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LAND TENURE AND SOCIAL PRODUCTIVITY IN MEXICO

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It can be successfully argued that the land tenure system is a crucial issue in development less because of its effect upon the social product than because landownership in less developed societies is the genesis[1] of control of labor, wealth, social prestige, and political power.[2] Despite the persuasiveness of this position, unqualified faith in scale economies in agriculture and a resulting evocation of the alleged "technological imperative of size" operate to provide a mantle of legitimacy for those desiring to maintain the institution of the largeholding. Probably nowhere in Latin America has the conflict between the apologists of neo-latifundismo and the proponents of decisive agrarian reform been more manifestly bitter and long-enduring than in Mexico.

In this paper the relationship between tenure form and social productivity in Mexico is subjected to renewed inquiry.[3] In the first section the various criteria of productivity are examined and assessed for relevance in the context of the Mexican environment, a set of factor endowments in which labor is abundant--indeed, redundant--and land and capital notably scarce.[4] The criterion selected is then applied to the three tenure classes of agricultural units for which data are available--minifundia of 5 hectares and under, ejidos,[5]

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and private largeholdings in excess of 5 hectares; in the second section these tenancy forms are compared on the basis of their level of static efficiency, and in the third section comparison is made in terms of dynamic efficiency. In the fourth section a general conclusion is derived as to the most socially productive of the three tenure forms analyzed. In the fifth section the institutional facade structuring this conclusion is penetrated. It is established that the distribution of good and poor quality land within each tenure system creates subcategories of enterprises which vary in their capacity to effectively respond to their economic environment. In the final section a general conclusion is offered as to the relative social productivity achieved by these categories of enterprises and the relevance of the findings to future policy advanced.

I. THE MEASUREMENT OF SOCIAL PRODUCTIVITY

Social Productivity Criteria

While many writers have attempted to inquire into the comparative productivity of Mexico's three tenure systems, their analyses have generally been misleading as a consequence of the employment of deficient measures of efficiency. These measures have been of three types. One has attributed the characteristic of efficiency to the tenure system that has produced a given output at minimum monetary cost. It has implicitly assumed the presence of competitive factor markets and has measured costs in terms of market prices paid for inputs.[6] The weakness of such a methodology is that in the reality of Mexico factor prices are commonly not established in competitive markets and hence a definition of efficiency so based is inaccurate. In an environment characterized by over-population, such an approach acts to overstate the cost of labor

and hence promote a bias favoring the labor-saving large landholding relative to the small unit.

A second group of writers has measured efficiency in terms of gross output per unit of land.[7] This approach involves two weaknesses. First, it tacitly assumes land is homogeneous, an error that is either inexcusably sloppy or deliberately contrived. Even more important, this methodology ignores the value of scarce resources expended in production or, more accurately, implicitly assumes that the latter are proportional to output for the several tenure groups. In an environment such as Mexico, this method operates to overstate the value of inputs employed by the smallholdings and, accordingly, exaggerates the relative efficiency of the large agricultural units whose inputs of mechanization, chemical fertilizers, pesticides, and irrigation facilities are socially costly.

A third approach has defined efficiency in terms of output per unit of labor.[8] Such a measure is a valid criterion of efficiency only under circumstances where: (1) labor is the scarce factor of production; or (2) the number of workers employed is given. With a redundant labor force of several million in the agricultural sector alone, labor cannot be construed as the scarce factor; and in a capitalist environment where the level of employment is based upon microeconomic considerations, marginal labor productivity may be comparatively high as a consequence of the restriction of its labor utilization by an individual enterprise. Such an expedient, the exclusive prerogative of the large commercial farm, is inconsistent both with the welfare of the workers thus deprived of employment and with the size of the social product. As in the case of the previous measures cited, the labor productivity criterion imposes a bias favoring the large commercial enterprise or <u>finca grande</u>.

In order to establish a useful criterion of efficiency it is necessary to assess all inputs at their social value. Given the acknowledged disequilibrium in the Mexican labor market--one in which over 4 million man-years of labor remain unused in the agricultural sector alone and an additional 6-8 million Mexicans have been forced to seek employment in the United States--the basic step in this process is to correct for the price of "typical" agricultural labor. The level of redundancy of the labor force seems unequivocally to call for setting the social opportunity cost of this factor at zero. It follows that the appropriate criterion of sectoral productivity is the level of output per unit of land less the cost of capital increments expended, valued at their social opportunity cost,[9] or:

$$P_i = \frac{X_i - C_i}{L_i}$$

where P_i = the level of social efficiency achieved by agricultural unit or agricultural subsector i;

X_i = the social value of the agricultural product of enterprise or subsector i;

C_i = the social opportunity cost of resources employed in the activity by enterprise or subsector i;

L_i = unit of land of specified productive capacity employed by enterprise or subsector i.

Application of Data

Into the above equation are inserted specific statistical concepts. These are examined and criticized as follows:

1) The social value of the agricultural product is defined as the value of short-cycle crops, fruit tree production, plantaciones, and the output of agaves. Value is calculated on the basis of actual physical production measured in terms of prevailing average rural prices. It is thus an ostensibly

objective and impartial measurement. In fact, however, there exist seeds of bias and these favor the finca grande at the expense of the other tenure forms. This follows from two facts. First, for a variety of reasons--ecological, institutional, and psychological--the minifundia and to a degree the ejido tend to produce extensive crops, particularly maiz and frijol, while large commercial units typically specialize in intensive production such as alfalfa, soybeans, sorghum, and tomatoes. Second, the vitality of the market for the latter commodities determines a high price for these products vis-à-vis those of the traditional agricultural units. What is strategic to the current analysis, however, is that this market does not reflect social value but merely the structure of demand arising from the highly skewed national and international distribution of income. For the mass of low income Mexicans the maiz and frijol produced by the peasant agricultural units are of far greater importance than the forage and other crops of the large profit-directed enterprises.[10]

2) Social opportunity cost of resources employed in the activity encompasses both the value of direct inputs expended and an appropriate charge for fixed capital employed. Direct expenses such as seed, fertilizer, herb-, insect- and pesticides, and irrigation water are charged at prices quoted. Implied in this is the assumption that the value of the latter inputs do not diverge sufficiently from the prices at which they are quoted to seriously distort the resulting conclusion. This is unlikely to be entirely valid. For example, the price of irrigation water is highly subsidized by the Secretaría de Recursos Hidráulicos (SRH); the actual operating costs alone average 36-50 percent above the price charged users. Additionally, the price of diesel fuel is maintained at a price approximately 50 percent of its world market value. Distortions also exist in the price of fertilizers, seeds, and other

inputs.[11] None are tenancy-neutral, and inevitably the bias is in favor of the finca grande.

To the input of labor, as noted above, there is assessed a cost of zero, a reflection of the superabundance of this factor in the Mexican environment. The procedure is subject to two significant criticisms. First, all labor is in fact not unskilled. On the contrary, a certain indeterminate portion of it possesses an expertise or capacity--technical, administrative, or entrepreneurial--which renders it a scarce resource. The use of such labor implies a social cost which must be borne by the applicable subsector. Since this specialized labor is principally found on the finca grande and, to a lesser extent, in and associated with (in bureaucratic support positions) the ejido, the failure to compute this factor overstates the social productivity of these tenure forms.

Secondly, establishment of a shadow price of zero to the use of unskilled labor implies not only that its use encompasses no cost to society, but also that its employment is without intrinsic value. This is clearly not the case.[12] The greater the employment-creating capacity of a tenure form, the greater is its consistency, in general, with the broader goals of development. It follows that in principle the price of labor should be established at a <u>negative</u> level, the tenure form that maximizes the use of this input being credited with a dimension of efficiency on this basis. That this is not done in the present analysis understates the social value of the minifundio and, to a lesser extent, the ejido, vis-à-vis the finca grande.

The value of capital goods including buildings, irrigation equipment, mechanized traction, work animals, and implements are listed at assessed valuation.[13] A capital charge on fixed capital, equipment, and work animals assumes a social discount rate of 10 percent. Depreciation is charged to

equipment and construction also at a rate of 10 percent. It should be noted, however, that the application of a single rate of depreciation for all three tenure systems may contain a bias. The actual rate of depreciation on capital is dependent upon the nature of the capital equipment involved. More sophisticated equipment tends to be subjected to a higher effective rate of depreciation, and the nature of capital is not tenancy-neutral. More particularly, however, the actual rate of depreciation must be a function of the care with which the equipment is used and maintained. There is evidence that ejidal equipment may typically be subject to a higher level of attrition than that experienced by the finca grande, due both to a relatively lower average level of expertise on the part of ejidatario operators and to a lack of unity of responsibility within the ejidal organization.[14] To the extent that this is so, the use of a single depreciation rate for all three subsectors likely imposes a bias against the large farm where a higher average level of technical specialization and a more structured organization promote better conservation of capital than is the case in the ejido.[15] The bias may be even stronger against the minifundia, since the latter typically utilize only the least sophisticated capital and are subject to the least disunity of responsibility.

3) Land is measured as homogeneous units of equal quality. Since land in Mexico varies greatly in productive capacity, it is fundamental to the accuracy of the analysis to realistically reflect the three tenure systems' comparative land endowment. In principle this is achievable through defining land not in geographic but in value terms. While census data enumerate all assets on the basis of assessed valuation, unfortunately these valuations appear more to reflect political and/or economic power than technical objectivity. Thus, despite the fact that historically the original landholdings retained choice land and distributions to ejidos were made from peripheral land, and minifundios

typically possess land little more fertile than rock piles or 30° hill sides, the census figures suggest the reverse tendency. Irrigated land of the fincas grandes is assessed at a per hectare rate only 94.4 percent as great as ejidal land and 85 percent as great as minifundial land; for humid land the equivalent figures are 96.6 and 77.5 percent and for temporal land, 79.3 and 53.6 percent, respectively. Unequivocally, it is impossible to employ assessed valuation data directly. A compromise would be to average the value of all land of a given category and compare on this aggregated basis. This procedure indicates a price structure of 1 : 2.3 : 5.1 for temporal to humid to irrigated land. In the present work it is assumed that the productivity ratio is a more conservative 1 : 2 : 3, and the "representative" unit of land utilized in this analysis is so based. See Appendices A and B.

There remains, however, a weakness that is not readily subject to compensation. It is taken as given that all temporal land is identical in terms of its productive capacity. In fact, this is far from being the case. Thus one investigation concludes that of Mexico's temporal land, 20.4 percent is good to excellent, permitting at least, and even more than one harvest per year; 16.6 percent is deficient, with harvest varying greatly with the caprice of the climate; and 63 percent with harvest poor and problematical.[16]

Given the heterogeneous nature of temporal land, what is strategic to the current analysis is the distribution by quality among the three tenure forms. Unfortunately, census data provide no information with regard to this basic point. For theoretical and historical reasons, however, it is plausible to assume that this distribution favors the large landholding relative to the ejido and especially the minifundio.

First, under the regulations prevailing since the inception of the agrarian reform, properties subject to affectation have been permitted to retain a

so-called pequena propiedad--normally 100-150 has. of irrigated land or the legal equivalent of lower quality terrain, with the proprietor privileged to select the particular section of his choice. It requires no travesty upon conventional behavioral assumptions to postulate that, ceteris paribus, the representative landowner will have typically chosen to retain the most productive land and to relinquish the least productive to ejidal tenure. Given this, it may be concluded that the average quality of large private landholdings is higher than that of the ejidal land to which much was originally transferred.

