

se u skladu s time i stvaraju reificirane odnose. Njihov životni cilj nije razvijanje njihovih ličnosti, nije u tome da nešto budu, već da nešto imaju — stvari ili činove ili oboje. A kako akumuliranje jednih znači oduzimanje od drugih, to reificirani svijet implicira klasno društvo i klasnu eksploataciju. U tom smislu samoupravljanje predstavlja mogući izlaz iz začaranog kruga alijenacije i klasne eksploatacije suvremenog svijeta.

## THE PERUVIAN SUGAR COOPERATIVES: SOME FUNDAMENTAL ECONOMIC PROBLEMS, 1968—1972\*

Santiago ROCA\*\*

### I. INTRODUCTION

Peruvians have been concerned about an agrarian reform since the beginning of this century. Not until very recently, however, did reform attempts touch the principal private concentrations of agrarian control — the huge coastal sugar plantations. The »Commission for Housing and Agrarian Reform«, established during President Prado's second term, 1956—62, allowed sugar plantations to escape from reform. The law of Agrarian Reform following the military coup of 1962 affected only lands in the Convencion and Lares Valleys in Cuzco. In 1964, when, in response to guerilla pressures, President Belaunde promulgated a further agrarian reform law (N. 15037), the agroindustrial sugar complexes were again exempted (through that law's »Regimenes de Excepcion.«)

The sugar complexes were not fundamentally affected before June 1969, when the revolutionary military government of President Velasco decreed an Agrarian Reform Law N. 17716) which covered all sizeable latifundia as well as minifundia. One of the more important objectives of this Law was redistribution of land and income which guarantees social justice in the agricultural sector, including a better standard of living for workers.<sup>1)</sup> The Law affected property rights without forcing changes into the organization of production. The agroindustrial sugar complexes thus changed from private to community tenure, to Agrarian Production Cooperatives.<sup>2)</sup>

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<sup>1)</sup> Agrarian Reform Law N 17716, Title I, Basic Principles.

<sup>2)</sup> According to the »Reglamento de Cooperativas Agrarias, Cooperativas Comunales y Sociedades Agrícolas de Interés Social« (RCACCSAIS); Article 95: the agrarian production cooperatives are indivisible units of common exploitation in which land, cattle, installations, cultivars, equipment and benefit plants are owned by the workers and property rights are not individualized.

Theoretically at least, at the microeconomic level, a cooperative or communal enterprise offers considerable advantages over the privately owned alternative. *Ceteris paribus*, the income shared by workers within the firm is greater, since the economic surplus or rent resulting from a profitable combination of factors is distributed to active workers rather than to non-working capitalists. In the classical cases, the economic surplus in the cooperative firm is distributed between the workers in proportion to their labor inputs, whereas in the private firm the surplus is divided between stockholders, who are not usually workers in the firm, in proportion to ownership. Stockholders reap surplus from all productive resources, including labor. If this surplus is reallocated through the cooperative organization, *ceteris paribus*, incomes must improve for at least some workers.

The distribution mechanism adopted for the Peruvian sugar cooperatives, has been to divide surplus amongst the cooperative members who are now the joint owners of the former complexes. The net economic surplus is distributed independent of direct remunerations and of the amount of joint stock held by each cooperative member.<sup>3)</sup>

Under the revolutionary military government's broad policy of agrarian reform, the agroindustrial sugar cooperatives have received top priority, and today, after four years of practice, they are usually displayed as models of income redistribution and social change in the agricultural sector. Since we are not impartial to its success we have written this paper wishing to contribute some constructive criticisms of the agrarian reform efforts. The basic objective is to study the changes in the distribution of the sugar workers' income which are due to the agrarian reform Law N17716. Four key questions are posed: (1) What was the distribution situation before the reform? (2) Has there been any significant redistribution of income within the sugar enterprises since? (3) If so, who has benefited from it? and (4) How do the present incomes of sugar workers compare with those of other Peruvian workers?

A secondary objective is to study the important production and employment effects of the reform Law. It is to examine the impact of the cooperative organization transformation on output and the changes in the proportion of permanent and temporary workers (and hence members and non-members) of the sugar cooperative.

To do this between February and November 1973 we performed an extensive field survey of cooperatives. The data subsequently analyzed cover the years 1968—72, with extensions for some issues. The survey sample included eight of Peru's twelve sugar agrarian production cooperatives, those which account for 94% of the national sugar output. The remaining four cooperatives were not considered because of their relative insignificance.

<sup>3)</sup> To date, membership has been restricted to those who were full time workers at the sugar complexes prior to their reform in 1969. Stocks were allocated to these workers in proportion to their income status and length-of-service.

A questionnaire was mailed to each of the eight subjects through CECOAPP, a central agency with which all the sugar cooperatives are affiliated. The responses were verified during subsequent interviews with cooperative officials. Data compilation was complicated by differences in accounting procedures between cooperatives and over time.<sup>4)</sup>

## II. THE AGROINDUSTRIAL SUGAR COMPLEXES IN THE NATIONAL ECONOMY

Around 1860, Peruvian sugar industry began to expand and modernize. Since 1930, it extended along the better endowed lands of Peru's north coast, displacing cotton and rice cultivation and traditional farm organization. The economies of scale in sugar production and processing together with the profitability of combining these activities in the same enterprise fostered large agroindustrial sugar complexes. Together with some smaller sugar estates, these were the principal sources of income and employment in northern Peru until the forties and fifties when increasing capital intensity began displacing labor.<sup>5)</sup>

Through amalgamation of small and medium farms, the concentration of sugar complexes increased substantially, so that today twelve sugar complexes account for almost the entire national sugar production. The purpose of this chapter is to summarize the present importance of these complexes within the Peruvian economy at large, and, where possible, in regional economic context.<sup>6)</sup>

We estimate that the reformed sugar cooperatives contributed 1.3% of GNP in 1972. More significantly, they accounted for 10%—15% of the gross regional product of northern Peru. Sugar output increased considerably following the Agrarian Reform Law No. 17716. During 1971 and 1972 production records were being consistently broken. Production-wise, the cooperatives have been an unqualified success.

Sugar has always been one of Peru's principal exports, it averaged to 6% of total exports, between 1965 and 1971. In 1972, due to a curtailment of anchovy exports, the biggest earner of foreign exchange since 1965 the sugar fraction rose to 9.1%. Regionally, sugar constitutes about 25% of the North's foreign exports. About 50% of national sugar output is exported, (95% at the beginning of the century). The main recent destination has been the preferential U.S. market which yielded higher than world prices in the eight years prior to 1972. In brief, sugar remains an important contributor to foreign exchange.

<sup>4)</sup> A detailed methodology is given in: Santiago Roca, «La Distribución de Ingresos en las Cooperativas Azucareras del Perú, 1968—1972», pag. 139—55; Preliminary Version ESAN, Lima 1973.

<sup>5)</sup> Douglas Horton, «Haciendas and Cooperatives: A Preliminary Study of Latifundist Agriculture and Agrarian Reform in Northern Peru», pag. 3—7, LTC RP No. 53, Wisconsin 1973.

<sup>6)</sup> The available data and tables for this chapter are in Santiago Roca, *op. cit.*, pag. 6—35.

In relation to employment, our survey revealed that the total sugar labor force in 1972 (12 cooperatives) was approximately 32,480, of which 24,184 permanent workers and 8,296 temporary workers engaged on an approximately half-time year-round basis, i.e. approximately 4,148 permanent jobs are rotated among 8,296 workers.

In 1972, the twelve cooperatives accounted for 0.8% of Peru's «economically active population», and almost 1.5% (201,000) of Peru's total population (13.4 million). On average there are six dependents per sugar worker.

At the regional level, these proportions are 2.5% and 4.6% respectively. It is apparent that the cooperatives contribute comparatively less to employment than to total population or G.N.P.

Finally, it is worth mentioning that the cooperatives have contributed more in profit taxes than their share of G.N.P. (1.7% versus 1.3% in 1972). However, absolute tax revenues from sugar profits have been falling as cooperative members have reallocated economic surpluses towards direct and indirect personal income. The lack of an effective tax policy has reduced the State's revenues from sugar enterprises.

