utilization and Agricultural Colonization in Southeastern Asia. American Geographical Society: New York.

Pen, Jan (1971). Income Distribution. Penguin Books Ltd.

Rubio, Clarissa (1974). Development of a Scale to Measure the Adjustment of Settlers in Some Settlement Communities. Unpublished M.A. Thesis, University of the Philippines, Diliman, Quezon City.

Sanderatne, Nimal (1974). The Political Economy of Asian Agrarian Reform: A Comparative Analysis with Case Studies of the Philippines and Sri Lanka (Ceylon). Unpublished Ph.D. Dissertation, Purdue University, Indiana.

Sen, Amartya (1973). On Economic Inequality. Oxford University Press: London.

Sta. Romana, Leonardo (1976). "Indicators for Economic Well-Being," in Measuring Philippine Development by Mahar Mangahas (ed.). Development Academy of the Philippines.

Tablante, Nathaniel B. (1956). An Appraisal of Agricultural Problems and Policies in the Philippines. Unpublished Ph.D. Dissertation, Purdue University, Indiana.

Tan, Edita A. (1976). "Income Distribution in the Philippines," in Philippine Economic Problems in Perspective by Jose Encarnacion, Jr. et al. (eds.), Institute of Economic Development and Research, University of the Philippines, Diliman, Quezon City.

Tobin, James (1973). "On Limiting the Domain of Inequality," in Economic Justice by Edmund S. Phelps (ed.). Penguin Modern Economic Readings.

UP Law Center (1971). Philippine Permanent and General Statutes, Vol. 2.

Watson, Donald Stevenson (1971). Price Theory and Its Uses. Houghton Mifflin Company: Boston.

Weiss, Carol (1972). Evaluation Research: Methods for Assessing Program Effectiveness. Prentice Hall: Englewood Cliff, New Jersey.