Second, even if private and ejidal land were of equal quality at the time of the distribution, the forces of time will have tended to operate more adversely upon the terrain of the ejido. This is so because on a preponderance of ejidos--and the same principle applies even more forcibly to the minifundio --the pressure of population serves to impose maximum utilization of land at any given point of time. Thus while largeholdings can embrace a long-run perspective, leaving land fallow an optimum percentage of the time to rejuvenate its productive powers, this is a luxury not feasible for land-poor ejidatarios and minufundistas who are impelled by short-run demands to "mine" their land.[17] This thesis is supported by evidence from recent census data. In 1970 fincas grandes purposefully left en descanso an average of 10.8 percent of their cultivable temporal land, ejidos 7.3 percent, and minifundios 6.6 percent.[18]

Third, the land scarcity experienced by the ejidal and minifundial sectors forces them to subject to the plow land that for the better endowed finca grande sector is submarginal for cultivation purposes. While the latter group allocated in 1970 but 58.7 percent of their cropland to cultivated crops, the minifundios dedicated 90 percent and the ejidal sector 84 percent. The minifundial and ejidal sectors thus employed 53 percent and 43 percent, respectively, more of their land for cultivation than did the fincas grandes. This

phenomenon of land use was noted by Oscar Brauer Herrera, the former Secretario de Agricultura y Ganadería, "Se siembra en tierras de pastoreo, y se pastorea en tierras de agriculture" ("pasture lands are cultivated and cultivable lands grazed").[19]

Lastly, despite the accuracy of Manzanilla's observation that "there has always existed in Mexico the tendency to monopolize lands," even in the height of the Porfiriato smallholdings continued to exist.[20] This, it may be suggested, is because land of sufficiently low quality does not lend itself to a tenure system other than that of direct owner-operation: the productivity is so low that after meeting the minimum biological requirements of even the most ascetic tiller, it provides no surplus to channel as rent to a landlord class. Without stating so explicitly, this is implied by Ramón Fernández y Fernández's observation, "in lands of low quality it is almost impossible to conceive of another form of exploitation than the minifundio."[21] Low capacity of land, then, operates as a barrier, protecting the smallholder from the avarice of the powerful; it is securely the domain of the minifundista, private or ejidal.

The thrust of the above analysis is that as a consequence of the operation of the forces cited, there is a strong presumption that the average quality of the temporal land on largeholdings is higher than that possessed by ejidos and particularly minifundios. Since all temporal land is weighed equally, the result is to engender a bias overstating the productive efficiency of the largeholding relative to the other two tenure forms and the ejido relative to the minifundio.

Tenure Systems and Static Efficiency

In the context of the methodology established above and the considerations which operate to compromise the accuracy of the data employed, Tables 1 and 2 may be viewed. In Table 1 the comparative productivity of the three

Table 1

Social Productivity by Tenure Class
(average of 1940-70 data)

	Fincas Grandes	Minifundistas	Ejidos
	. . . . . (000 pesos)		
Output	10,525,700	1,585,500	9,909,100
Inputs			
Depreciation	968,600	42,600	483,500
Capital costs	1,030,300	59,700	638,700
Direct expenses	3,465,000	268,300	1,855,500
Total costs	5,463,900	370,600	2,977,700
Net social product	5,061,800	1,214,900	6,931,400
Surface area exploited (has.)	9,436,500	1,630,000	11,110,800
Net social output/ha.	M$541	M$686	M$609

SOURCE: Data calculated from Table 2 according to method explained in Appendix C.

tenure groups is shown as an average of the four census years covering the three decades between 1940 and 1970.[22] According to these data, the social product of the minifundia is seen to approximate M$686 per hectare, that of the ejido M$609, and that of the finca grande M$541.[23]

In Table 2 these figures are disaggregated into their respective census years. The result is to only slightly impair the neatness of the above productivity structure. In the first three of the four years, the social productivity of the minifundia leads that of the competing tenancy systems by a decisive margin. In the 1970 reporting, the productivity of this group calculates to be a marginal 1.3 percent below that of the ejidal system.[24] The ejido, aside from its statistically insignificant victory over the minifundia

Table 2

Productivity by Tenancy

	Fincas Grandes	Minifundistas	Ejidos
	. . . . . (M$000)		
1940			
Output of crops[a]	295,700	75,500	392,100
Inputs			
Capital charge[b]	24,700	2,100	28,500
Depreciation[c]	21,500	1,200	24,500
Direct expenses[d]	62,000	9,600[f]	56,100
Total costs	108,200	12,900	109,100
Net output	187,500	62,600	283,000
Surface area exploited (has.)[e]	4,411,500	1,035,700	5,699,700
Net output/ha.	M$42	M$60	M$49
1950			
Output of crops	2,748,500	450,500	1,874,100
Inputs			
Capital charge	165,600	11,400	87,600
Depreciation	156,800	7,900	73,600
Direct expenses	797,000	50,700	186,600
Total costs	1,120,400	70,000	347,800
Net output	1,628,100	380,500	1,526,300
Surface area exploited (has.)	5,733,700	1,328,400	6,946,200
Net output/ha.	M$284	M$286	M$220
1960			
Output of crops	7,633,300	823,100	5,820,200
Inputs			
Capital charge	635,500	25,100	314,200
Depreciation	552,800	17,200	220,400
Direct costs	3,008,700	167,500	1,417,000
Total costs	4,197,000	209,800	1,951,600
Net output	3,436,300	613,300	3,868,600
Surface area exploited (has.)	9,018,300	1,263,600	8,500,600
Net output/ha.	M$381	M$485	M$445

(continued)

(Table 2 cont.)

	Fincas Grandes	Minifundistas	Ejidos
	. . . . .	(M$000)	
1970			
Output of crops[a]	9,865,800	887,800	11,266,600
Inputs			
Capital charge[b]	1,235,100	56,200	439,600
Depreciation[c]	1,166,000	51,300	277,400
Direct expenses[d]	3,178,100	179,000	2,231,600
Total costs	5,579,200	286,500	2,948,600
Net output	4,286,600	601,300	8,318,000
Surface area exploited (has.)[e]	9,239,200	883,600	12,054,600
Net output/ha.	M$463	M$681	M$690

[a]For short-cycle crops, fruits and agaves, measured in monetary terms.

[b]Assuming a social opportunity cost of capital equal to 10 percent on constructions, irrigating equipment, agricultural implements and equipment, and work animals.

[c]Charged at a rate of 10 percent on all physical capital other than land and work animals.

[d]Unspecified in 1940 and 1950 census data; includes administration, fertilizers, insecticides, rental of work animals and equipment, petroleum products, irrigation water, and "other expenses" in 1960. In 1970 seeds and land rental are also specified.

[e]Of "representative" homogeneous land. See Appendix A for computation.

[f]Unreported. Assumed to have a 0.155 functional relationship to output of short-cycle crops, as per 1950.

SOURCE: Raw data from Censos Agrícola-Ganadero y Ejidal, 1940, 1950, 1960, 1970.

in the most recent reporting period, deviates from its second place standing only in the year 1950. In that year it replaces the finca grande as the third ranked group with a low aggregate output attributable to its performance in the production of agaves and frutales.[25] The fincas grandes, with this exception, inhabit third place throughout the four reporting periods. Thus it

appears on the basis of this assessment of the pattern exhibited by the time series that no secular forces are evident which vitiate the productivity structure evinced by the aggregated data. In terms of static efficiency, the minifundia are seen to be most socially productive, and to enjoy this status by a substantial margin. The ejidos occupy an intermediate position in the order, and the fincas grandes are unequivocally the least effective as economic institutions.[26]

Tenure Systems and Dynamic Efficiency

The subject of productivity requires analysis not only of a static nature, but must also be concerned with the additional dimension of increasing output over time. The presence of countervailing forces makes it impossible to determine a priori whether greater dynamic efficiency can be expected to result from large or small holdings.[27] In the case of Mexico, the comparative growth performance of the three tenure systems has been extensively discussed in the literature. As in the case of static efficiency, however, the findings have been inconclusive and, indeed, conflicting, as a consequence of both the different methodological approaches employed by researchers and the ambiguity of the data available.[28]

Utilizing the productivity criterion employed above--per hectare value of crop production net of social costs--it is, in principle, possible to compare the relative dynamic efficiency of the three tenure systems. The findings for the thirty-year period between 1940 and 1970 are shown in Table 3. The initial observation which may be made from these data is that the growth rate of the ejidal sector has been the highest of the three tenancy forms. For overall agricultural production, this group increased its social product per hectare fourteenfold in the three-decade period, while the minifundia and finca grande sectors--quite surprisingly considering their dissimilarity--virtually tie

Table 3

Growth of Social Productivity by Sector, 1940-70
(000 current pesos)

Sector	1940 Output	Growth '50/'40	1950 Output	Growth '60/'50	1960 Output	Growth '70/'60	1970 Output	Growth '40/'70
				Short-Cycle Crops				
Fincas grandes	M$32	5.18	M$166	1.07	M$178	1.51	M$268	8.38
Minifundistas	M$49	4.18	M$205	1.93	M$396	1.01	M$403	8.23
Ejidos	M$46	4.13	M$190	1.86	M$354	1.67	M$591	12.85
				Total Agricultural Production[a]				
Fincas grandes	M$42	6.80	M$284	1.34	M$380	1.22	M$463	11.03
Minifundistas	M$60	4.77	M$286	1.68	M$481	1.42	M$681	11.35
Ejidos	M$49	4.49	M$220	2.07	M$457	1.51	M$690	14.08

[a]Including short-cycle crops, frutales and plantaciones and agaves; excluding output from non-domestically grown plants.

SOURCE: Data for total agricultural production from Table 2. Data for short-cycle crops derived from Censos Agrícola of the relevant years employing the same methodology.

with a roughly elevenfold increase in the same period. For short-cycle crops alone the same relationship exists, with ejidos expanding their output nearly thirteen times in the period, fincas grandes and minifundia slightly over eight. (The magnitude of all figures unadjusted for inflation.)

When the performance of the three-decade period is disaggregated, however, the productivity structure becomes dominated by ambiguity. This is emphasized by the fact that for the cultivos or short-cycle crops--the maize, wheat, frijol, sugarcane, and cotton that are of preponderant importance to the Mexican

diet and economy--each tenure form is seen to receive first, second, and third place status in one of the decades examined. Thus the base and termination years selected are strategic to the results obtained.

In the case of the fincas grandes, it may be noted that the vitality of this group was uniquely manifested in the decade of the 1940s. It has been noted by several writers[29] that the year 1940 is deceptive as a base year for this reason. Specifically, it is advanced that the finca grande sector was at that time not producing to capacity. The historical explanation for this circumstance is that the period represented the very zenith of energetic land reform; circumspect latifundistas were induced to minimize their commitment to fixed capital--land--which might be subject to expropriation.

This hypothesis receives some empirical support from an analysis of the expansion of inputs in the subsequent period, as demonstrated by a comparison of the 1940 and 1950 census data. The evidence is shown in Table 4. It indicates that while land and capital in the finca grande sector increased in monetary terms by 22 percent annually over that period, circulating capital

Table 4

Input Expansion on Fincas Grandes, 1940-50

Factor	1940	1950	Expansion Rate
	(M$000)		(%)
Fixed capital	220,000	1,570,000	21.7
Livestock	290,000	2,940,000	26.0
Direct expenses (including wage payments)	148,000	1,340,000	24.6
Land	1,643,000	12,562,000	22.2

SOURCE: Censos Agrícola-Ganadero y Ejidal, IV, V, 1940, 1950.

increased at a rate of 26 percent.[30] Thus the latter and variable expenditure increased nearly 20 percent faster than relatively fixed capital. Assuming that in 1950 factor proportions were in equilibrium in the sector, the evidence suggests that the large agricultural enterprises were in fact underutilizing their properties at the beginning of the period. This is then supported by the particularly low output per hectare experienced by the fincas grandes at the commencement of the decade.

