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AN EXPERIMENTAL COOPERATIVE FARMING PLAN IN CHILE*

William C. Thiesenhusen

When land rights must be assigned to large numbers in an agrarian reform, either a one family - one parcel structure or any one of a range of communal farming plans are implied. The bulk of this paper is devoted to analyzing the economic and administrative history of the first several years of one small cooperative farm in Chile.

Land reform in Latin America of the kind proposed under the Alliance for Progress, however, has almost universally come to imply establishing farmers on family sized plots.

According to frequent arguments, (1) yeoman owner-operators would help to promote development of a much needed "middle class," the basis of a true democracy and an egalitarian society.^{1/} (2) Large scale farming "frees production from all fetters and gives it the possibility of making full use

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^{1/}Proponents of this point of view worry particularly about substitution of "patrones" by demagogues and the totalitarian examples set by the communist bloc in communal plans when they are compared to the middle class family farm in the U.S. See for example T. Lynn Smith, editor, Agrarian Reform in Latin America, Alfred A. Knopf, New York, 1965. See Smith's introductory essay, pp. 3-62 and the article by Salvador Camacho Roldán, pp. 80-84.

of...mechanical inventions.^{2/} Yet labor saving capital is often uneconomic in underdeveloped countries where there is superabundant farm labor for which the marginal product approaches zero.^{3/} (3) Investments of an individual owner's time (and that of his family) and capital are undoubtedly greater and incentives to produce more clearly defined when each farmer has undisputed land rights to his own plot of land.^{4/} (4) There is no good basis on which to conclude that production per acre correlates positively with size of property.^{5/} (5) The long run average cost curve reaches its increasing phase with greater firm size more quickly in agriculture than in industry. Any positive effects of economies of size are soon over-balanced by a more clumsy organization. Opportunities for division of labor are less than in industry since the seasonality of agricultural chores precludes simultaneous "assembly line" task performance. And management difficulties are more complex due to the spatial spread

^{2/} Engels in Anti-Dürhing excerpted in David Mitran, Marx Against the Peasant, Collier Books Edition, 1951, (reprinted in 1961), p. 42.

^{3/} For example, Erven J. Long, "The Economic Basis of Land Reform in Underdeveloped Countries," Land Economics, Vol. 37, No. 2, 1961, pp. 113-123.

^{4/} See Philip M. Raup, "The Contribution of Land Reform to Agricultural Development: An Analytical Framework," Economic Development and Cultural Change, Vol. XII, No. 1, The University of Chicago Press, October 1963. The point is closely related to the idea that secure tenure leads to the surest development of accretionary capital in agriculture, an argument presented by Raup.

^{5/} Long, op. cit.

of agricultural work and the variety and non-routine nature of decisions to be made.^{6/}

Most a priori arguments in favor of a communal-type structure for reform run in terms of conserving scarce managerial resources. Since reform usually implies land being placed into the hands of inexperienced campesinos, technical knowledge might be more easily infused into a structure that maintains direct lines of control between manager and reform beneficiary. Those with little sympathy for the "clumsy organization" argument, note that labor might be easily supervised on a mass basis under communal systems. It has also been asserted that more standardized farm products might result from large scale farming much the same as interchangeable parts was one result of the industrial revolution. And in Latin America, advocates of communal systems assert that maintaining the unit intact would avoid large expenditures for certain economic infrastructure--like division of the irrigation system from one which serves large fields to one which waters small parcels and building access roads to plots, for example. More generally, working existing large farms rather than their division into small units might also disrupt, to a lesser extent than parcelization, the current organizational matrix of agriculture.

^{6/}John M. Brewster, "The Machine Process in Agriculture and Industry," Journal of Farm Economics, Vol. 32, February 1950.

Both types of farm organization may be utilized in the Chilean agrarian reform in which the government has promised 100,000 new owners in the six years of the Frei government which began in November 1964.^{7/} Hugo Trivelli, minister of agriculture, prognosticated, "...There will be two types of properties: a family unit and cooperative property."^{8/}

Unfortunately, Latin America has little experience with cooperative farming as a land reform device aside from the collective ejido.^{9/} In Chile some systems of worker participation have been introduced and at least one possible corporate structure for agriculture has been described.^{10/} Both of these might fall under the "cooperative form" category to which Trivelli refers. There has been some effort to speculate on whether some modification of an Israeli

^{7/} El Mercurio, March 4, 1965.

^{8/} El Mercurio, December 15, 1964.