### III. THE AGRARIAN REFORM AND INCOME DISTRIBUTION IN THE SUGAR ENTERPRISES, 1968—1972.

One of the primary objectives of the Agrarian Reform Law is redistribution of wealth and income in the Peruvian farm sector. The basic policy has been to redistribute the income of each reformed unit through expropriation and transfer of latifundias from latifundistas to workers, allowing workers to share the profits of former owners. But how far are profits (surpluses) actually being redistributed? Who benefits? Does the subsistence sector gain as well?

The answers are a matter of empirical research and of knowing in detail the production and profitability of each one of the sub-sectors of the agrarian sector. The fact is that not all agricultural sub-sectors earn large profits. The subsistence sector accounts for half of the agricultural work force, and many more agricultural workers farm only small parcels of land and are among the poorest Peruvians.<sup>7)</sup> Obviously the redistribution policy of the Agrarian Reform Law is biased against these groups, since they earn little or no profits.

In contrast, the agroindustrial sugar complexes were huge lucrative enterprises, returning net profits of 30—45% of the income generated in the firms. Clearly, it seems the profit redistribution policy will favor sugar workers over others in the agricultural sector.

<sup>7)</sup> The subsistence sector is defined as «families who live with 0.9 hectares of land, 3 head of cattle and some other type of livestock»; Richard Webb, «The Distribution of Income in Peru, 1961.» Discussion Paper No. 26, Princeton University, 1972.

### 1. The Aggregate Distribution of Income: Private Sugar Enterprise (Ex-Hacienda) vs. Sugar Cooperative

The shifts in the distribution of income between 1968—1972 are illustrated by Lorenz curves (Figure 1). Data to construct these curves were obtained from our 1973 survey.<sup>4)</sup> The principal features of our methodology were to allocate total income net of non-labor costs generated in the firm between four groups: owners; employees<sup>5)</sup> (empleados); permanent laborers (obrerros) and temporary laborers (eventuales). Classification of workers was made according to their payroll status rather than job function.<sup>6)</sup> Thus the owners were the profit recipients until 1969, the employees receive a salary; the permanent laborers are paid a wage and the temporary laborers are hired on a per-diem basis. For measure purpose a single owner was presumed in the absence of accurate numbers.

Labor incomes are measured as the sum of direct remunerations (wages and salaries) and indirect benefits (food, medicine, housing, education, etc.). It is difficult to calculate the incomes of former owners accurately since their personal expenses were often charged to the firm. In the absence of better information, owners' income is equated with net profits (1968).

For the post-reform period, total net income is divided between direct and indirect remunerations and the Redistributive Fund, consisting of the Social Provision Fund, the Education Fund and the economic surplus distributed among workers according to their hourly inputs. There are no profits as such.

We begin by comparing the aggregate distribution of income in the sugar complexes in 1968, immediately before their agrarian reform, and in 1972, 3 1/2 years later. In monetary terms, Tables 1 and 2 show several important results. The bottom 20% of sugar income earners of 1968 had not narrowed their relative income disadvantage by 1972. On the contrary, they were relatively worse off. This lowest income group consists largely of temporary laborers. However, as we move up, the income scale we notice that the bottom 41% of sugar income earners increased their share of total income from 16% in 1968 to 22% in 1972. More significantly, 83% of earners increased their share of income from 44% to 73% and the 99.9% of the sugar workers who shared 64.5% of the income in 1968 split 99.5% of the income in 1972, i.e. 35.5% of income which had previously been appropriated as owners' profits was redistributed as labor income. With the exception of the lowest two deciles of income, the reform of the sugar complexes has produced a significantly more egalitarian distribution of income.

To examine the differential gains accruing to various labor categories between 1968 and 1972 we follow the previous classification of sugar workers. While in 1968 the permanent laborers represented 77.4% of total labor in 1972 the amounted to 70.1%. Their share of income

<sup>4)</sup> Includes technical and professional staff.

<sup>6)</sup> However, classification according to job function is also available from our working thesis.

SUGAR EX-HACIENDAS 1968.  
LABOR FORCE AND INCOME, BY TYPE AND INCOME LEVEL

Annual Income	Labor Force (Units)					Income (in current soles)			Accumulated % Income	
	Permanent Laborers	Employment years	Temporary Laborers	Total Labor Force	Accumulated % Persons	Permanent Laborers' Income	Employees' Income	Temporary Laborers' Income		Total Income
— 24,000		26	(2,949)	2,975	11.58	217,527,339	622,868	(43,369,149)	43,992,017	2.66
24,001— 36,000	7,277	290		7,567	41.05	435,506,912	10,069,794		227,597,133	16.41
36,001— 54,000	10,426	339		10,765	82.97	130,617,131	16,930,437		452,437,349	43.75
54,001— 78,000	2,180	795		2,975	94.55		52,728,628		183,345,759	54.83
78,001— 96,000		304		304	95.73		26,854,381		26,854,381	56.45
96,001—108,000		357		357	97.12		35,188,784		35,188,784	58.58
108,001—144,000		575		575	99.36		67,580,079		67,580,079	62.66
144,001—192,000		128		128	99.86		22,417,979		22,417,979	64.02
192,001—240,000		5		5	99.88		1,078,756		1,078,756	64.08
240,001—300,000		17		17	99.94		4,688,675		4,688,675	64.36
300,001 or more		6		6	99.96		2,417,628		2,417,628	64.51
Net Profits										
	19,883	2,842	2,949	25,674		783,651,382	240,578,009	43,369,149	1,067,598,540	100.00
	19,883	2,850	2,949	25,682	100.00	783,651,382	827,775,246	43,369,149	1,654,795,777	

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Table No. 2

SUGAR COOPERATIVES 1972.  
LABOR FORCE AND INCOME, BY TYPE AND INCOME LEVEL

Annual Income	Labor Force (Units)					Income (in current soles)				Accumulated % Income
	Permanent Laborers	Employment years	Non-Members		Total Labor Force	Accumulated % Persons	Members		Total Income	
			Temporary Laborers	Others			Permanent Laborers' Income	Employees' Income		
24,000		2,239		6,370	8.61				43,298,437	1.88
24,001— 36,000		(2,171) <sup>1</sup>		1,704	15.16				(41,700,790) <sup>2</sup>	3.97
36,001— 54,000	2,009	10	99	2,118	23.30	88,022,741	405,470		4,686,607	8.01
54,001— 78,000	3,675	168	132	3,975	38.58	245,649,450	12,110,278		8,330,958	19.55
78,001— 96,000	4,520	510	2	5,032	57.92	388,999,595	44,922,133		189,825	38.38
96,001—108,000	2,405	374	8	2,787	68.63	244,986,539	38,734,279		819,512	50.72
108,001—144,000	5,408	960	2	6,370	93.11	681,275,824	117,740,091		273,826	85.40
144,001—192,000	221	1,155	31	1,407	98.52	35,456,993	196,282,130		4,876,719	95.66
192,001—240,000	1	204	3	208	99.32	199,752	42,955,265		656,738	97.56
240,001—300,000		90	19	109	99.74		24,178,024		5,432,933	98.84
300,001 or more		66	4	70	100.00		24,759,649		1,656,675	100.00
	18,239	3,553	4,227	26,019		1,684,590,894	602,649,021		117,931,295	
		+379 <sup>1</sup>	—379				+28,826,785 <sup>1</sup>		—28,826,785	
		3,932 <sup>2</sup>	3,848 <sup>3</sup>				531,475,806 <sup>3</sup>		89,104,510 <sup>3</sup>	