If the 1940 data are excluded and 1950 is employed as the base year, the relative showing of the ejidos is slightly enhanced and the fincas grandes descend to a poor third place, both in terms of short-cycle crops and overall agricultural production. But 1950 is also a year of historical significance. Indeed, the high productivity of the fincas grandes and the low productivity of the ejidal system in that year is plausibly related to the same phenomenon: specifically, an atmosphere of general recognition that the agrarian revolution, given life and nurtured by Lázaro Cárdenas, was being subtly extinguished by Miguel Alemán. It is obvious how such a political environment could inspire confidence and ipso facto expand investment in the largeholdings. It can also be imagined how the "hostile forces" of the post-Cárdenas decade may have succeeded in limiting the ejidal system's output.[31]

The introduction of the 1970 data also has strong productivity implications. Their inclusion drops the minifundial sector from first to third place in cultivos, though it raises the sector from third to second place in total agricultural production. At the same time, the data raise the fincas grandes from third to second place in the short-cycle crops, while reversing these positions in overall production. For their part, ejidos are raised from second to first place in cultivated crops and unaffected in total production by use of these data.

The point is thus adequately emphasized that the measurement of secular expansion by the three tenure systems is treacherously sensitive to the years incorporated within the analysis. The establishment of a trend reflecting actual productivity increases for the thirty-year period is fatally compromised by the existence of changes of a short-term nature experienced by the respective tenure forms. While in principle the most recent data are the most important in terms of public policy implications, the lack of confidence which must realistically pervade assessment of any single set of figures requires that a substantially agnostic position be taken with regard to the accurate measurement of growth.

Summary of Data

The foregoing analysis has undertaken to assess the comparative efficiency of Mexico's three tenure systems by measuring the capacity of each to produce subject to the constraint of scarce land and capital resources. The evidence suggests that as these institutions are currently organized, the minifundio exhibits the highest level of efficiency, the ejido occupies an intermediate status, and the finca grande is decisively the least efficient of the three. The degree of this disparity between the productivity of the three forms of landholding, while striking enough on the basis of the social productivity figures derived, is inadequately reflected in these figures. Rather, the data which underlie them are distorted in their reflection of social costs and benefits and these distortions are not tenancy-neutral. Thus, assessing a price of zero to all labor usage understates both the social cost of skilled labor more characteristic of fincas grandes and the social benefit of employment creation on ejidos and particularly minifundia. Similarly, defining the social cost of chemicals and other inputs in terms of the price paid by the user overstates the finca grande's efficiency vis-à-vis the companion sectors

as a consequence of its access to markets at advantageous prices. Assuming all temporal land to be of homogeneous quality exacerbates this bias. Even defining the value of agricultural output on the basis of average market prices paid endows commercial agriculture with a level of social efficiency that is illusory in terms of the welfare of the mass of low-income consumers. All of these biases serve to enhance the actual over the measured divergence between the efficiency of the finca grande and the ejido and especially the minifundio. The establishment of dynamic efficiency is more elusive. Owing to changes in the political environment and perhaps other factors, the performance of the three subsectors has varied over time to such an extent as to seriously impair measurement of this criterion of performance. The fact remains that the 1960 and 1970 data demonstrating the comparative static efficiency of the minifundio and ejido reflect the ongoing dynamics of the system. Thus it appears defensible to assert that in the context of the current institutional framework these two tenure forms are most consistent with the goal of dynamic efficiency.

II. INSTITUTIONAL HOMOGENEITY AND ECONOMIC POLARITY

Land Heterogeneity and Social Relations

The findings presented above are derived on the basis of statistical categories established by official data-gathering agencies. All agricultural enterprises established under ejidal tenure, all private units of less than 5 has., and all private units with extensions greater than 5 has. are classified as institutional entities. Implied in this statistical methodology is the assumption that all of the enterprises combined within the rubric of the tenure form in which they are categorized can be accurately represented by the statistical average unit within that category. Thus the private minifundio is characterized as an enterprise endowed with a small quantity of land, a low level

of capitalization and commercialization, and a redundancy of labor; the large-holding as the opposite of this; and the ejidal parcel as occupying an intermediate position between those companion tenure forms. In fact, however, the "representative enterprise" thereby created must be a priori suspect of being a creature of the fallacy of misplaced concreteness. More specifically, based upon the criteria of factor proportions and associated social relations, it may be expected that there are more accurately two forms toward which the constituents of each of the three tenure forms evolve. The element which generates this dichotomization is the productive capacity of the land endowment.

It has been emphasized above that land in Mexico varies greatly in productive capacity. The heterogeneity of land quality has fundamental implications in terms of the occupying enterprise. Thus Professor Fernández y Fernández emphasizes that while ignorance, availability of resources, and institutional factors play a part in determining agricultural productivity, "the principal and preponderant cause . . . is the capacity [of the land]."[32] The validity of this position is supported by empirical evidence derived from a study which found a correlation equal to .715 between the value of the land and the value of capital expended in agricultural activities; investment decisions were in practice intimately related to the productivity of the land.[33] The productive capacity of the land at any given point of time, then, is the constraint that objectively determines the volume of inputs that may be economically expended on it, the output that results, and, ipso facto, the extent and nature of surrounding social relations. On this basis it is possible to advance--although at some peril to accusations of artificial precision--a fundamental distinction between what we may call the Socially Integrated Enterprise and the Insular Enterprise.

The Insular Enterprise: The insular enterprise may be described stereotypically as follows. Its soil is rocky, eroded, unfertile, of excessive declination. The land is unirrigated and either is arid or suffers from capricious rainfall and/or the absence of adequate drainage. The terrain is located geographically and, more specifically, economically far from commercial centers and transportation media such as roads, rail lines, or navigable rivers.

Each of these factors operates to promote social and economic insularity. Because of the low fertility of the land, its physical capacity--the volume of crops it is capable of growing--is inherently low. Exacerbating the problem of its low potential is the fact that its dependence upon an unreliable rainfall means that despite an investment of inputs, crops may or may not emerge. As a consequence, the expected value of investment is but a fraction of that low potential value; it is a function of a perilous probability factor which reduces the feasible level of investment decisively below the potential value of the output derived under optimal climatic conditions. Finally, the cost of transportation operates to erode the commercial value of those crops that are grown. All of these factors--the quality of the soil, the indeterminacy of life-sustaining water, the costs of commercialization--operating either individually or in unison, mean that the land produces little or no surplus, but merely a return little or no greater than--indeed, possibly below--the subsistence needs of its operators.[34]

As a resultant, but complementary, characteristic, this type of agricultural enterprise fails to elicit the interest of external financiers, private or official; it thus lacks credit except in small quantities from informal sources, and, since it produces no investible surplus, its level of capitalization is accordingly low. The actual level of investment tends to be limited to 10-20 days of family labor per hectare, a few kilos of criollo seeds

salvaged from the previous year's harvest, and occasionally a modicum of natural fertilizer. Traction is provided typically by a yunta of oxen--borrowed or rented in the case of smaller holdings, resident teams in the case of larger ones; in steeper and less tractable terrain, hand labor equipped with a hoe or digging stick substitutes for animal power. The production of this enterprise form is largely directed toward maiz, frijol, and other subsistence-oriented crops; it tends to sell only surplus output in local markets or to regional intermediaries.

The Socially Integrated Enterprise: The socially integrated agricultural enterprise, in contrast, is endowed with good quality land, fertile and either irrigated, naturally humid, or benefiting from predictable and propitious rainfall. It exists in a geo-economic environment accessible to commercial exploitation. As a consequence, it is capable of producing an economic surplus over and above the maintenance of its labor force.

As a consequent and complementary factor, the enterprise is recipient of funding, either from private or public lenders or (quasi-surreptitiously in the case of the ejido) from rental, sharecropping, or similar arrangement. Consequently, it tends to be highly capitalized, receiving in abundance the blessings of the Green Revolution, those of John Deere and International Harvester. Its production is structured not to the requirements of auto-consumption but--either directly through the price system or (more commonly particularly in the case of private and ejidal smallholders) indirectly through the power of credit-supplying institutions--to the national and export markets.

Insularity and Integration Further Examined: In advancing the above distinction between forms of agricultural enterprise, it must be emphasized that the dichotomy between insularity and social integration is neither precise, complete, nor immutable. One type of problem associated with the delineation

of the two forms is reflected in the presence of the henequén ejidos of the Yucatán, the ixtle harvesters of Zacatecas, San Luis Potosí, and Coahuila, and the maguey growers located primarily in the northern and central states. While these enterprises are dependent upon the market for their support rather than producing primarily for auto-consumption, their crop choice is fundamentally a result of the lack of adaptability of their land. As a consequence, while they share their dependency with the socially integrated form of enterprise, they share their poverty with the insular.

The water is further muddied by the fact that not all land is inherently directed exclusively to commercial or subsistence agriculture, but is, on the contrary, subject to dynamic forces both of a cyclical and of a secular nature. These forces emanate from the market, from national policy, from local centers of power, and from the accretion of capital and technology.

With respect to the former of these, under specific circumstances of land quality and crop and input price ratios, operators may act to adapt their production programs to the opportunities of the market; when prices for commercially vended commodities are high, they orient their production accordingly; when low, they revert to the security of subsistence crops and auto-consumption.[35]

Of an apparently secular nature as a vehicle for impairing the dichotomy between insularity and social integration is the process of "modernization" itself, associated with the level of capital investment and the stock of technological information. These phenomena are manifested in the progressive penetration of rural road systems, land leveling and clearing projects, experimentation and extension in temporal agriculture, irrigation projects, the provision of facilities for the distribution of credit, the supplying of inputs, and the organization of marketing services, all at prices more nearly consistent with their social opportunity costs. Each of these factors operates to

change the cost-benefit structure facing the small operator and thus tips the balance toward social integration.

In fact, however, the accretion of the forces of social integration associated with the supply of capital and technology is by no means endogenous to the overall level of economic and scientific advance, but is instead importantly affected by decisions made at both the national and local level. Thus national policy in favor of integration is exemplified by the creation of the CONASUPO and PIDER programs during the Echeverría administration, and by the formation of a Distritos de Temporal department within the SARH under López Portillo.[36] The policy is also promoted in more subtle ways, including, for example, the effort of the Banco Ejidal since the later years of the Echeverría administration to encourage the substitution of maiz by sorghum, a crop which, on the one hand, can only be marketed, and, on the other, is handily produced with labor-substituting mechanical equipment.

Although social integration of the rural sector can be expected to be promoted--with greater or lesser virility--by national policy,[37] it may be resisted at the community or regional level. This resistance may emanate from local caciques, individuals presiding over an informal and personalistic framework through a structure of coercion and benefits.[38] The cacicazgo--the institution of the cacique--provides benefits in particular abundance for its leader; it also operates with most reliability and greatest longevity in an isolated environment. As a consequence, cacicazgos operate to discourage commercialization and the penetration of the market system in the rural areas. There are, however, fundamental limits to this thesis. The cacique himself is, to a greater or lesser extent, integrated within the national political system--indeed, sometimes officially--and is at a minimum dependent upon that system's tolerance as a condition for his long-term survival. Thus the presence of the

caciques as impediments to the modernization process is both an anachronism and the manifestation of a disequilibrium situation, ultimately to be overcome. Nevertheless, evidence indicates that in specific rural localities, the cacique continues as a force for the maintenance of insularity.[39] In an environment encompassing the above economic, political, and technological variables, the distinction between socially integrated and insular status must be seen as not definitively established but rather as subject to its own dynamic.