^{9/} See Juan Ballesteros Porta, Explotación Individual o Colectiva? Instituto Mexicano de Investigaciones Económicas, Mexico, 1964; Nathan L. Whetten, Rural Mexico, University of Chicago Press, 1948, pp. 207-239; Charles J. Erasmus, Man Takes Control, University of Minnesota Press, 1961, pp. 183-305; Clarence Senior, Land Reform and Democracy, University of Florida Press, 1958.

^{10/} Juan Carlos Collarte, Análisis de una Alternativa de los Sistemas de Tenencia de la Tierra en Chile, Unpublished thesis, Facultad de Agronomía, Universidad de Chile, 1964, and Peter Dorner and Juan Carlos Collarte, "Land Reform in Chile: Proposal for an Institutional Innovation," Inter-American Economic Affairs, Vol. 19, No. 1, Summer 1965.

kibbutz might fit the Chilean situation.^{11/} But, aside from one serious effort on a fundo (large farm) previously farmed by the Catholic Church, no communally operated fundo exists in the country from which concrete experience might be drawn.^{12/} Although no two systems of communal farming are likely to be the same, a country serious about suggesting cooperative farming ventures as a method of reform would do well to study not only its incidence in other countries (where the cultural milieu is admittedly often different) but also its local antecedents. Although the small size and youth of Los Silos, the project to be described, precludes broad generalizations, agrarian reformers have no choice but to learn from existing "experiments" and to continually modify their concepts with results of field studies. As we will see, traditional theories are often inadequate to explain problems actually encountered.

^{11/}Eliana Alvarado, Cooperativas Agrícolas, Análisis de los Casos de Chile e Israel, Unpublished thesis, Facultad de Ciencias Económicas, Universidad de Chile, 1964.

^{12/}It is true, however, that Chile has had at least two experiences with communal property outside its major farming area (the central zone). One of these is the comunidades agrícolas found particularly in the northern province of Coquimbo. The other is found on the Araucanian Indian reservations of the south. The general case, however, is that best land is unofficially divided among common land title holders who farm it individually, while only poorest land is reserved for such uses as mutual pasture. These institutions have grown up over centuries, and inheritance has played a major role in their development.

II

Msgr. Manuel Larraín, Bishop of Talca, bought a property called Los Silos, a 182 hectare fundo (all of which was irrigable), in 1952 to help support the Seminario Conciliar of San Pelayo which depends on his diocese for funds. When the Bishop acquired the property, he immediately leased it. In the late 1950's the original renter left and the Bishop let out his fundo again.

Since the last renter spent very little time at the fundo, he left management to his son who lived there and served as administrator. In addition, he employed 18 resident workers about equally divided between inquilinos and empleados (inquilinos are resident farm workers; empleados are fundo employees with some supervisory and/or technical responsibilities).

In mid-1961 the renter's inquilinos were paid less than US 10¢ daily in cash. Additionally they were given perquisites of a little over one hectare to be farmed individually, were permitted to graze two animals on the fundo's pasture, and were given some bread each day. In mid-1961 to protest their low income (well below the legal minimum for the year), seven of the eighteen fundo workers went out on strike.

It was as the situation was turning from bad to worse --and after seven months of workers' strikes--that the Bishop decided to put a reform experiment into effect. Up

for renewal on May 1, 1962, the rental contract was cancelled and on June 26 the farm was turned over to a campesino cooperative.

Since he felt a staff of clergymen unprepared to handle the details of a reform, the Bishop appointed a committee of trained agriculturalists to handle technical matters of land transfer and farm management.

All previous workers on Los Silos had the opportunity to join the cooperative and become land holders. But agreement with the principles of cooperation was absolutely necessary and non-acceptance reason enough for exclusion.

The direction of the cooperative was placed in the hands of the settlers who made it up. The cooperative is governed by an administrative council of colonists, elected in general session. Its work is done by six committees made up of members.

The coop would eventually hold title to all the real estate, and all credit and technical aid would be channeled through it. The coop bought some of the renter's equipment and animals at a public sale. Credit was obtained from a lending agency, and the Bishop signed the necessary loans.

As more farms, representing experiments with other types of organization on Church lands, were added to the program, the functions of the technical committee were absorbed by the Instituto de Promoción Agraria (INPROA), a private foundation set up to administer the reform on

Church land, and an office was set up for it in Santiago.