PERUVIAN SUGAR COOPERATIVES

1. Non-member employees.
2. Only temporary laborers.
3. Including non-member employees.

DISTRIBUTION OF INCOME  
SUGAR INDUSTRY  
1968—1972

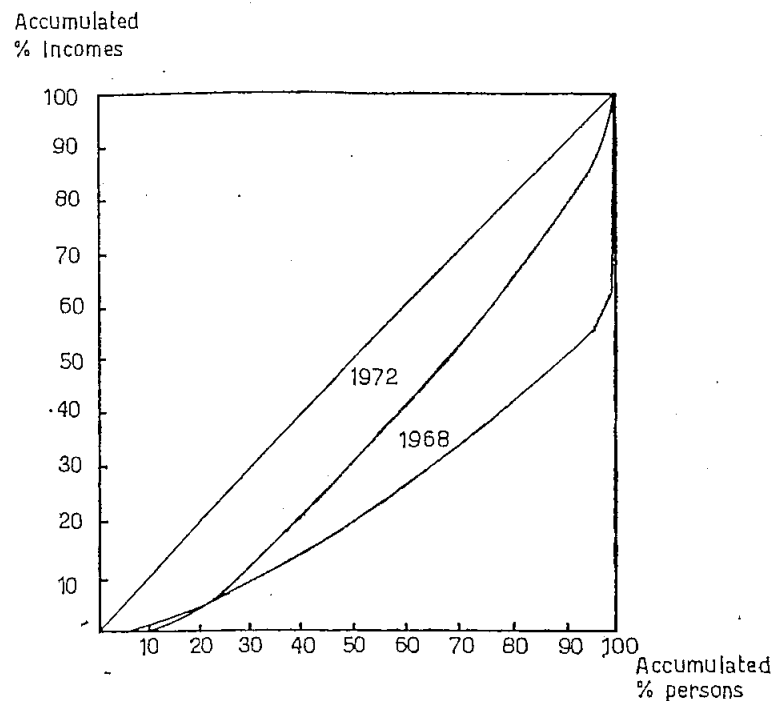


FIGURE No. 1.

however rose significantly, from 47.3% to 73% (Table 3). Employees rose in importance from 11.1%—15.1% of the labor force and from a 14.5—23.1% share of total income. The temporary laborers appear to be the least favored group. They represented 14.8% of the labor force (measured in man-years) in 1972, up from 11.5% in 1968, but still accounted for only a tiny fraction of total income 3.9% versus 2.6% in 1968.

So far we have only discussed the improvement in the *distribution* of aggregate income between 1968 and 1972. By itself this has little significance unless all workers are now absolutely better off than before. Table 5 gives some good indications that they are. The average annual monetary income of all sugar workers rose from 41,583 soles in 1968 to 88,596 in 1972. Permanent workers increased their average annual income from 39,413 to 92,362 soles; employees climbed

Table No. 3.

PERCENTAGE OF PERSONS AND INCOME BY OCCUPATIONAL CATEGORIES

Labor Categories/ Years	Permanent Laborers		Employees <sup>1</sup>		Temporary Laborers		Owners	
	% Persons	% Income	% Persons	% Income	% Persons	% Income	% Persons	% Income
1968 (with net profits)	77.42	47.35	11.07	14.54	11.48	2.62	0.03	35.50
1968	70.10	73.08	15.11	23.05	14.79	3.87		
1972	77.44	73.40	11.07	22.54	11.49	4.06		
without net profits)								

1. Including non-member employees

Source: Tables 1 and 2.

from 84,651 to 141,472 soles per annum, and temporary workers from 14,706 to 23,156 soles, measured on a full time annual basis. The percentage gains permanent laborers, employees and temporary laborers were 134%, 67% and 57%, respectively (Table 6). The advantage of permanent laborers over employees is largely explained by the policy of distributing economic surpluses in indirect proportion to wage and salary earnings as well as according to the hours worked by member-workers. The temporary laborers are not formal cooperative members. They have no share in the economic surplus and do not qualify for indirect benefits such as milk, housing, hospital care and education; hence their slower gains in income in comparison to other workers.

At the present, the temporary laborers, who are mainly cane cutters, can improve their incomes only by direct earnings: through a higher wage rate per ton harvested and/or through increasing their productivity. Clearly, the gains in these areas have not kept pace with the income gains of member-workers.

Measuring the effects of the agrarian reform in real terms we can see that: (1) If we deflate all income ranks by a price index we do not alter the shape of the income distributions (Lorenz curves) pre and post-reform. (2) Between 1968 and 1972 total real personal income of the sugar enterprises increased by 100 million soles (Table 4). If we add to this gain the capital repayments by the cooperatives to the Government and the amounts they have allocated to their Reserve, Investment and Cooperative Development,<sup>10)</sup> the total improvement in real income 1968—72 amounts to approximately 400 million soles.

Table No. 4.

SUGAR COOPERATIVES LABOR FORCE AND  
INCOME 1968—1972

YEARS	LABOR FORCE	INCOME (in current soles)		INCOME in 1968 prices
		Labor Income	Owners Income	
1968	25,674	1,067,598,540	587,197,237	1,654,795,777
1972	26,019	2,305,171,210		1,753,848,826

As well as enjoying the profits previously appropriated by the »Patron« the sugar workers now also share immediately a quarter of the real economic growth of the period. Had they not been displaced by the Reform most of these growth benefits would have accrued to

<sup>10)</sup> The other cooperative funds, such as the Education Fund and the Social Provision Fund had already been considered in our Redistributive Fund.

private owners. (3) From Table 5 it is apparent that during the 1968—72 period real per capita incomes increased substantially. Average real incomes rose to 62%, overwhelming price increases.<sup>11)</sup> Permanent laborers increased their real per capita incomes by 78%; employees by 27% and temporary laborers by 20% (Table 7).

Before turning to the differences in income among sugar cooperatives it is important to mention some features of employment in the agricultural sector, in general and the sugar industry in particular. The total number of workers in the sugar industry rose by 337 man-years between 1968 and 1972. It is interesting to note that increases in the number of temporary laborers more than accounted for this shift. Tables 1 and 2 indicate that employment of permanent laborers and employees actually fell by 941 man-years—permanent laborers dropped by 1,644 while the number of employees rose by 703, primarily through promotion of permanent laborers. Retiring or deceased member workers have been replaced by hiring temporary laborers whose aggregate man-years rose by 1,278 (their numbers increased by approximately double this figure). While total employment of sugar workers has risen slightly, under-employment has increased substantially. The question arises: is the cooperative system of the agrarian reform encouraging the typical capitalistic relationship where capital owners hire and control labor?

## 2. Income Differentials Within and Among Cooperatives

Table 5 show that between 1968 and 1972 the average income per worker of all sugar cooperatives increased in both real and monetary terms. But, it is important to check which labor groups benefited most — was it a minority of rich workers or a majority of poor?

Permanent laborers, in all cooperatives except Cayalti, enjoyed a faster increase (in percentage terms) in their average incomes than did employees or temporary laborers (Table 6). In Cayalti, employee incomes grew fastest, and in five cooperatives (Pomalea, Paramonga, Laredo, Cayalti and Casagrande) employees show faster average income gains than temporary laborers. In Pucala, temporary laborers fared almost as well as employees, and in Tuman and Cartavio they did better (in terms of percentage gains — Table 6). The incomes of temporary laborers did in no cooperative as fast as those of permanent laborers in the same enterprise. In five of the eight cooperatives studied, temporary laborers had the slowest and smallest income gains of any group — relative to other workers, they were worse off in 1972 than in 1968. On the other hand, the permanent laborers, the second poorest and largest (60—75%) labor group of the cooperatives showed the fastest and highest income gains in seven out of eight cases. Inevitably, this has improved the overall distribution of income. The notable exception has been Cayalti where a regressive redistribution

<sup>11)</sup> A regional price index was used. For details, see, Santiago Roca, *op. cit.*, pag. 149.