A more fundamental objection to the dichotomy is suggested by the writings of agrarian scholars such as Roger Bartra, Carol A. Smith, Rodolfo Stavenhagen, and Eric R. Wolf. These observers note that genuine insularity--total isolation from economic intercourse with the outside world--does not exist; that trade is a characteristic of the peasant culture. While the point is valid in itself, it does not confront the basic distinction with which we are here concerned. Thus the two forms toward which agricultural enterprises evolve promote useful differentiation in that--in contrast to the socially integrated enterprise--the low land capacity of the insular unit discourages the cooperation of outside interests and determines the following characteristics: (1) its gross output will be relatively low; (2) it will employ relatively traditional methods; (3) it will tend to direct its production toward auto-consumption; (4) it will be only marginally involved in the external market and hence, particularly in the case of smallholdings, will be affected by trade relations only to a limited extent.

The Incidence of Social Integration and Insularity

In the context of the somewhat rough and impressionistic nature of the concepts involved, an effort may be made to suggest the incidence of insularity vs. social integration within the Mexican agricultural sector. The criterion

par excellence would involve a calculus encompassing as variables both the percentage of total output directed to the market and the value of externally produced inputs employed in production. Although one study has pursued this general approach in an effort to assess the relative importance of peasant vs. capitalist agriculture in Mexico,[40] the basis of its analysis is the municipality rather than the tenure form, and information relevant to the current work is not readily accessible.

As a surrogate for the actual level of socially integrated and insular production as defined in terms of the source of inputs employed and the destination of output, it is possible to employ two alternative criteria. The first of these is of an a priori nature: the surface area of land of a quality susceptible to integration vs. that resistent to such integration. Pursuant to that end, it is assumed in the present analysis that only irrigated, well-drained humid, and SRH-classified good and excellent quality temporal land is sufficiently productive to participate significantly in the exchange economy. It is further assumed that the entirety of the latter quality temporal land is dedicated to crop production and that it is distributed between the three tenure forms proportional to the incidence of irrigation within those subsectors. See Table 5.

The second criterion is of an ex post nature: the level of integration vs. insularity actually experienced at the time of the most recent census, in which the states are defined in terms of the crop mix grown. Consistent with this, it is assumed that all land dedicated to subsistence-type crops (common maiz and frijol) reflects the existence of insular relations, while land sown in what are typically commercial crops manifests social integration. See Table 6.

As a general point, it must be emphasized that the surface area potentially subject to social integration will reliably exceed the volume of terrain

Table 5

Distribution of Agricultural Terrain[a] between Insularity and Social Integratability, Measured in Terms of Land Quality (has.)

Land Classification	Form of Social Relation	
	Socially Integratable	Insular
	Minifundial Sector	
Irrigated	83,300	
Humid[b]	10,000	10,000
Temporal[c]	93,700	435,200
Total	187,000	445,200
(%)	(29.6)	(70.4)
	Finca Grande Sector	
Irrigated	1,604,800	
Humid[b]	68,300	68,300
Temporal[c]	1,832,100	2,579,500
Total	3,505,200	2,647,800
(%)	(57.0)	(43.0)
	Ejidal Sector	
Irrigated	1,716,900	
Humid[b]	206,800	206,800
Temporal[c]	1,859,700	6,912,700
Total	3,783,400	7,119,500
(%)	(34.7)	(65.3)

[a]Includes only annual and short-cycle crops; excludes frutales, plantaciones, agaves, and cultivated pastures.

[b]Assumes one-half of humid land is subject to adequate drainage to permit social integration.

[c]Assumes 3,785,600 hectares of socially integratable temporal land distributed between tenancy systems proportional to the incidence of irrigated land within those sectors' terrains.

SOURCE: Derived from V Censo Agrícola-Ganadero y Ejidal, 1970, and E. Palacios V., Productividad, Ingreso y Eficiencia en el Uso del Agua en los Distritos de Riego (SRH, 1975).

Table 6

Distribution of Agricultural Terrain between Insular and Socially Integrated Production, Measured in Terms of Crops Grown*

Crop	Tenure Form		
	Minifundia	Fincas Grandes	Ejidos
Sesame	1,600	38,100	154,400
Alfalfa	5,800	61,500	26,800
Cotton	2,000	217,300	200,400
Rice	700	26,900	66,400
Oats	800	141,300	19,600
Peanuts	1,500	8,200	13,200
Sugarcane	2,300	37,600	116,000
Safflower	100	12,900	16,900
Barley	10,500	118,400	82,100
Chili	1,000	16,700	15,400
Garbanzo	700	9,700	27,700
Maize--improved and hybrid	4,900	160,300	198,700
Maize--for forage	500	16,900	10,800
Sorghum	2,200	395,400	259,900
Soy bean	--	89,200	30,600
Tobacco	100	1,100	2,300
Tomato	600	6,800	8,100
Wheat	3,700	58,900	40,300
Total--commercial crops	39,000	1,417,200	1,289,600
Frijol	13,400	285,600	431,100
Maize (common)	392,500	1,763,100	3,521,200
Total--subsistence crops	405,900	2,048,700	3,952,300
Total--surface area	449,900	3,467,900	5,241,900
Percent share planted in :			
commercial crops	9.8	41.0	24.6
subsistence crops	90.2	59.0	75.4

*Refers to spring-summer agricultural cycle prior to census.

SOURCE: V Censo Agrícola-Ganadero y Ejidal, 1970.

actually subjected to the forces of integration. The existence of a disparity between the two arises as a consequence of the presence of a number of factors in the Mexican environment. Certain of these--including the absence of supportive infrastructure and a hostile socio-political system at the local level --have already been mentioned. Others include imperfections in the capital, inputs, and commodities markets, and the world view of the agricultural operators themselves.

Social Integration and Insularity in the Ejidal Sector

Of the ejidal sector's 10,500,000 has. of agricultural land dedicated to short-term crops, Table 5 indicates that two-thirds is submarginal in quality. It is the niggardly endowment of some 14,000-15,000 of the nation's 19,000 ejidos possessing cropland (as of 1970). Within the individual insular ejido, the terrain is almost invariably parcelized and operated by the constituent families employing traditional techniques.

In fact, of this 7,000,000 has., as the evidence from Table 6 indicates, a substantial portion is not in operation. Thus fewer than 4,000,000 has. were sown by the ejidal sector to subsistence crops in 1970, and very likely at least 500,000 has. of that were of socially integratable land. Thus one-half of the insular quality land possessed by the sector was not utilized for crops --due to lack of funds, for socio-political reasons, or as a consequence of the innate lack of viability of the land in question.

This is not surprising. Insular quality terrain, as emphasized above, produces inferior crops in restricted and unpredictable volumes; it resists employment of modern technologies and is the natural habitat of the impoverished campesino family. In general, this family survives without accumulation (indeed, frequently subject to decapitalization and deterioration) and through

commitment to a consumption strategy characterized by minimization of its monetary expenditures.

In the case of the smaller holdings--overall, 327,200 or nearly one in five ejidal parcels was less than 1 ha. in 1970 and over one-half were under 4 has.--the output grown thereon even in good times provides insufficient sustenance to maintain the ejidatario family. Here it is necessary to complement the parcel's production with purchases from the market. To pay for this, members of the campesino family must--in an act which shall be seen below as strategic to the operation of many larger landholdings--pursue other sources of income. These may include artisan manufacturing or the vending of its own labor in urban centers, on local largeholdings, or through migration to the commercial properties of richer agricultural states or in the neighbor to the north.

In the larger units with the least hostile lands, years of good weather may see sufficient production to meet the family's consumption needs and even permit sales of residual crops in local markets or to acaparadores.[41] Although this provides monetary income necessary for the procurement of clothing, medicines, rental or purchase of agricultural implements, and gratuities for the better placed within the socio-political and religious hierarchy, for the vast majority of these insular ejidatarios, cottage industry or descent to semi-proletarian status is an unavoidable ingredient of survival.

The remaining surface area, consisting of the 3.5-4 million has. of ejidal cropland potentially capable of social integration, is distributed among perhaps 4,000-5,000 ejidos. These organizational units are distinguished from their insular brethren not only on the basis of their potential wealth, but also in terms of their typically greater size and, most importantly, their ability to attract external interests, private and public. For those which

integrate with those interests, the mode of production is often not that of the individual family enterprise but rather of unified operation. The output of these ejidos, by order of importance in terms of surface area planted, includes sugarcane, sorghum, improved maize, wheat, cotton, sesame, and barley.

However, 2 out of every 3 has. of ejidal cropland potentially capable of social integration did in fact not participate in commercial agriculture in 1970. The explanations for this are various. Nearly 1 million has. of ejidal land within the federal irrigation districts did not receive water--due to a shortage of the substance or to its informal allocation to large private operators with greater political or pecuniary influence.[42] The failure to plant other extensions may be attributed to the tardiness of the Banco Ejidal to supply funds or specific inputs, to conflict--directed from without or internal--and to other manifestations of human frailty.[43] Additionally, an indeterminate extension of socially integrable area--including 250,000 has. of irrigated land--was employed for the production of subsistence crops.[44]

Only 1,300,000 has. of ejidal land were sown in commercial crops in 1970, despite the fact that, in principle, it is their production which can provide the greatest economic surplus over cost of production. In fact, from the perspective of the ejidatario and that of the nation as well, full social integration of the land conveys problems as well as promise. The genesis of these problems is the decision-making process which characteristically underlies the allocation of resources under this system of production. It may be contrasted with that prevailing in the campesino enterprise occupying insular quality terrain.

Where--as in the case of insular agriculture--the operator enjoys the freedom to determine his crop mix and production methods, he can be expected to choose those perceived consistent with his own welfare criteria. In the

context of crop mix, this will include a relatively strong orientation toward growing the crops that insure his own maintenance.[45] With regard to production techniques, unless the campesino possesses a strong predisposition toward leisure or the social perquisites of supervisory status, the guiding calculus will promote employment of those techniques which maximize his own labor input (the factor which he owns) relative to capital (the factor which he does not).

Where, on the other hand, the parcel is of socially integrable quality, the full exploitation of its potential productivity requires employment of chemical and other inputs costing M$10,000-20,000 or more per hectare. It is a sum normally far beyond the capacity of the operator to provide, either from self-financing or from untied loans. He is thus rendered dependent upon funding from whatever source and in whatever form may be available. In fact, such funding typically can readily be found. As a consequence of the land's economic potential, the enterprise is an attractive subject of credit or investment, both private and public, domestic and, most recently, international. What is strategic to the current analysis is that transfer of responsibility for financing from operator to credit source--Banco Rural, inversionista, or Inter-American Development Bank--celebrates concomitant transfer of control over decision-making. Where the locus of control resides in external individuals or institutions, both standard theory and available evidence suggest that this control will be exercised consistent with the latter's own objectives. In this environment, it can be expected that not only will output be directed consistent with the market, but that production techniques will be oriented toward capital-using and labor-displacing technologies.[46]

Social Integration and Insularity in the Minifundio Sector

Based upon the methodology described above some 70 percent of the terrain possessed by the 394,000 private holdings of 5 has. and below--450,000 has.--is

of a submarginal nature in terms of the demands of modern agriculture. An additional surface area of up to 185,000 has. is estimated to be potentially subject to the forces of social integration. As in the case of the ejidal sector, however, these figures far exceed the actual extensions of land operated under the respective forms of social relations. Thus as of 1970 only 405,000 has. were employed in the production of subsistence crops; excluding the fraction of this surface area which was socially integrable in quality, it is unlikely that any more than 350,000 has., or 75 percent, of this land was utilized for crop production. The explanations--lack of funding, conflict, inability to provide maintenance for its operators--parallel those of promoting abandonment in the ejidal sector. The latter factor--the lack of viability of the properties themselves--is emphasized with particular clarity by the fact that, overall, nearly one-half of the units are less than a single hectare in size and the average of the remainder is but 2.75 has.