As INPROA took over the general administration of Los Silos after the first operating year, real estate price was set and the coop agreed to pay for it in 20 years with five per cent interest on the unpaid balance. The principal will be paid off in equal installments adjusted annually for inflation by the annual price increase of either wheat or a selected list of commodities (at wholesale), whichever is more favorable to the colonist. Two and one-half per cent interest will be applied each year to the adjusted debt and two and one-half per cent to the non-adjusted debt.

What follows is an account detailing a few social-political difficulties which have developed in Los Silos in its first years under reform. The purpose of analyzing this situation is not to be unfairly critical of the parties involved nor to discourage reformers, but to serve as an example of the kinds of disputes reform may bring.

III

The technical committee decided the capacity of Los Silos would be 16 families. Two of the 18 original resident workers of the fundo left soon before and two left soon after the Bishop's turn-over of land--all four of their own volition. Two more were later expelled by the coop's vote. Replacements were brought in for four of these.

Four additional dissenting families interpreted the Bishop's words the day he turned over Los Silos to the cooperative, "You are the patrones (bosses or owners) of Los Silos," as meaning the farm would be divided into family units. They claim, even now, that they do not understand the coop and its organization. Nor did they ever accept outsiders who were taken as replacements for those who left and who came to be cooperators with land rights. And, they say, the Bishop explicitly turned the fundo over to former residents of the fundo.

The Bishop's idea, although he seems not to have communicated it clearly enough, was that these organizational details would be left to the technical committee. And he allowed the committee to function more or less autonomously.

The technical committee and later INPROA felt that much more study would have to go into the fundo if it was to be divided into small farms. There was a great deal of overhead capital represented in the barns and the silos and, moreover, some expense (for which no funds were immediately available) would need to be incurred to change the irrigation system from one that served the fundo's large fields to one that watered parcels. Further, the committee was anxious to experiment with cooperative farming.

Since it simply was not possible to continue a coop organization giving four families the land they wanted

while they remained outside, and the dissenting families refused to join, the coop voted to expel them. Subsequently, the coop voted four new families in to take their place. But the four old families insisted upon remaining in homes they felt rightfully theirs. A Socialist alderman in the zone, who had originally helped organize the workers' strike, encouraged and supported the decision of the four families.

Since there were no houses in which the four replacement families could live, two remained in their family homes in nearby Puante Alto, one lived in a room in the old patrón's house, and the fourth took up residence in the fundo's school. They waited anxiously for the old families to move so they could have their houses. And the coop had to send its school age children to a neighboring fundo's school.

At first, old residents of the fundo who elected to participate in the reform were divided in their loyalties between the four dissident families, with whom they had worked for years, and their new, struggling coop. Largely they swung to the side of the coop, however, and a feeling against the four families became a rallying point which seems to have drawn the entire coop closer together during its first years.

But the complicated legal efforts to expel the dissidents--still in progress--absorbed a great deal of the

energy of the young coop which certainly might have been better used to strengthen its institutional framework in other ways.

IV

As institutions are being built and taking root, internal, representative leadership must be developed to carry the organizations forward and to draw all members into participation. Los Silos' technical committee was quick to recognize that this meant putting campesinos themselves--many of whom had little decision-making experience previously--into positions of responsibility in the coop. Unfortunately, during the time of the workers' strike, the renter lost his most capable inquilinos to neighboring farms which treated resident workers better, and Los Silos became a harbor for some of the poorest laborers in the zone.

To help fill this leadership void, the hired administrator brought Luis Pérez,^{13/} a worker on a fundo some 50 kilometers distant, to Los Silos. Pérez began his career in farming as a reamplazante, a substitute for an inquilino, one of the lowest positions in Chilean agriculture. Gradually, he had risen to inquilino status, and by the time he came to Los Silos he had attended several short leadership courses and was employed as one of the caretakers of

^{13/}This name is fictitious.

his former patrón's dairy herd. Still, he was very much a campesino and remained ever-concerned with the campesinos' lot and enthusiastically anxious to help better it.

Los Silos was a natural outlet for his talent and he was voted some leadership responsibilities soon after his arrival at planting time in 1962.

Meanwhile, the technical committee's appointed administrator had the responsibility of guiding the cooperative through its first year (1962-63) and making day-to-day administrative decisions.