Table No. 5

SUGAR COOPERATIVES  
AVERAGE INCOME PER WORKER AND PERCENTAGE INCREASES  
IN THE PERIOD 1968—1972

Cooperatives	1968 (in current soles)	1972 (in current soles)	1972 (in 1968 prices)	Percentage Increase	
				Monetary Terms	Real Terms
TUMAN	45,659	83,929	63,856	84	40
POMALCA	30,261	73,926	56,245	144	86
CARTAVIO	51,778	116,093	88,327	124	71
PARAMONGA	63,589	111,649	84,946	76	34
LAREDO	36,286	81,350	61,894	124	71
CAYALTI	27,591	44,492	33,851	61	23
PUCALA	32,628	65,356	49,725	100	52
CASAGRANDE	49,528	117,669	89,526	158	97
GENERAL	41,583	88,596	67,406	113	62

Source: Santiago Roca, *op. cit.*, statistical appendix charts 5 to 20.

of income has occurred: the employees, the best paid group of workers already in 1968, have gained the most, relatively and absolutely. This phenomenon can be explained by the fact that the salaries of the employees in Cayalti were and remain far below those in other cooperatives, and it is likely that Cayalti has been under considerable pressure to boost the salaries of technical employees in order to stop their drain to other enterprises and countries.<sup>12)</sup> Moreover, Cayalti was the only cooperative without an economic surplus in 1972 and that the distribution of surplus according to hours worked normally benefits permanent laborers relatively more than higher paid employees. The income gains of Cayalti employees in 1972 as compared to those in 1968, are directly attributable to salary increases.

The three cases where temporary laborers achieved equal or faster income gains than employees are explained by the peculiar behavior of the workers. The Pucala cooperative, at its own initiative, allowed non member temporary laborers a limited share in economic surpluses. In Tuman, a combination of social and political pressures provoked a series of wage increases for temporary laborers. Their gains at Cartavio are probably due to similar causes.

<sup>12)</sup> CECOAAP, «Situación, Actuación Actual y Futura del Potencial Técnico de la Industria Azucarera», División Técnica, Lima 1973.

Table No. 6.

SUGAR COOPERATIVES  
INCOME PER CAPITA AND PERCENTAGE INCREASES  
IN THE PERIOD 1968—1972 BY OCCUPATIONAL TYPE  
(in current soles)

Cooperatives	Permanent Laborers		Employees		Temporary Laborers	
	1968	1972	1968	1972	1968	1972
TUMAN	43,239	96,640	93,107	120,820 <sup>1</sup> 122,279	22,161 <sup>2</sup>	32,073
POMALCA	31,736	83,448	45,617	(100,481) <sup>1</sup> 113,795	12,078	21,983
CARTAVIO	43,396	110,608	112,670	169,694	9,297 <sup>2</sup>	20,776
PARAMONGA	56,070	103,656	97,455	152,075	12,709	17,284
LAREDO	35,755	79,152	89,762	129,830	11,428	12,669
CAYALTI	29,417	44,456	40,837	(79,394) <sup>1</sup> 86,802	13,524	14,114
PUCALA	29,676	64,672	75,426	112,835	15,077	22,872
CASAGRANDE	44,784	127,881	97,894	(184,802) <sup>1</sup> 204,233	14,603	24,745
GENERAL	39,413	92,362	84,651	(135,167) <sup>1</sup> 141,472	14,706	23,156

1. Including non-member employees.

2. Temporary field hand workers only.

3. Chicin, Sintuus and Chiquitoy are not included.





stantially different direct incomes. This fact happens at the internal cooperative level as well as at the intercooperative one. It is preposterous to assume perfectly homogeneous skills for each type of job in all cooperatives, but available information reveals near-homogeneity. Available information and research also discounts differences in education as being a major source of income differentials. The level of instruction and education does not differ much among similar types of jobs within and between cooperatives.<sup>14)</sup>

Table No. 8

AVERAGE INCOME PER WORKER AND PROFITS PER WORKER  
BY SUGAR FIRMS, 1968.

Cooperatives	Profits per Worker		Average Income per Worker	
TUMAN	43,320	1	45,659	3
POMALCA	16,679	6	30,261	7
CARTAVIO	23,776	4	51,778	2
PARAMONGA	22,045	5	63,589	1
LAREDO	3,657	7	36,286	5
CAYALTI	1,178	8	27,591	8
PUCALA	29,108	3	32,628	6
CASAGRANDE	31,000	2	45,528	4

Source: Santiago Roca, *op. cit.*, statistical appendix charts Nos. 5, 7, 9, 11, 13, 15, 17, 19.

It appears that the fundamental cause of income differentials between the cooperatives are the differences in rents due to non-labor factors of production: capital, land, irrigation and management. It is difficult to measure the productivities and rents due to each of these factors. The writer will attempt to do so in a subsequent paper. Here we will attribute aggregate productivity entirely to labor.

Not surprisingly, the cooperatives showing the highest physical productivities (sugar tons per man year) in 1972 (Table 9) coincided with those yielding the highest average incomes per member-worker (Table 6). The income redistributed under the agrarian reform is obviously concentrated in the cooperatives with best non-labor endowments, and is favoring the members of those cooperatives.

A corollary of this is that the average income of non-member workers (temporary laborers) is not directly related to cooperatives' non-labor endowments or surplus potentials. Only two of the four highest-earning cooperatives are paying higher than industry-average

<sup>14)</sup> Universidad Católica, «Situación de la Vivienda en la Cooperativa Agraria de Producción Pomalca», pag. 17, Oct. 1971; and «La Reforma Agraria en dos Complejos Agroindustriales: Cayalti y Tuman», pag. 21, Marzo 1970.

wages to temporary laborers; only one of the three lowest earning cooperatives is paying below-average wages (Tables 6 and 9). This is explained by the general exclusion of temporary laborers from sharing in the surplus because of non-labor factors. The increases which did occur in temporary laborers' wages between 1968 and 1972 are due to the social and political pressure by these laborers and/or to the State organizations responsible for agrarian reform—SAF-CAP and SINAMOS. These pressures were strongly opposed by member workers of the sugar cooperatives.

Table No. 9

AGGREGATE PRODUCTIVITY, BY COOPERATIVES, 1972

Cooperatives	Son Sugar/man-year
CASAGRANDE	55.86
PARAMONGA	38.69
CARTAVIO	36.80
TUMAN	36.06
LAREDO	34.92
ANDAHUASI	34.88
PUCALA	28.45
SAN JACINTO	23.97
POMALCA	22.87
EL INGENIO	17.80
CHUCARAPI	15.34
CAYALTI	13.84
GENERAL	33.02

Source: CECOAPP «Informe Anual de Operaciones de Producción 1972», Div. Técnica, Feb. 1973.

IV. THE SUGAR COOPERATIVES: THEIR INCOME SITUATION  
RELATIVE TO THE REST OF THE ECONOMY

The last chapter analysed in some detail the effects of the agrarian reform on income distribution and differentials, 1968—1972. However, our argument would be incomplete if we did not consider the relative position of sugar workers in the national economy over time.

The present chapter compares the incomes of sugar workers and other Peruvians in 1961, before the 1969 Agrarian Reform, and in 1972.

### 1. The Position of Sugar Workers in the National Distribution of Income 1961.

Richard Webb has shown that in 1961 income distribution in Peru was extremely unequal.<sup>15)</sup> The poorest decile of the active economic population shared only 1.0% of the national personal income, while the richest decile shared 49.2% (Table 10). The principal source of this inequality was the concentration of property ownership and property income in the hands of the rich. Ninety percent of property income went to the richest decile of the earning population, and accounted for 50% of its personal incomes. In contrast, only 3.5% of the total personal income of the poorest decile derived from property. Moreover, 80% of the share 25.4% in the national personal income of the richest 1.0% of the country's population came from property income.

By Webb's accounting, the sugar plantations are included in the modern sector of the Peruvian economy. On the average, they are in the richest quartile of this sector. Disaggregation of the incomes obtained in our survey of sugar enterprises in 1973 permits us to estimate in more detail the relative position of sugar workers' within the 1961 national income distribution.

Table No. 10

#### DISTRIBUTION OF NATIONAL PERSONAL INCOME BY DECILES, 1961

Labor Force Deciles	Personal Income
1	1.0
2	1.5
3	2.2
4	3.3
5	4.3
6	5.9
7	7.6
8	9.8
9	15.2
10	49.2
top 5%	39.0
top 1%	25.4

Source: Richard Webb, *op. cit.*, p. 3, table 1.