According to the criterion employed in Table 6, only 39,000 has. of minifundio cropland were socially integrated in 1970, less than 1 ha. in 4 estimated to be susceptible to the forces of the market. As in the case of the ejidal system, there are several factors of an external nature which operate to limit the level of integration. First, as was seen in the case of the ejido and will be observed to apply to terrain within the large private farm sector, all land classified as irrigated does not receive water. At the time of the most recent census, an average of only 34,900 has. were irrigated over the two agricultural cycles, 42 percent of the total. Even this is likely an exaggeration. Where irrigation water is transferred illicitly to largeholdings--a ceremony paying homage to the prevailing structure of power--the official data can be expected to reflect the formal rather than the actual distribution.

Second, as has been emphasized above, actual vs. potential integration requires situation in an environment permissive of commercialization. The very perpetuation of private smallholdings on fertile land suggests that much of such terrain is relatively inaccessible to market penetration, either for geo-economic reasons associated with the absence of requisite infrastructure or, not unrelatedly, due to the socio-political institution of caciquismo which flourishes under the protective cloak of insularity.

It is impossible to quantify precisely the impact of these factors as determinants of the low level of social integration within the minifundial sector vis-à-vis the other tenure forms (see Table 7); however, a certain element in promoting this result may be attributed to the calculus of the campesino

Table 7

Level of Integration of Socially Integrable Land
Measured by Crop Mix, 1970

Tenure Form	Area Integratable	Area Integrated	Rate of Integration
Minifundios	187,000	39,000	20.8
Fincas grandes	3,505,200	1,419,200	40.8
Ejidos	3,783,400	1,320,600	34.9

SOURCE: Tables 5 and 6.

himself--the operation of the "peasant ethos" referred to previously. Whether explained in terms of a unique social character which eschews dependence or of the actual operation of the market to sap the wealth of the small rural producer, there is an observable tendency for minifundistas to resist immersion

in trade relations and to pursue independence of operation as a fundamental guide to action. Of the campesinos presiding over the 39,000 has. of land dedicated to commercial crops, a certain indeterminate fraction possesses the requisite financial backing to retain control over the mode of production and thus maximize the returns accruing to their own labor. For most minifundistas, however, social integration can be achieved only at a cost of surrendering decision-making to external interests employing capitalist criteria oriented toward the substitution of labor by capital.[47] It is thus not surprising that even in the land most adapted to commercial exploitation--the irrigation districts--nearly 60 percent of the surface area owned by private smallholders was sown with common maize.

Social Integration and Insularity among Largeholdings

The denomination "finca grande," encompassing all private agricultural units in excess of 5 has., is in fact an umbrella category within which are encountered a variety of forms of enterprise distinguishable on the basis of size, quality of land, and associated social relations. According to official data there are some 219,900 agricultural properties possessing a total surface area of 6,153,000 has. dedicated to annual and short-cycle crops. Of this, 1,400,000 has. were sown with commercial crops and 2,000,000 has. in traditional crops as of 1970. The existence of extensions left unplanted may be attributed to the shortage of water (reaching officially but 45 percent of the irrigated land), geo-economic inaccessibility, political unrest and associated problems, and psychological factors typically internal to the operator. Whatever the nature or duration of these influences, based upon the method of estimating the distribution of land quality employed previously, it is concluded that roughly 2,600,000 has. are fundamentally insular in nature and 3,500,000 has. of the sector's land potentially subject to social integration. The

estimated distribution of these two qualities of land among units of different size renders imperative the penetration of the rubric combining socially and economically diverse forms of agricultural organization and suggests there are more properly four such types of enterprise.

The Gran Empresa Capitalista: Evidence suggests that some 2 million has. of Mexico's richest agricultural terrain are exploited by a few thousand powerful commercial enterprises. While the tendency for socially integrable land to be concentrated in the larger holdings is impossible to document entirely, it is indicated by the legal structure of irrigated land. One-half of this most valuable of terrain--over 1 million has.--is registered to units of greater than 50 has., and two-thirds of that surface area is in the name of 2,800 properties encompassing an average of 240 has. each. In fact, this is an overstatement of the number of actual enterprises and an understatement of the average extension per unit, a statistical deception employed to circumvent the agrarian reform laws by registering illicit-sized units in the names of prestanombres who claim nominal ownership for family, friendship, or pecuniary benefits.[48] Whatever the precise number or size of the individual properties, this is the territory of the larger commercial farmer operating on capitalist principles. These enterprises employ hired labor, both full-time and seasonal. They receive credit in abundance from domestic sources, private and official, from international banking establishments, and from transnational agribusiness. The units utilize advanced techniques of scientific farming, invest in labor-"saving" capital equipment, and direct their production toward the national or export market. In their latter capacity they are responsible for a preponderant share of the cotton, coffee, tomatoes, melons, and other agricultural products exported. These great agricultural enterprises are the embodiment par excellence of the finca grande sector.

The Empresa Capitalista Familiar: The remainder of the socially integrated land within the large private farm sector--perhaps 1.5 million has.--is in the hands of units varying from 5 to upwards of 50 has. and more. Within this category are units which, at the lower end of the size scale, are basically comfortable campesino in nature, at the higher, bourgeois family farms. To a greater or lesser extent both their output and their production techniques parallel those of their larger counterparts. They may be distinguished from their larger counterparts primarily in that while they employ hired labor, their workers will normally be all temporary eventuales rather than part of a resident staff.

The Finca Campesina: This agricultural unit is reflected in the stratum of insular enterprises with extensions from 5 to perhaps 25 has. These 100,000-120,000 units average 12 has. each and cover a surface area approaching 1.25 million has. These properties may be described as oversized minifundia; they are characterized by traditional modes of production and the growth of subsistence crops; they differ from conventional minifundios only in that their greater extensions permit increased employment and income for the parcel holder and his family. The fact remains that the poverty of the land impedes the creation of an economic surplus over and above the support of its resident labor force and as such the unit is inherently directed by campesino vs. capitalist criteria, subsistence vs. profit.[49]

The Empresa Pre-Capitalista: The remainder of the insular quality land within the large farm sector--some 1 million has.--is in extensions beyond a size capable of operation by the traditional campesino family. Its exploitation in cropland implies the use of hired labor. The existence of such enterprises involves an apparent conflict between two realities. The first of these is that as a unit operated for the benefit of the landholder, its

success criterion is the provision of a surplus transferrable to that landholder. The creation of this surplus requires that the market value of production exceed the wage cost of labor employed. The second reality is that the poor quality of the land restricts the enterprises's output to a level which, in general, does not exceed the maintenance cost of its labor force. Within these constraints, everything else being equal, the very concept of a profit-oriented enterprise is a contradiction. In isolation this would be the case. What renders viable such a unit is that it does not exist in isolation, but, on the contrary, operates in an environment of insular minifundistas. The nature of these agrarians is that, on the one hand, they are compelled by the paucity of their own land to seek employment off their own parcels, and, on the other, they are partially supported by that land. As a consequence, they are able to survive on wages below the cost of subsistence, and hence permit the channeling of a surplus to the landholder despite the low gross output of the land.

III. Conclusion

Contrary to most studies concerned with the efficiency of Mexico's three tenure forms, the present analysis concludes that in the context of the prevailing institutional relationships, the private minifundio produces its output at least social cost, the ejido occupies second place status, and the finca grande is least efficient in its transformation of social resources.[50] However, in order to fully understand the productivity structure and derive appropriate policy implications it is necessary to penetrate the institutional aggregations employed in the official data and, of necessity, in the above conclusions. The key to this understanding is the quality of the land endowment. Land of sufficient productivity to create an economic surplus promotes

social integration and supports enterprises based on capitalist criteria, while land of lower utility inhibits significant market relations and imposes an environment of insularity upon its operators. The distribution of these two land types between the three tenure systems determines that each will be effectively divided into subcategories. Both the minifundio and the ejido possess insular and socially integrated segments. The finca grande, varying significantly in the size of its constituent units as well as in the quality of its land must be divided into four subcategories which differ in their subjugation to capitalist criteria. In general, however, the minifundio is an insular institution while the dominant element of the large farm sector, the empresa capitalista, is socially integrated. In this context, the two forms that the ejido takes may be seen as but institutionally differentiated surrogates for the minifundio and finca grande, as these tenure systems appear in their most common form. It follows that to the extent efficiency is a function of comparative factor endowments rather than organizational or socio-political factors,[51] the social productivity of the insular ejido will approximate that of the minifundio, while the socially integrated ejido will display a level of efficiency similar to that of the highly capitalized large private holding. Indeed, the logic applies not only to the ejido but also has implications in terms of the socially integrated segment of the minifundio and the two insular categories within the large farm sector.

It is perhaps superfluous to state that the generally higher social productivity associated with insular production can not be ascribed to the quality of the land itself; it is an obvious contradiction to assert that a society's better quality land is less socially productive than its inferior land. Rather, the determinant underlying the structure of productivity contrasting the various forms of agricultural enterprise is the differential calculi that affect

the allocation of resources within these medium and large empresas capitalistas. In general, in the finca grande--specifically the empresa capitalista--the motivating calculus is a criterion of efficiency that promotes capital-intensive modes of production. In the dominant portion of the minifundio sector it is a campesino-based criterion--what Nicolas Georgescu-Roegen has dubbed the feudal formula--which engenders a labor-intensive strategy of production.[52] This same technique characterizes the production process in the insular ejido, in the larger private peasant holding referred to as the finca campesina, and, to a greater or lesser extent, in the empresa pre-capitalista. In contrast, in the ejido occupying socially integrable land, there exist strong forces of both a political and an economic nature which function to displace the campesino mode of production and supplant it with capitalist criteria. To a lesser extent the economic element of these forces also operates to impose itself upon the socially integrable minifundia.

The public policy implications of this conclusion are mutually reinforcing. Quite apart from any favorable social or political effects, and on grounds of macroeconomic efficiency alone, the "nylonization" of the Mexican agricultural sector must be terminated. In the case of the affluent ejidos which are subject to social integration, the tapping of their economic surplus, which is channeled as a de facto subsidy to the industrial sector (and government bureaucracy or private financial interests) must cease; official policy must restrict investment which operates principally to displace labor. Beyond the redirection of the agrarian bureaucracy, government policy must promote an expanded infrastructure in the countryside increasing the alternatives of all smallholders, private as well as ejidal, and thus eliminating their economic dependence upon powerful private interests motivated by the same socially inappropriate criteria. In the private large farm sector, the problem is the

same but the solution different. Here fundamental to eliminating the costs of excess capitalization is the enforcement of a stringent agrarian reform law which will limit the size of private parcels to a scale that may be owner-operated without recourse to labor-substitute techniques.[53]

It has been advanced that where people are unemployed, the purpose of the land tenure system is to put them to work. In Mexico there exists no inconsistency between this goal and that of agricultural productivity.

Notes

1. It is, of course, an exaggeration to suggest that under prevailing conditions in most developing countries control of land is the exclusive medium of control of wealth, political power, and other "goods." In societies that have undergone any substantial degree of industrial development the presence of the industrial sector will operate as a competing source of those "goods"--at least to the extent it is not controlled by the elite of the agricultural sector.

2. See, for example, J. Chonchol, "Land Tenure and Development in Latin America," in Obstacles to Change in Latin America, ed. C. Veliz (Oxford, 1965), pp. 75-90; Inter-American Committee for Agricultural Development, Land Tenure Conditions and Socio-Economic Development of the Agricultural Sector (Washington, D.C., 1966); International Labour Office, Agrarian Reform with Particular Reference to Employment and Social Aspects (Forty-Ninth Session, Geneva, 1965); and J.W. Barchfield, Peasants, Politics, and Development in Mexico (Transaction Books, 1979, forthcoming), Chapter IV.

3. Earlier inquiries have included J.G. Maddox, Mexican Land Reform (AUFS, 1957); J.G. Jensen, "El Ejido en México," Boletín de Estudios Especiales (febrero de 1960), pp. 323-31; S. Reyes Osorio, "Estructura Agraria, Demografía y Desarrollo Económico," Planificación (enero de 1968); R. Hertford, "Mexico's Two Policies in Agriculture--Their Results," Mimeo., University of Chicago, 1968; D.K. Freebairn, "The Dichotomy of Prosperity and Poverty in Mexican Agriculture," Land Economics (February 1969), pp. 31-42; S. Eckstein, El Marco Macroeconómico del Problema Agrario Mexicano (CDIA, 1969); R.S. Weckstein, "Evaluating Mexican Land Reform," Economic Development and Cultural Change (April 1970), pp. 391-409; F. Dovring, "Land Reform and Productivity in Mexico," Land Economics (August 1970); and Eduardo L. Venezian and W.K. Gamble, The Agricultural Development of Mexico: Its Structure and Growth since 1950 (Praeger, 1969).

4. To those inclined toward a broader perspective, the existence of a labor surplus is not inherent in the technical endowments of the country but rather a function of the institutional constraints which determine the nature of resource use. In any case, in the current institutional framework a formidably large and growing number of workers--some 4 million or more out of an agricultural labor force of 7-8 million--is redundant. See S. Eckstein, El Marco Macroeconómico . . . , pp. 146-203; M. Gollas, "El Desempleo y el Subempleo Agrícolas en México," Investigación Económica, 30, no. 119 (julio-septiembre de 1970); and J.W. Barchfield, "Mano de Obra Excedente en el Sector Agrario Mexicano," Revista del México Agrario, 11, no. 4.

For a theoretical analysis of the relationship of agrarian structure to agricultural productivity, see N. Georgescu-Roegen, "Economic Theory and Agrarian Economics," Oxford Economic Papers (February 1960); Peter Dorner and Don Kanel, "The Economic Case for Land Reform," in Land Reform in Latin America, ed. Peter Dorner (Land Economics Monograph 3, University of Wisconsin, 1971).

5. Ejidos are landed villages, currently some 30,000 in number, which vary in size from small ones composed of a handful of families and a few hectares of land to vast aggregations with several thousand members and tens of thousands of hectares. The average agricultural and livestock ejido possesses some 2,800 has. and 100 members. In the majority the land is divided into

parcels and worked individually, though since 1972 an effort has been underway to reorganize on a collective basis. See the present author's Peasants . . . , Epilogue II.

6. This method was employed by Reed Hertford, "Mexico's Two Policies in Agriculture," and (in effect) by Roger Bartra, Estructura Agraria y Clases Sociales en México (ERA, 1974). Bartra, indeed, employs as a shadow price for labor the legal minimum wage--a figure that is not only arbitrary in itself but is typically evaded; it lacks as a consequence both theoretical relevance from a social standpoint and practical relevance from a private standpoint. See Luisa Pare, El Proletariado Agrícola en México (Siglo XXI, 1977).

7. Those who have measured efficiency in terms of gross output per hectare include Maddox, Mexican Land Reform; Jensen, "El Ejido en Mexico"; Freebairn, "The Dichotomy of Prosperity and Poverty in Mexican Agriculture"; Venezian and Gamble, The Agricultural Development of Mexico.

8. Benjamin Higgins, for example, states without qualification that "to seek to establish tenure parcels of optimum size . . . [is] to maximize man-year productivity." Economic Development (Norton, 1968), p. 452. This same misguidance is contained in the official Guía para la Asistencia Técnica Agrícola en México, edited by the Instituto Nacional de Investigaciones Agrícolas of the Secretaría de Agricultura y Ganadería: "The mark of greatest efficiency in an agricultural enterprise is obtained when: . . . the productivity of the worker is highest . . . ."

9. One writer, Richard S. Weckstein, correctly criticizes efficiency criteria based upon (gross) output per unit of a single input and stresses that, to avoid distortion, all inputs must be included in a single measurement in such a way that the contribution of each is given its appropriate weight. The weakness to his approach lies in his selection of a price for the labor input. Hired labor he values at its market cost. In the case of nonhired labor--operators and family workers--he employs two measures to assess the capitalized current value. One is to use the wage level of hired labor while the second is to use the social cost of production theory of labor value, the present value of the past expenditures which were incurred in the nurture of the individual. While Weckstein concedes that the living standard of the large private farmer "may be" in a technical sense beyond what would be necessary to prepare a person to farm, it would be "arbitrary" to substitute a psychologically adequate standard. "Evaluating Mexican Land Reform," pp. 400, 403. The reaction of the present writer to this logic is that, while such an approach might indeed by "arbitrary," it would possess the compensating characteristic of being more relevant to the determination of actual productivity; as Baran once observed, "it is better to deal imperfectly with what is important than to obtain virtuoso skill in the treatment of what does not matter." But even such a substitution would fail to preserve the usefulness of the analysis. For what is important to the determination of productivity is not the historical cost of resources--or even the "prudent value"--but rather the social opportunity cost. Weckstein touches on this approach with the speculation that perhaps the high incomes accruing to the large private farmers are a reflection of their opportunity cost in the urban sector. While more realistically these high incomes reflect monopoly ownership of the factors of production, to the extent they are derived from technical expertise, this latter scarce commodity must be incorporated among the large farm's costs to avoid bias. (cont.)

Eckstein, acknowledging the redundancy of labor in Mexico, analyzes the comparative productivity of the three subsectors utilizing two methods--one incorporating the time of the operator as a cost of production, the other excluding this factor. Inconsistent with this second approach, however, Eckstein incorporates into his cost data the value of wages paid by enterprises to agricultural laborers. His treatment of the land factor must also be objected to as it appears to seriously understate the social cost of this scarce resource. El Marco Macroeconómico . . . , pp. 134-35.

10. Implicit in this approach is the underlying value that the social well-being is best served by directing agricultural activity so as to be consistent with the physiological requirements of malnourished people. The thesis is rejected by two groups. One holds that static efficiency arising from comparative advantage is promoted by production directed by market demand; that, e.g., the export crops produced by the finca grande will provide foreign exchange permitting the importation and increased consumption of popular foods. While this may be true in itself, the fact remains that in the absence of purchasing power in the hands of the masses there is no medium whereby the foreign exchange will be so directed. The second group asserts that the social welfare is promoted by a system which maximizes the investible surplus. Implicit within this thesis is the general principle that enhanced growth justifies sacrifice of the present generation. The position may be accepted in principle without conceding that market prices based on current social relations provide the optimum sacrifice. There is no presumption that market prices for agricultural commodities reflect their social value.

11. See, for example, Hector Díaz-Polanco y Laurent G. Montandon, La Burguesía Agrícola en México: Un Estudio de Caso en El Bajío (El Colegio de México, CES Núm. 22, 1977); and Cynthia Hewitt de Alcántara, La Modernización de la Agricultura Mexicana, 1940-1970 (Siglo XXI, 1978).

12. See, for example, Dorner and Kanel, "The Economic Case for Land Reform"; and Barchfield, Peasants . . . , Chapter IV.

13. Inadequate data make it impossible to determine directly from the censuses the amount of capital absorbed in work animals utilized in agricultural production. As a consequence the figure for this input is deduced. See Appendix D for method of computation. Also, the capital stock for minifundia does not include "constructions." Excluded from the 1940 and 1950 census data, the 1960 and 1970 censuses listed these assets in astronomical terms: M$4,000 for a 4-ha. parcel subsistence farm (and only seven times as great, M$29,000, on an average 100-ha. commercial farm). No one who has viewed the adobe or wattle and daub construction of campesino Mexico could be persuaded that the social opportunity cost of these structures is in three--let alone four--figures. Constructed of indigenous materials with socially free labor, no capital charge is appropriate.

14. These topics are examined in Barchfield, Peasants . . . , Chapters VI and VII, respectively. The problem of lack of unity of responsibility is discussed by C.M. Castillo in his extensive study of the Bajío, "La Economía Agrícola en la Región del Bajío," Problemas Agrícolas e Industriales de México, 8, nos. 3-4 (marzo-abril de 1956); and by Raymond Wilkie in San Miguel, A Mexican Collective Ejido (Stanford, 1971), p. 58f. Wilkie notes, "before the full individualization of the soil, the ejido decided to . . . individual[ize] ownership

of harnesses, plows and small farm tools, in part because of the continued disappearance of such items from the communal storehouse and in part because of their rapid deterioration through carelessness." And while it is true that identification may be expected to be considerably lower on the part of agricultural workers on the finca grande, the higher effective level of control can be expected to more than compensate for this in many cases.

15. Since ejidos vary greatly in terms of organizational structure, level of social development, technique, and social relations, it is impossible to generalize about this matter.

16. Enrique Palacios V., Productividad, Ingreso y Eficiencia en el Uso del Agua en los Distritos de Riego en México (Colegio de Postgraduados, ENA, 1975), p. 10.

17. It should be noted that atomization of holdings in an environment of overpopulation is not the sole tenure form consistent with the practice of mining. For this same problem in the context of largeholdings, see Hewitt de Alcántara, La Modernización . . . , pp. 142-43.

18. These data are derived from the Censo Agrícola, 1970. Its figures for all three tenure forms are unusually low; common practice is to leave one-third to one-half of cultivable land en descanso. The writer is advised by Professor Ramón Fernández y Fernández that the understatement results from the method of collecting data employed in the 1970 census.

19. Excelsior, 19-XI-1976.

20. That, in fact, there was not a larger number of minifundia can be ascribed to the principle that control of land, irrespective of its direct income effect upon the monopolizer, is to restrict the opportunities of those workers displaced, thus serving to create a reliable and quiescent labor force.

21. "Clasificación de la Tierra por Tipos," Revista del México Agrario, 8, no. 1 (1975), p. .

22. While such an average may be misleading as a consequence of eliminating the impact of secular change, its incorporation into static analysis is essential in a study of agricultural productivity to avoid possible distortions resulting from changes in short-term variables which may misrepresent productivity for any given census year.