<sup>15)</sup> Richard Webb, «The Distribution of Income in Peru, 1961», Discussion Paper No. 26, Princeton University, 1972.

Using a methodology explained in the original Spanish report of this research,<sup>14)</sup> we estimate that 9% of the sugar work force, including temporary laborers in their man-year equivalents were in the second quartile of national income distribution, 19% in the third quartile and 72% in the richest quartile, in 1961 already.

Since it is known that in 1961, property income was the basic cause of income inequality, it is important to know what fraction of the sugar work force were property rich. Only the owners of sugar enterprises, which constitute less than 1.0% of the sugar work force, belonged to the top 1.0% of the national earning population. Owners shared 37.0% of total personal income generated in the sugar industry. There, as well as in the rest of the economy, property income was the principal source of income inequality.

34% of sugar workers including temporary laborers in their actual numbers rather than man-year equivalents were among the first, second and third quartiles of income earners in 1961. The majority of sugar workers (52.0%) were in the lower half of the top national quartile. Only 14.0% were among the decile of top earners in the country.

At the regional level, in 1961 among the top eleven rural provinces and among the top seventeen national provinces, ranked by *average resident income*.<sup>16)</sup> (There are 144 provinces in Peru.)

### 2. Income Differentials Between Sugar and Non-Sugar Workers, 1971

Here we estimate the relative incomes of sugar and non-sugar workers using information presented in Chapter III and national surveys of worker's incomes made between 1970—1972. The previous section of the present Chapter will also allow us to compare the relative gains of sugar and non-sugar workers over time, 1961—72.

From the 1971 «National Survey for Multiple Purposes»<sup>17)</sup> (Table 1.1) and our own Table No. 2 we observe that 6% of sugar workers were in the second quartile, 12% in the third and 82% in the top quartile of income earners in 1972. No less than 43% of sugar workers were in the top decile of the national income distribution. Recall that in 1961 the comparable percentages for the second, third and top quartiles were 9%, 19% and 72%, respectively.

In sharp contrast to the relative affluence of sugar workers in either 1972 or 1961 is the situation of most *campesino* neighbors in the Lambayeque department. Eighty six percent of the agricultural units share only 10.7% of the total agricultural area. The common family farm of less than 15 hectares barely permits a surplus above mere subsistence. «Cofradia de Samon», a typically large non-sugar cooperative with more than 500 hectares of rice, wheat and soy beans gave to its member workers an average of 21,845 soles in 1972, inclu-

<sup>14)</sup> Richard Webb, *op. cit.*, tabel No. 6 and 11.

<sup>17)</sup> SERH, «Algunas Características Socioeconomicas de la Educacion en el Peru», Ministerio de Trabajo, 1971.

ding surplus benefits<sup>18)</sup> (similar average income per worker were obtained in other neighbors farms as »El Naranjal« »Chacupe« »Mama-pe« and »Sto Tomas«). Only the temporary laborers on only four sugar cooperatives earned less than this in 1972. The temporary laborers on all sugar cooperatives averaged in 1972 23,156 soles and the member-workers 100,369 soles.

It is apparent that the sugar workers' incomes are far ahead of those of other local agricultural workers and that the agrarian reform has actually heightened their advantage. The present incomes of sugar workers in no way reflect the local (regional) supply situation of agricultural labor. Rather, the exceptional incomes are a result of imperfections in the labor market, notably of the restricted membership in the sugar cooperatives. Because of the incentive payments and the pressure from organized labor even non-member temporary laborers earn almost double the national minimum rural wage (Table 12a).

Table No. 11

DISTRIBUTION OF ACTIVE ECONOMIC POPULATION BY MONTHLY INCOME LEVELS 1971 NATIONAL SURVEY

Monthly Income Levels	Percentage of Persons	Accumulated percent Persons
Zero income	17	17
1— 499	14	31
500— 999	12	43
1,000— 1,999	15	58
2,000— 2,999	11	69
3,000— 4,999	15	84
5,000— 7,499	7	91
7,500— 9,999	2	93
10,000—24,999	4	97
25,000 or more	1	98
Non-classified	2	100%
Total	100%	
Average <sup>a</sup>	3500	
Median <sup>a</sup>	1965	

Source: SERH, »Algunas características Socioeconomicas de la Education en el Peru,« Ministerio de Trabajo, Nov. 1971, p. 23.

a. Does not consider zero incomes and non-classified.

<sup>18)</sup> SINAMOS, »Una Contribucion para la Elaboracion de los Planes Integrales de Asentamiento Rural,« Direccion de Organizaciones Rurales, 1972.

It can be noted that the average income of the member workers of the sugar cooperatives, even when the field workers, are included<sup>19)</sup> is far above the average incomes in the industrial sector (Table 12b).

However it is important not to forget that the agrarian reform has corrected the gross income inequality within the sugar industry which had been incurred by previous concentration of substantial profits in the hands of a very few owners.

Table No. 12<sup>a</sup>

PRESENT MINIMUM WAGES AND SALARIES IN THE NATION — 1970. RURAL ACTIVITIES (in soles)

Departments	Salary	Wages per Day
La Libertad	840	24.00
Lambayeque	1,100	33.50
Lima	1,000	32.00

Source: SERH, »Informe sobre la situacion Ocupacional del Peru, 1970.«

Table No. 12<sup>b</sup>

AVERAGE INCOME (in current soles)

	Industrial Sector 1971 <sup>1</sup>	Sugar Cooperative Sector 1972 <sup>2</sup>
Full time laborers	40,000	92,362
Employees	80,000	141,471
Temporary Laborers		23,156
General Average	60,000	88,596

Sources: 1. Mario Lanao, »Diagnostico Economico y redistribucion del Ingreso en las Comunidades Industriales« (B. A. Thesis, Catholic University, 1973).

2. Table No. 6.

V. INTERPRETATIONS AND CONCLUSIONS

Previous chapters have reported in some detail the effects of the agrarian reform on incomes and income distribution in the sugar cooperatives. Employment and production consequences have also been mentioned.

<sup>19)</sup> From the working sheets of the sugar cooperatives' survey.

It is pertinent now to evaluate the performance of the cooperatives, first against the model of their capitalistic alternative or «twin», and then against the expressed goals of the Revolutionary Military government. The criteria adopted here for the first comparison are the levels of (1) production and productivity, (2) employment, (3) income per worker and (4) equality in the distribution of income.

Let us begin with a theoretical analysis.<sup>20</sup> Assuming that non-member workers are not allowed to exist in the cooperative and that the economic objective of the cooperative is to maximize net income per member worker, we can conclude that:

Each member should on the average receive his marginal value product, i. e. the capitalist wage rate (for each type of labor force) plus an equal share of any surplus:

$$MVP = W + \pi/L = Px dx/dL$$

where

$MVP$  = marginal value product labor

$W$  = capitalist wage rate

$\pi$  = total surplus

$L$  = number of member workers

$Px$  = price of output

$dx/dL$  = marginal physical productivity of labor.

If surplus is positive, it is obvious that income per member within the cooperative will be higher in a cooperative than in its capitalist twin. The distribution of income will also improve within the cooperative if the surplus is divided equally or according to hours of work.

If non-members workers are allowed to exist but not to participate in management or economic surplus, the results of this analysis change substantially. There are now two types of labor force, one type receiving the capitalist wage rate, or a little more, depending upon the member's decisions or upon pressures from below or above, and another receiving the wage rate plus the economic surplus of the enterprise. It is obvious that, if the members want to maximize their incomes, they will hire an increased number of non-members as long as the additional non-members contribute more than the value of their per diems. In graphical terms, angle  $\alpha$  is the maximum net income per member without hiring non-members workers.  $L_M$  is the amount of members employed and  $\overline{KP}_K$  is, of course, the total payment to capital — the other factor of production.