23. The apparent three-digit precision of these figures is belied by the problematical quality of the data from which they are composed and the need to make sometimes arbitrary judgments in distinguishing between real social costs and those which are merely monetary measurements of inputs by the respective operators. Consequently, the productivity figures must be interpreted impressionistically rather than literally. This caveat is particularly well taken in the case of the ejido where there is occasionally practiced the midnight requisitioning of their crops by ejidatarios who wish to circumvent their transfer to the credit-granting Banco Rural; such output is excluded from the data (or rather, credited to the accounts of the fincas grandes). Additionally, ejidatarios' accounts have been known to be charged with inputs which fail to arrive at their fields. This bookkeeping sleight of hand which provides ready

cash for the ejidatarios, bank agents, or both, exaggerates the actual social cost of production of ejidal output.

24. The reported direct costs for the minifundial sector are unbelievably high, far above the ejidal and even the finca grande level. Such a phenomenon is inconsistent both historically and in terms of casual observation; smallholders do not apply extravagant quantities of inputs to their land, if for no other reason than they lack the financial resources to do so. Consequently, the unavoidable conclusion is that the 1970 figure for direct costs is a statistical error. In the present analysis a surrogate figure is used. It is assumed that the subsector's direct costs rose from the 1960 level at a rate proportional to the increase in costs per unit of output experienced by the ejidal sector, or

$$C_{m70} = C_{m60} + \{(C_{e70} - C_{e60}) \div (X_{e70} - X_{e60})\} \times (X_{m70} - X_{m60})$$

In fact, this computation of a direct cost level for the minifundio sector is probably quite conservatively high since part of the ejidal sector's cost rise represents an accretion of modern techniques not employed by the former sector.

25. In crop production the ejidal sector maintained its second place status with output per hectare equal to M$190, versus M$205 for the minifundia, and M$166 for the fincas grandes.

26. The structure of the census data excessively circumscribes the results obtained. Private farms are categorized as either greater than 5 has. or (equal to and) less than 5 has. There is no mathematical presumption that the optimum farm possesses under 5 has.--the actual figure, statistically, may be 6, 7, or 10. All that can be said from the data is that the optimum is far nearer the 1.6 has. of an average farm in the minifundial category than it is to the 80 has. of an average large farm.

The logic of this position is reached by Folke Dovring. Based upon 1960 data, Dovring observes, "there is no clear tendency for either sector to have higher hectare yields . . . [and yet] private farms exceeding five hectares spent three times as much on fertilizers as did the ejidos and two times as much on pesticides and herbicides . . . . [Thus] since the land and the farm labor are free goods from the viewpoint of the national economy, it appears that small scale labor-intensive production is less costly than large scale production in terms of the goods that are scarce in the Mexican economy." "Land Reform and Productivity in Mexico," p. 273.

27. See, for example, T.W. Schultz, Transforming Traditional Agriculture (Yale, 1964).

28. To Edmundo Flores, "Undoubtedly the break-up of the hacienda was the catalyst which released and set in motion the multitude of complex forces to which Mexico owes its sustained rates of . . . growth. It gave the rural population an opportunity for horizontal and vertical mobility; it destroyed the 'caste' system, it profoundly affected the political environment . . . opened it up to technological progress . . . [and established] the basis for Mexico's industrial revolution." Trimestre Económico, 28, no. 1 (enero-marzo de 1960), p. 3. To Manning Nash, "Any economist could demonstrate that the agrarian reform program has cut down productivity almost everywhere." "Economic Nationalism in Mexico," in Economic Nationalism in Old and New States, ed. H.G. Johnson (University of Chicago Press, 1967), p. 80.

29. These include F. Dovring, "Land Reform and Productivity in Mexico," p. 6; C.W. Reynolds, The Mexican Economy (Yale, 1970), p. 152; and D.E. Horton, "Land Reform and Economic Development in Latin America, the Mexican Case," Illinois Agricultural Economics (January 1968), p. 18.

30. The figure for circulating capital includes both direct expenses and the value of livestock. The justification for the latter's inclusion is that livestock could in practice be not much more sacrosanct than the land and hence in times of uncertainty livestock inventories could be expected to be restricted. While livestock was not subject to expropriation, the loss of land upon which it was dependent would force a wholesale dumping of this asset upon an unreceptive market.

31. Both Marco Antonio Duran and Salomón Eckstein (El Agrarismo Mexicano [Siglo XXI, 1967] and El Ejido Colectivo en México [FCE, 1966], respectively), among others, have referred to the existence of "hostile forces" as being responsible for the decline of the collective form of organization in the ejidal system in the early 1940s. This same concept may be broadened to explain the decline in overall ejidal efficiency at this time. The vulnerability of the ejido to external forces is examined in the present author's "El Sistema Ejidal como Victima del Ambiente Institucional," Revista del México Agrario, 12, no. 1 (1979).

32. "Clasificación de la Tierra por Tipos," p. 72.

33. Luis Aguirre, cited in Fernández y Fernández, "Clasificación de la Tierra por Tipos," p. 65.

34. It should be noted that the term "surplus" may be used in two senses. In the one presently employed, it is defined as the difference between gross output and the socially necessary cost of production. In the alternative definition, surplus may be understood as the difference between gross output and the consumption of the family operating the parcel. Where there is a redundant labor force, this figure may be zero or negative despite the presence of a surplus in the former sense. The strategic importance of the surplus in the latter sense is that it determines the volume of resources available to the family for self-financing of its own production.

35. Arturo Bonilla Sánchez, "Un Problema que se Agrave: La Subocupación Rural," in Neolatifundismo y Explotación, ed. R. Stavenhagen et al. (ENT, 1978), p. 155.

36. For an excellent study of the goals and problems of the CONASUPO program, see Merilee S. Grindle, Bureaucrats, Politicians and Peasants in Mexico (University of California, 1977). The analyses of the PIDER program, made by the Centro de Investigaciones de Desarrollo Rural and by the World Bank, are typically noncirculating. One which is available is J.E. Austin and H.E. Denton, "Integrated Rural Development in Mexico," Mimeo., 1978. The progress of the SARH department Distritos de Temporal has, to the writer's knowledge as of early 1979, been limited to "planning." In principle it creates 109 temporal agricultural districts in 30 states and covers 5 million of the 13 million has. of temporal land in Mexico. These are divided into 561 administrative entities consistent with their ecological characteristics, and are to be

provided with credit, fertilizer, and improved seeds appropriate for the region. Land leveling and agricultural research are also to be pursued.

37. This is so in terms of both neo-classical and Marxian paradigms. With regard to the latter, see R. Bartra, Estructura Agraria y Clases Sociales en México.

38. See, for example, R. Bartra, "Campesinado y Poder Político en México"; L. Paré, "Caciquismo y Estructura de Poder . . ."; V.R. Martínez Vázquez, "Despojo y Manipulación Campesina . . . ," in Caciquismo y Poder Político en el México Rural, ed. R. Bartra et al. (Siglo XXI, 1976); and Barchfield, Peasants . . . , Chapter VII.

39. See, for example, Gustavo Esteva, "La Agricultura en México de 1950 a 1975: El Fracaso de una Falsa Analogía," Comercio Exterior, 25, no. 12 (1975); Martínez Vázquez, "Manipulación Campesina . . ."; and Esteban M. Szekely, "La Organización Colectiva para la Producción Rural . . . ," Comercio Exterior, 27, no. 12 (1977).

40. Kirsten A. de Appendini y V.A. Salles, Agricultura Capitalista y Agricultura Campesina en México (El Colegio de México, CES Núm. 10, 1977).

41. See Rodolfo Villarrael Cárdenas, "La Comercialización de los Productos Agropecuarios," in Bienestar Campesino y Desarrollo Económico, ed. Ifigenia Martínez de Navarrete (FCE, 1971); Díaz-Polanco, La Burguesía Agrícola . . . ; Barchfield, Peasants . . . , Chapter VI.

42. See, for example, C. Erasmus, Man Takes Control (University of Minnesota Press, 1961); Martin H. Greenberg, Bureaucracy and Development (Heath-Lexington, 1970); Martínez Vázquez, "Despojo y Manipulación Campesina"; Barchfield, "La Política Agraria del México Contemporaneo," Revista del México Agrario, 10, no. 3 (1977); K. Finkler, "From Sharecroppers to Entrepreneurs . . . ," Economic Development and Cultural Change, 27, no. 1 (1978).

43. Marco Antonio Duran, El Agrarismo Mexicano; David Ronfeldt, La Política de la Lucha Agraria en un Ejido Mexicano (FCE, 1976); C.M. Castillo, "La Economía Agrícola en la Región del Bajio," Problemas Agrícolas e Industriales de México, 8, no. 2 (1956); Barchfield, "El Sistema Ejidal."

44. To those of critical thought process, the possibility may occur that barriers to integration may be imposed by a conflict between the size of extensions and the presence of scale economies, given the technologies of modern agriculture. This, in fact, is not the case. Thus over 90 percent of irrigated land within the ejidal régimen is in lots of 100 has. or greater, and most of the rest resides in contiguous holdings permissive of unified management. Moreover, the burden resulting from some dispersion of land remains tractable through operations organized under the Banco Rural, by Uniones de Ejidos, or by private maquiladoras or other forms of enterprise. With regard to the latter, see René Barbosa-Ramírez y S. Maturana, El Arrendamiento de Tierras Ejidales (CDIA, 1972); Iván Restrepo Fernández y J. Sánchez Cortes, "El Arrendamiento de Tierras Ejidales . . . ," Revista del México Agrario, 3, no. 1 (1969-70); K. Finkler, "From Sharecroppers to Entrepreneurs . . . ."

45. This has been explained in terms of the "peasant ethos" as well as the natural product of imperfect markets dominated by acaparadores. See Everett M. Rogers, "Motivations, Values and Attitudes of Subsistence Farmers . . . ," in Subsistence Agriculture and Economic Development, ed. C.R. Wharton (Aldine Press, 1969); Carol A. Smith, "How Marketing Systems Affect Economic Opportunity in Agrarian Societies," in Peasant Livelihood, ed. R. Halperin and J. Dow (St. Martin's Press, 1977); and Arturo Warman, Y Venimos a Contradecir (Casa Chata, 1978), Chapter IV.

46. That this thesis is more than an abstraction is exemplified by a recently announced program instituted by the secretarias of Agricultura and Reforma Agraria to purchase 60,000 tractors, many of them to be imported from the United States. See Excelsior, 28-VIII-78. While this will do little for the recipient campesinos (besides raise their costs and reduce their employment), it will be therapeutic for the profits of John Deere et al., and is unlikely to act adversely upon the well-being of the respective secretaries.

For a study of the forces underlying the "modernization" of the ejidos in the Chontalpa region, and the consequences thereof, see D. Barkin, Desarrollo Regional y Reorganización Campesina (Nueva Imagen, 1978); for general analyses see Arturo Warman, "La Colectivización: Una Crítica," Cuadernos Políticos, 11 (1977); Rodolfo Stavenhagen, El Campesinado y las Estrategias del Desarrollo Rural (Colegio de México, CES Núm. 19, 1977); and this author's "El Sistema Ejidal."

47. See, for example, Eckart Boege and Pilar Calvo, "Estructura Política y Clases Sociales . . . ," in Caciquismo y Poder Político, or K. Finkler, "From Sharecroppers to Entrepreneurs," for a detailed and illuminating study. Professor Finkler deals with an ejidal community, but the analysis involving the displacement of family by capitalist production encompasses the same process in the private smallholdings.

It is impossible to determine the extent smallholders endowed with socially integrable quality land can, given the current institutional constraints, successfully engage in intensive agriculture without surrendering their mode of production. In principle it would be possible to measure this factor by employing as a criterion the degree to which smallholding production has been penetrated by mechanical traction. This, unfortunately, is not the case; in regions dominated by commercial crops, the absence of shucks from the maize harvest (or other free forage) increases the cost of maintenance of work animals and may make rental of machinery price-competitive for the campesino. In this environment, the incidence of mechanization cannot be interpreted in itself as an index of the displacement of the campesino calculus.

48. See the present writer's "La Política Agraria"; Stavenhagen, "Aspectos Sociales de la Estructura Agraria en México," in Neolatifundismo y Explotación; or A. Warman, Los Campesinos: Hijos Prediletos del Régimen (ENT, 1978).

49. Georgescu-Roegen, "Economic Theory and Agrarian Economics"; Stavenhagen, El Campesinado; Warman, Y Venimos a Contradecir.

50. While Professor Fernández y Fernández does not join in this conclusion regarding the efficiency of the minifundio, he does usefully distinguish in theoretical terms between "productive" and "unproductive" minifundia. "In the former," he states, "the only alternative to work on the parcel, for the campesino, is unemployment. The opportunity cost of labor is decidedly zero. In

this minifundio the productivity of land . . . is high because the campesino applies labor toward the point where marginal productivity is equal to zero. . . . In an unproductive minifundio other . . . frequently more productive . . . employment opportunities exist, and the result is agriculture as a secondary activity, poorly cared for." Perspectivas del Ejido (Chapingo: ENA, 1975), p. 55. The present writer is completely in accord with this dichotomy; however, with a redundant agrarian labor force of several million, Mexico's minifundia must be classified within the theoretical productive category.

51. This problem is discussed in the current writer's Peasants . . . , Chapters VI and VII. Also see C.M. Castillo, "La Economía Agrícola en la Región del Bajio"; M. Hinojosa Ortiz, "Situación Actual del Problema Agrario en México," Ciencias Políticas Sociales (abril-junio de 1961); K.L. Karst and N.C. Clement, Legal Institutions and Development: Lessons from the Mexican Ejido (Latin American Center, UCLA, 1969); and R. Stavenhagen, "Aspectos Sociales de la Estructura Agraria en México," in Neo-latifundismo y Explotación, ed. R. Stavenhagen et al. (Nuestro Tiempo, 1975).

52. In an earlier draft the writer suggested it might be inappropriate to assume that the quoted price of agricultural capital and variable inputs reflects the actual social cost. Some of the costs do represent genuine foregone alternatives, particularly those which figure in international trade: domestically produced petroleum products used in agriculture could otherwise be exported; chemicals and equipment purchased internationally have an unequivocal foreign exchange cost. But other inputs produced domestically may provide an ancillary benefit in terms of expanded employment, education, and other "linkage" effects. Assuming these exceeded the associated negative effects of human congestion and ecological damage, the social cost of these inputs would be below their market costs. While this is true ceteris paribus, Folke Dovring has suggested an alternative view. Such linkage benefits could also be exploited through expansion of other kinds of industry which will be retarded by usurpation of genuinely scarce inputs by the agricultural sector. His point is correct and I am indebted.

53. The thesis presented is emphatically rejected by Bartra. He denies the efficiency of the minifundista and (insular) ejidatario, asserting--as an implicitly contrary position--that they are "superexploited." R. Bartra, Estructura Agraria y Clases Sociales . . . , p. 79f. Underlying his reasoning is the fact that the return to labor invested in these enterprises is very low. His position is good moral philosophy but bad technical economics. Bartra is guilty of confusing two very distinct phenomena. The smallholder's income is low because of his very limited possession of agricultural resources. He is a victim of an unjust system and in that sense he is exploited (he is also exploited, as Bartra notes, in his relationship with the exchange economy). But this is totally unrelated to his efficiency as a medium of social production. What is relevant here is that the smallholder's output is produced at lower opportunity cost than is that of the large capitalistic farmer. Thus the campesino is both exploited as an individual and as a class, and efficient as a mode of production and as a vehicle of national development.

To most Western writers on agrarian reform, maximization of the utilization of labor implies an owner-operated farm system, the atomization of holdings. Such a policy is disdained by many Marxian economists as reflecting a "petty bourgeois" mentality; a collective arrangement is preferred. In fact, either system will achieve the same goal as long as motivational and organizational problems do not reduce quality of performance in the collective.

Appendix A

Calculation of Surface Area,
Representative Hectares of Cropland

Fincas Grandes

Type of Land	1940	Adjustment*	1950	Adjustment
Temporal	5,267,300	5,267,300	8,070,900	8,070,900
Humid	366,700	733,400	278,700	557,400
Irrigated	617,200	1,851,600	1,082,100	3,246,300
	6,251,200	7,852,300	9,431,700	11,874,600
Type of Land	1960	Adjustment	1970	Adjustment
Temporal	9,379,200	9,379,200	7,516,100	7,516,100
Humid	268,300	536,600	425,300	850,600
Irrigated	1,862,200	5,586,600	1,734,100	5,202,300
	11,509,700	15,502,400	9,675,500	13,569,000

Minifundistas

Type of Land	1940	Adjustment	1950	Adjustment
Temporal	897,300	897,300	1,038,200	1,038,200
Humid	56,000	112,000	43,400	86,800
Irrigated	121,000	242,000	138,100	414,300
	1,074,300	1,251,300	1,219,700	1,539,300
Type of Land	1960	Adjustment	1970	Adjustment
Temporal	970,500	970,500	587,500	587,500
Humid	90,800	181,600	33,900	67,800
Irrigated	128,700	386,100	88,700	266,100
	1,190,000	1,538,200	710,100	921,400

Ejidos

Type of Land	1940	Adjustment	1950	Adjustment
Temporal	5,358,200	5,358,200	6,899,500	6,899,500
Humid	342,900	685,500	346,300	692,600
Irrigated	994,200	2,982,600	1,211,700	3,635,100
	6,695,300	9,026,300	8,457,500	11,227,200
Type of Land	1960	Adjustment	1970	Adjustment
Temporal	7,995,200	7,995,200	10,453,100	10,453,100
Humid	394,400	788,800	539,500	1,079,000
Irrigated	1,417,600	4,252,800	1,760,200	5,280,600
	9,807,200	13,036,800	12,752,800	16,812,700

*Adjustment for quality is based upon weighting humid land at twice the equivalent of temporal land, and irrigated land at three times the equivalent.

SOURCE: Raw land area figures are taken from the Censos Agrícola-Ganadero y Ejidal of the respective years.

Appendix B

Calculation of Surface Area Exploited, Representative Hectares of Cropland

Tenure Class	Surface Cultivated	Total Cropland	% Cropland Cultivated	Adjusted Cropland	Adjusted Cropland Cultivated	Surface FPA*	Surface Exploited
				1940			
Fincas grandes	3,223,400	6,251,200	51.6	7,852,300	4,048,600	362,900	4,411,500
Minifundistas	859,300	1,074,300	80.0	1,251,300	1,000,800	34,900	1,035,700
Ejidos	3,968,800	6,695,300	59.3	9,026,300	5,349,800	349,900	5,699,700
				1950			
Fincas grandes	4,215,200	9,431,700	44.7	11,874,600	5,307,900	425,800	5,733,700
Minifundistas	1,005,400	1,219,700	82.4	1,539,300	1,268,400	60,000	1,328,400
Ejidos	4,978,200	8,457,500	58.9	11,227,200	6,612,800	333,400	6,946,200
				1960			
Fincas grandes	6,165,500	11,509,700	53.6	15,502,400	8,309,300	709,000	9,018,300
Minifundistas	918,000	1,190,000	77.1	1,538,200	1,186,400	77,100	1,263,600
Ejidos	5,997,200	9,807,200	61.2	13,036,800	7,978,500	522,100	8,500,600
				1970			
Fincas grandes	6,197,400	9,675,500	64.0	13,569,000	8,684,200	555,000	9,239,200
Minifundistas	632,800	710,100	89.1	921,400	821,000	62,600	883,600
Ejidos	8,683,800	12,752,800	68.1	16,812,700	11,449,500	605,100	12,054,600

*Frutales, plantaciones, and agaves.

SOURCE: Surface area cultivated, total (short-cycle) cropland, and surface area in frutales, plantaciones, and agaves taken from the Censos Agrícola-Ganadero y Ejidal of the respective years. Adjusted cropland figures, based upon the calculation of a "representative" hectare, are computed in Appendix D.

Appendix C

Computation of Average Productivity

Average social productivity over the four census periods is calculated for each of the tenure groups as follows:

$$SP_{g40} \div (SP_{g40} + SP_{m40} + SP_{e40}) + SP_{g50} \div (SP_{g50} + SP_{m50} + SP_{e50}) +$$
$$SP_{g60} \div (SP_{g60} + SP_{m60} + SP_{e60}) + SP_{g70} \div (SP_{g70} + SP_{m70} + SP_{e70})$$

(where subscript identifies tenure form and year), for each of the tenure groups in order to obtain the percentage of the total social product accounted for by each. The results are equal to the following and the average of the four series is shown.

	1940	1950	1960	1970	N
Fincas grandes	27.8%	36.0%	28.8%	25.2%	29.5%
Minifundistas	39.7%	36.3%	36.5%	37.1%	37.4%
Ejidos	32.5%	27.6%	34.7%	37.6%	33.1%

The above percentages of the total social product are then multiplied by the total product per hectare achieved by the three tenure groups in 1970, M$1,834, to place the productivity relationships in the perspective of the current price level.

This same principle is employed to calculate averages for crop output, depreciation, capital cost, direct expenses, and cultivated surface areas.

Appendix D

Computation of Capital Cost of Work Animals

Tenure Form	Surface Cultivated by Animal Traction	No. of Yuntas Required[1]	Cost of Yunta[2]	Total Capital Cost[3]
		1940		
Fincas grandes	2,417,500[a]	161,200	M$200	M$32,200
Minifundistas	644,500[b]	43,000	"	8,600
Ejidos	2,974,400[c]	198,300	"	39,700
		1950		
Fincas grandes	2,107,600[d]	140,500	M$700	M$98,400
Minifundistas	750,600[b]	50,000	"	35,000
Ejidos	3,111,400[e]	207,000	"	145,000
		1960		
Fincas grandes	6,204,700[f]	413,700	M$2,000	M$827,400
Minifundistas	590,000[b]	39,300	"	78,600
Ejidos	7,037,400[f]	469,200	"	938,400
		1970		
Fincas grandes	4,000,000[g]	266,700	M$2,600	M$693,000
Minifundistas	281,000[b]	18,800	"	48,800
Ejidos	9,360,000[g]	624,000	"	1,622,000

[1]Assuming fully employed yunta can cultivate 15 has.

[2]Derived from the average assessed value per work animal in the year of the census plus a 25 percent differential multiplied by two animals per yunta.

[3]Per M$1,000.

[a]Assuming one-quarter of cultivated land employed mechanical power.

[b]Assuming one-quarter of land employed rented traction or hand power.

[c]Assuming one-quarter of land employed mechanical or rented traction.

[d]Assuming one-half of cultivated land employed mechanical power.

[e]Assuming three-eighths of cultivated land employed mechanical or rented traction.

[f]Includes only land census data recorded as cultivated by animal power.

[g]Includes land census data recorded as cultivated by animal power plus one-half land recorded as cultivated by "mixed" animal and mechanical traction.

SOURCE: Calculated from Censos Agrícola-Ganadero y Ejidal of the respective years.