<sup>20</sup> See: Jaroslav Vanek, *The Theory of Labor-Managed Market Economies*, Cornell University Press, 1970; J. E. Meade, «The Theory of Labor Managed Firms and Profit Sharing», *Economic Journal*, March 1973. Also a short article in Spanish, Santiago Roca, «La Empresa Privada y la Empresa Autogestionaria», *Material Didactico*, No. 7, ESAN, Lima 1973.

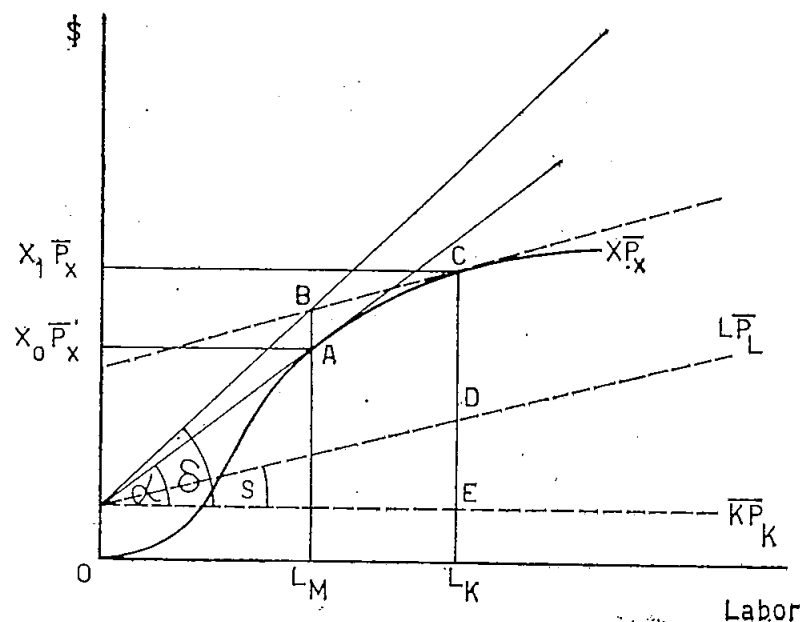


FIGURE 2

Members can easily increase their incomes by hiring non-members at the wage rate described by line  $BC$ . In this fashion, the new income per member is shown by angle  $\delta$  greater than  $\alpha$ . The segment  $AB$  is the surplus generated by the non-member workers that is now appropriated by the members. We call that the «exploitation segment of the cooperativists.»

On the other hand in a capitalist firm that maximizes profits, the workers are earning the wage rate<sup>21</sup>) and what is left over are the profits accruing to the owner of the firm. In our diagram  $L_K D$  is the cost of the capitalist firm,  $L_K E$  the cost of capital and  $ED$  the cost of labor, while the segment  $DC$  is the amount of profits.

It is obvious from the diagram that the income per member of a cooperative is higher than the wage of a worker in a capitalist twin<sup>22</sup>) angles  $\alpha$  or  $\delta$  are greater than  $S$  and the income of non-members is at least as much as the wage paid to the workers of the capitalist firm. I say «at least» since due to the effects mentioned above: members willingness, degree of social conscience and pressures from below or above, the wage rate of non-member workers could be higher than the market rate.

<sup>21</sup>) To make the analysis simpler, we assume only one homogeneous type of labor with its respective fixed wage rate. The analysis could be expanded to several types of labor and yield the same conclusion.

<sup>22</sup>) If there are no profits, in the capitalist firm, the workers' income will be the same.

The distribution of income *within* the enterprise may vary. Depending on the proportion of members to non-members and in the way the surplus is distributed among members.

Employment and production levels tend to be smaller in a cooperative (without non-member workers), that maximizes net income per member, than in a typical profit maximizing capitalist enterprise. In our diagram,  $L_M$  and  $X_0$  are the levels of employment and production in the cooperative and  $L_K$  and  $X_1$  are the respective ones in the capitalist firm. However, if the cooperative is allowed to employ non-member workers, the levels of production and employment could reach the same point. In our diagram point C corresponds, to the point of profit maximization of a capitalist firm as well as to the member's income maximization of a cooperative employing non-members.

Finally, the levels of productivity of a cooperative versus a capitalist firm are basically a matter of empirical research. Theoretically there are different opinions, the extremes being the contention that labor force is not able to get organized by itself and produce more than the capitalist firm, and the belief that worker motivation and productivity will be higher in a cooperative than in a capitalist firm because the workers know that they and only they will share the economic surplus of the firm.

With this simple analytical framework, let us reiterate several salient characteristics of the present Peruvian sugar cooperatives and compare their empirical results with those of the capitalist enterprise.

- (1) Cooperative member-workers are joint owners of the firm.
- (2) All member-workers are eligible to participate in the management and economic surplus of the firm. Management participation is by equal vote in the election of representatives to worker's councils which dominate the internal management structure. Members share in the economic surplus of their enterprise according to their hourly labour inputs. Temporary laborers (non-members) are generally denied participation in management or any economic surplus.
- (3) Personal incomes are generated and distributed within each enterprise (internally). There is no substantial transfer of income between cooperatives and/or other rural areas.
- (4) Internal capital accumulation and financing is required.
- (5) Cooperatives are repaying the government their agrarian reform debt, equal to the expropriation compensation paid to the previous owners but much less than the productive value of the capital stock and assets inherited by the cooperatives.<sup>23)</sup>
- (6) The principal taxes on cooperatives fall on labor incomes; property and other taxes are relatively slight.

<sup>23)</sup> Interview with members of CECOAAP.

Characteristics 1, 2, and 3 fall within our prior theoretical analysis and 4, 5, and 6 will add something more to it.

The Peruvian experience confirms most of the theoretical predictions. In 1968, eight latifundist families shared profits amounting to 35% of the aggregate personal income of the sugar industry. The agrarian reform of June 1969 redistributed these profits plus a quarter of the sugar industry's growth 1968—72 to more than 22,000 worker beneficiaries (members).

This created a more equal income distribution among member workers *within* the sugar firms and all workers increased substantially the incomes of the workers including temporary laborers (non-members). Temporary laborers are receiving higher wages than the market wage and/or minimum wage legislation. However, their income increases have not been as large as those of the members and their position in the income distribution schedule *within* the firm has not improved (Chapter III).

Turning to employment and production, our empirical evidence indicates a production increase during the period of cooperative management after 1969 (Chapter II). Exact identification of the sources of this improvement is difficult and beyond the scope of the present paper. On the other hand employment, measured in man-years, increased only by 1.4%. It is important to reiterate that the number of members decreased in comparison with the full-time workers in 1968 and that the increase in employment in 1972 has come through a substantial increase in temporary laborers (Chapter III). The analytical framework above is relevant and explains this situation, «the exploitation segment» has already created some conflicts between members and non-members.

It may not sound right that the cooperative is employing more labor than its prior capitalist, but it is important to remember that our theoretical analysis is a static one. There have been new investments, price movements, social pressures and development projects done by each cooperative that must have changed the position and even the form of our production function. The small increase in employment, together with the already seen higher or aggregate productivity per labor following the 1969 agrarian reform<sup>24)</sup> and the favorable climatic conditions to sugar production of 1970—1972 explain at least part of the record sugar outputs of 1971 and 1972.

The disappointing employment increases generated by the cooperatives can be partly attributed to their investment behavior (characteristic No. 4). It can be demonstrated that the reinvestment and self-financing legally required of cooperatives displaces labor for capital within the firm and produces an inefficient capital market. With a zero internal opportunity cost of legally committed investments, capital substitution may provoke self-extinction of the cooperatives.<sup>25)</sup>

<sup>24)</sup> CECOAAP, *Informe Anual de Operaciones de Producción División Técnica, 1968—1972.*

However, there is little reason to expect a better employment performance under capitalist control. It is rather likely that the rapid mechanization and the decline in employment, witnessed under capitalist control prior to agrarian reform, would have continued.<sup>26)</sup> Production might have risen under such strategy, but probably no more than under cooperative management. By maintaining and even increasing employment income per worker and output the Peruvian sugar cooperatives have avoided the collapse commonly predicted for worker-managed enterprises and surpassed their capitalist »twin.« Its distributional effects within the cooperative at large, has also been positive.

The cooperatives haven't fared quite so well when measured against the economic goals of the Revolutionary Military Government. Broadly speaking, these national goals include a more equal distribution of income, a reasonable growth rate and a substantial increase in employment. In this framework, we note that although all the workers of the sugar enterprises have in the period 1968—72 increased their incomes, some did so in lower proportion than others. *Within* the sugar firms, temporary laborers are worse off relative to other workers than before the agrarian reform.

This fact is explained by the rational reluctance of the worker members to diminish their own incomes by sharing economic surpluses more widely.

A related phenomenon is the increase in the level of under-employment, due to increased hiring of temporary laborers. Moreover the cooperatives have strongly opposed granting membership to these non-member workers.

The intercooperative results show that during 1968—72 income differentials within and between labor groups increased. This is mainly due to differences in endowments and productivities between the cooperatives and also to the lack of a fixed schedule of rewards according to tasks (Chapter III). To explain the differences in surplus potentials between the cooperatives may we ask: If each production factor receives its marginal value product, where from does surplus come? Marginal productivity theory imputes to each factor its contribution to total product. Why then do firms compensate similar factors equally regardless of the existence of increasing or decreasing returns, complementarities or supplementarities which make some levels or mixes of inputs more valuable than others. The answer is that only the last added factor receives its marginal value product; all other factors may create an economic surplus which inevitably accrues to the owner (s) of the firm, in our case —the cooperativists (characteristics 1 and 3). The owner reaps not only surplus from physical factors but also rents (because of natural advantages, such as proximity to factories or markets). Some cooperatives have na-

<sup>25)</sup> Jaroslav Vanek, »The Basic Theory of Financing of Participatory Firms,« Discussion Paper No. 27, Cornell University.

<sup>26)</sup> For historical data see: Peter Klaren, »La Formacion de las Haciendas Azucareras y los Origenes del APRA,« Instituto de Estudios Peruanos, 1970. Also, Douglas Horton, *op. cit.*; and CENCIRA, »Participacion, Organizacion y Poder en Casagrande,« Direccion de Investigacion, 1973.

tural advantages over others or are functioning with higher capital intensive techniques inherited from the past that are able to explain part of the incomes and surplus potential differentials among cooperatives.

It might be argued that the cooperatives are properly compensating their capital and even natural endowments through debt repayments to the State. However some technicians at the Peruvian Sugar Cooperatives Association, CECOAP,<sup>27)</sup> maintain that the sugar cooperatives have a small debt relative to the production and surplus potential of their assets (characteristic No. 5). And what is the income of the members likely to be in 20 years when this debt gets amortized? Surely the member-owners of the sugar cooperatives will continue to increase their personal incomes, with little or no concern for the workers in lesser endowed and less fortunate sectors.

Such behavior can be already seen in the Peruvian economy. In the sugar industry, Cayalti the least endowed and poorest cooperative, pays the lowest wages in the industry. This is due not to any fault of labor but to organizational shortcomings and to productive weaknesses inherited with the agrarian reform. At the other extreme, Casagrande workers are enjoying the highest incomes and surpluses in the industry with scanty regard for the condition of Cayalti. Lately, the State has intervened to rescue Cayalti from bankruptcy and hopes to raise production to profitability. It is regrettable that, in the absence of an effective system of taxing the physical, managerial or natural advantages of the richer cooperatives, this operation will use scarce funds (characteristic No. 6).

Another consequence of the present organization of the cooperatives is the rise of the property feelings of the members to the point of hiring temporary laborers to perform less dignified jobs, in imitation of the former »Patrons«. In an extreme hypothetical case a situation where there is only one member and all other workers are non-members could arise and cause the secular death of the cooperative.

At the national level, it has been shown (Chapter IV) that already in 1961 the bulk of the sugar work force was among the better paid workers of the country. In 1972, 3 1/2 years after the agrarian reform, due to the profitability of the sugar enterprises and distribution of profits within the firms (characteristic No. 3), the relative position of all sugar workers was further improved. At the present most sugar members belong to the top quartile of the national income distribution scheme. These income advantages are very serious considering the large part of the Peruvian agricultural sector operating at subsistence level.<sup>27)</sup>

<sup>27)</sup> Adolfo Figueroa in »El Impacto de las Reformas Actuales Sobre la Distribucion de los Ingresos, 1968—1972«, studies the redistributive strategy of the Revolutionary Military Government and presents some gross estimates of its potential impact. The overall conclusion being that most reforms redistributed income within the richest quartile of the active economic population. Universidad Catolica, CISEPA, 1973. Also, Richard Webb in »Government Policy and the Distribution of Income in Peru, 1963—1973« in a theoretical model explains with more detail and most recent data (1970) the distributive impact of the reforms and other redistributive policies such as price and fiscal policy, both under Belaunde and Velasco government. Discussion Paper No. 39, Princeton University, 1974.

In this regard the objective of the agrarian reform law »to improve the economic situation of the campesino through redistribution of land and income« has been perverted in favor of a minority of profitable sugar enterprises. The whole subsistence sector has been divorced from the benefits of redistribution.

Despite their positive effects the cooperatives have not matched the legislative ambitions of social change and redistribution and at the national level have been somewhat regressive.<sup>20</sup>) Perhaps, more positive conclusions may have emerged if temporary laborers were admitted to membership; if social instead of communal ownership existed; if proper rents and taxes were effectively extracted and transferred to less fortunate enterprises.

(Rad primljen marta 1975.)

PERUANSKE ZADRUGE ZA PROIZVODNJU ŠEČERA:  
NEKI OSNOVNI EKONOMSKI PROBLEMI, 1968—1972.

Santiago ROCA

Rezime

Agrindustrijski kompleks proizvodnje šećera u Peruu uspevao je da izbegne sve pokušaje agrarnih reformi koji datiraju još od početka ovog veka. Privatne plantaže šećera (latifundije i minifundije) su konačno i temeljno podvrgnute reformi tek u julu 1969. godine, kada je revolucionarna vojna vlada Velaska donela Zakon o agrarnoj reformi. Jedan od najznačajnijih ciljeva ovog zakona jeste preraspodela zemlje i dohotka koji treba da obezbedi društvenu pravdu u poljoprivrednom sektoru, uključujući tu i bolji životni standard za radnike. Suštinu zakona čini promena svojinskih prava bez promena u organizaciji proizvodnje. Agroindustrijski šećerni kompleks je, naime, prešao iz privatnih ruku u zadrugu svoju. Interesantno je analizirati stvarno dejstvo agrarne reforme na preraspodelu dohotka i društvene promene u novoosnovanim zemljoradničkim proizvodnim zadrugama i uopšte u poljoprivrednom sektoru. Autor je postavio sebi za cilj da odgovori na sledeća ključna pitanja: 1) Kakva je bila situacija u pogledu raspodele pre reforme? 2) Da li je od reforme naovamo došlo do značajne redistribucije dohotka unutar zadruga za proizvodnju šećera? 3) Ako je došlo, ko je od te redistribucije imao najveću korist?

<sup>20</sup>) Solon Barraclough in: »Dynamics of Government-Cooperative Relationships in Rural Latin America«, suggests that »the dynamics of government-cooperative relationships depend primarily upon how broader social and economic processes are effecting political structures and government policies in each country at any given time.« This statement might have been true for the Peruvian case. Paper presented at CIRCOM 3rd International Symposium, Tel-Aviv, March 24—28, 1974.

4) Koliki su sadašnji dohoci radnika šećerana u odnosu na dohotke ostalih peruanskih radnika? Drugi cilj studije sastoji se u tome da se utvrde efekti reformskog zakona na proizvodnju i zaposlenost u pomenutom agroindustrijskom kompleksu.

U tu svrhu autor posmatra osam zadruga (koje proizvode 94% šećera u Peruu) od postojećih dvanaest, i to u periodu od 1968. do 1969. godine. Rezultati istraživanja pokazali su:

1. Agregatna raspodela dohotka u kompleksu proizvodnje šećera 1972. u odnosu na 1968, tj. neposredno pre agrarne reforme, znatno se izmenila. Donjih 20%, koji se uglavnom sastoje od sezonskih radnika, pogoršalo je svoj položaj u raspodeli ukupnog dohotka. Međutim, grupa od donjih 41% šećeranaca povećala je svoje učešće u ukupnom dohotku od 16% u 1968. na 22% u 1972. Mnogo je značajniji podatak da je 83% radnika povećalo svoje učešće u dohotku od 44% na 73%, a 99,9% radnika šećerana, koji su učestvovali sa 64,5% u dohotku 1968. god., prisvojili su 99,5% dohotka u 1972. godini, tj. 35,5% dohotka koji je ranije bio prisvojen kao profit vlasnika preraspodeljen je kao dohodak od rada. Dakle, s izuzetkom dve najniže desetine raspodele dohotka, zadruga reforma u sektoru proizvodnje šećera proizvela je znatno ujednačeniju raspodelu dohotka.

2. U celini, svi zaposleni u sektoru proizvodnje šećera su daleko više zarađivali 1972. nego 1968. godine. Stalni radnici (obreros) povećali su za posmatrane tri i po godine prosečni realni lični dohodak za 78%, službenici (empleados) za 27%, a sezonski radnici (eventuales) za 20%. Ukupni realni lični dohoci u zadrugama proizvođačima šećera između 1968. i 1972. povećali su se za 100 miliona sola. Ako se tome dodaju iznosi koji su raspoređeni u rezervne, investicione i razvojne zadržne fondove, onda ukupno poboljšanje u realnom dohotku 1968—72. iznosi približno 400 miliona sola. Radnici šećerana, raspodeljujući profite koje su ranije prisvajali tzv. »patronik«, učestvuju u četvrtini realnog ekonomskog rasta, od koga bi, da nisu reformom eliminisani, najveću korist imali privatni vlasnici.

3. U pogledu raspona u dohocima među zadrugama situacija se različito menjala kod različitih kategorija radnika. Odnos između najvišeg i najnižeg prosečnog godišnjeg dohotka po stalno zaposlenom radniku pogoršao se između 1968. i 1972. od 1,9 : 1,0 na 2,9 : 1,0. Za službenike raspon između najvišeg i najnižeg dohotka se smanjio od 2,76:1,00 u 1968. na 2,35:1,00 u 1972. Za sezonske radnike taj raspon se pogoršao od 2,38:1,00 u 1968. na 2,53:1,00 u 1972. godini. Odnos između najvišeg i najnižeg dohotka svih kategorija radnika i svih zadruga pogoršao se od 12,12:1,00 (službenici: sezonski radnici) na 16,12:1,00 (takođe službenici: sezonski radnici) od 1968. do 1972. Ako se isključe sezonski radnici, odnos između dohotka službenika i stalnih radnika još uvek se pogoršava — od 3,83:1,00 u 1968. na 4,59:1,00 u 1972.

4. Dohoci radnika šećerana su i ranije bili daleko iznad dohotka ostalih lokalnih poljoprivrednih radnika (campesinosa), a agrarna reforma je još više povećala tu razliku. Sadašnji dohoci radnika zaposlenih u zadrugama ni u kom slučaju ne odražavaju ponudu raspoložive poljoprivredne radne snage. Ovi izuzetni dohoci su pre rezultat

imperfečnosti tržišta radne snage, prvenstveno ograničavanja mogućnosti učlanjenja u zadruga od strane članova, nego što su rezultat rada. Međutim, čak i nečlanovi (sezonski radnici) zarađuju skoro dvostruko više od najniže plaćenih radnika u peruanskoj poljoprivredi. Treba napomenuti da je prosečan dohodak članova zadruga (uključujući tu i poljske radnike) daleko iznad prosečnog dohotka i u industrijskom sektoru.

U zaključku autor vrednuje performanse zadruga, prvo, u odnosu na njihovu kapitalističku alternativu koja je postojala pre 1969, a zatim u odnosu na ciljeve koje je postavila revolucionarna vojna vlada.

U odnosu na svog kapitalističkog »blizanca« kooperative su u posmatranom periodu:

— znatno povećale proizvodnju; no, teško je precizno identifikovati izvore ovog poboljšanja;

— neznatno povećale zaposlenost, što se može pripisati investicionom ponašanju zadruga: vladajući princip samofinansiranja imao je za posledicu supstituciju rada kapitalom;

— ostvarile rekordnu proizvodnju (prouzrokovanu između ostalog i povoljnijim klimatskim uslovima od 1970. do 1972), što je, uz minimalno zapošljavanje, rezultiralo u visokoj produktivnosti rada;

— redistribucijom profita koje je uživalo nekoliko porodica latifundista u korist radnika zaposlenih u zadrugama, ostvarena je pravednija raspodela dohotka.

Međutim, unutar zadruga i između zadruga (što je rezultat zanemarivanja doprinosa dohotku ostalih faktora proizvodnje različitih od dohotka prilikom određivanja ličnih dohodaka) rasponi su se povećali tako da jedan od ciljeva koje je postavila revolucionarna vojna vlada — ujednačenje raspodele dohotka — nije u potpunosti ostvaren. Ni drugi cilj revolucionarne vlade — znatno povećanje zaposlenosti — takođe nije realizovan. Treći cilj — razumna stopa rasta proizvodnje — u posmatranom razdoblju je ostvaren.

Na kraju, autor predlaže određena organizaciona poboljšanja (npr. uključivanje i sezonskih radnika u zadržno članstvo) i mere ekonomske politike (pre svega adekvatnije oporezivanje pojedinih faktora proizvodnje), što treba da otkloni postojeće nedostatke u funkcionisanju zadruga i učini njihov rad efikasnijim, a to bi doprinelo i bržem ostvarenju željenih promena u peruanskoj privredi i društvu.

## EKONOMIJA OBIMA U TERMoeLEKTRANAMA ELEKTROENERGETSKOG SISTEMA SFRJ\*

Davorin RAPP

### 1. Uvod

U osnovi ovog rada sadržana je namera, odnosno pokušaj da se jednom od egzaktnih metoda utvrde efekti ekonomije obima u oblasti proizvodnje električne energije u termoelektranama. Radi toga ovde je primenjen model proizvodnje koji pokazuje zavisnost troškova proizvodnje (utroška goriva) od veličine i stepena iskorišćenja kapaciteta u termoelektranama.

Treba napomenuti da je nedostatak potrebnih informacija, a takođe i relativno težak pristup postojećim informacijama potrebnim za analizu ovakve vrste, bio osnovni uzrok što i neke druge relevantne zavisnosti nisu ovde analizirane.

Pored toga, da bi se što realnije i egzaktnije izveli zaključci o efektima ekonomije obima (što je primarni zadatak ovog rada) bilo je neophodno isključiti iz analize efekte koje proizvodi tehnološki progres, što je na odgovarajući način i učinjeno. U tom smislu, svi proizvodni kapaciteti termoelektrana klasificirani su po kriterijumu tehnološkog nivoa na taj način što su grupisani u grupe prema približno istim godištim puštanja u eksploataciju, a onda su za svaku takvu grupu analizirani efekti ekonomije obima.

Takođe, analize sprovedene u ovom radu zahvataju samo proces proizvodnje, ali ne i procese distribucije i prenosa i eventualne efekte ekonomije obima u tim procesima.

### 2. Proizvodna funkcija i ekonomija obima preduzeća

Teorija proizvodnje bazira na proizvodnoj funkciji koja predstavlja analitički izraz količine proizvoda kao funkcije proizvodnih uložaka, odnosno faktora proizvodnje. Ona uvek odražava određeni nivo tehnologije pri kojoj se faktori proizvodnje koriste na najefikasniji način pri ostvarenju maksimalno moguće količine proizvoda.

\* Izvod iz magistarskog rada branjenog pod rukovodstvom prof. dr B. Horvata u Poslediplomskoj školi Instituta ekonomskih nauka u Beogradu 12. jula 1974. god.