The administrator proved efficient. The coop showed a healthy balance as the first year under reform closed. But one of his problems was that he became very active in the local Christian Democratic Party during his tenure. At pre-election time when the technical committee--and later INPROA--was anxious to show its political and religious impartiality, this proved a tactical error. Furthermore, it served to aggravate the rift between the dissenting families and the cooperators since the Christian Democrats and the Socialists are often archenemies in Chile. More serious, the social distance between the administration and the campesino coop members widened as he assumed more and more a patronal role. His past duties as an administrator of a large, traditional fundo had taught him all too well the relationship that exists between administrator and laborers in Chile. Members generally liked

and respected him, but tended to turn to him not as a fellow coop worker whose technical abilities were known, but seeking explicit direction on "what to do next." Anxious to build more self-determination into the coop, INPROA returned the administrator to its Santiago office as the 1963-64 crop year began.

At this time, Pérez was elected coop president and named chairman of the agricultural committee. As such, he made many of the day-to-day management decisions of the cooperative during 1963-64, a point important to our later economic analysis.

The fact that two of the new colonists were Pérez' brothers-in-law has been a source of no small concern to the original residents of the fundo and to the four dissenting families. Some seem convinced that Pérez is trying to take over the fundo for the personal profit of his family. Further, some colonists believe that Pérez himself is getting rich at the expense of the other cooperators. In the face of evidence, both of these charges seem groundless.

Nonetheless, they underline the difficulty of finding adequate leadership for a reform effort. A leader must have not only natural abilities to direct his fellows, but be worthy of their trust. Yet he must know their lot and perform his functions without developing into a demagogue. One only needs to remember the high rate of illiteracy,

the miserable poverty, and the centuries of paternalism in Chile to recognize the mere difficulty of locating a campesino leader who asks no special favors in return for his position.

V

Some dissenters and a few coop members feel the Bishop should also have let the coop buy the small sand pit on one extreme of the farm. After not being successfully exploited for some time, under the management of the technical committee's administrator in 1962-63 this enterprise became quite profitable, and net income from it helped pay some of the Bishop's expenses which were formerly paid by the fundo rent. The technical committee felt Los Silos should be used only for agricultural purposes, for only in that way could the feasibility of reform on a broader scale be proven. They felt that profits from selling sand would only underwrite any losses the farm as an agricultural unit might show and colonists would come to rely on it to bail them out of agricultural difficulties.

A television set is another sore point. The first year the cooperative operated, the coop decided to buy a receiver on which cooperators and their inquilino neighbors from other fundos could watch soccer. Since it was the year of the world championship in which Chile was a participant, any means of seeing the game could be expected

to draw a large crowd; at any accompanying social gathering, neighboring campesinos might be convinced of the feasibility of a plan like Los Silos, reasoned some members. So the coop in general session was asked to approve the TV purchase. A new large-screen model which the coop still uses was ultimately selected. "We never approved of buying that television set," one cooperador told us, "What do we want with television when we're hungry?"

Complaints like these cannot help but sound petty. Yet to a struggling new institution they take on more importance than when an organization has reached a certain maturity. One problem, what to do with the sand pit, was a decision made by the reform agency which had to be communicated carefully to participants in the reform. The other, the purchase of the TV on which the coop voted, was simply not accepted by some members in the losing minority.

Part of the success of reform, it would seem, rests in the campesino's conception of the organizations serving him and those of which he is a part. The two institutions are quite different in character and function. In one, the coop members have a direct voice through their vote and their ability to sway members to their point of view. But the vote of the majority is to be accepted.

The other, now INPROA, a technical-bureaucratic service agency, has certain policies also influenced by cooperative vote. But INPROA can use its veto power over

the coop's action in other matters. Issues concerning technical agriculture, we will argue later, probably should fit into this category more than they did in 1963-64.

Policy matters, such as the sand pit decision, belong in this category too.

Communicating an understanding of the power structure of the organisms which have a part in reform is part of what reform is about. And as this understanding is made clear, one of the frictions to structural change is removed. Even acceptance of the majority opinion is a new experience for some coop members. In view of this, the well-functioning of a multi-purpose cooperative like that on Los Silos is an immense task. And the time necessarily spent in only organization--even leaving aside all the technical matters which involve production--should not be underestimated.

Great effort must be placed in maximizing "feedback" between the coop and INPROA. It may be that a superior-inferior relationship inherited from the patronal structure of Chilean agriculture tends to block communications and is not completely dead insofar as INPROA's dealings with the coop--or even within the coop itself (i.e., Pérez and his problems)--are concerned. Are the coop's desires similar to INPROA's wishes for it? Much inter-communication is necessary to find out and INPROA must constantly continue to re-adjust its policies according to the coop's wishes.

Likewise, the coop must learn to recognize that INPROA's veto power over some matters is useful and necessary.

VI

In total, as the 1963-64 year began, eight families were brought in from the outside; eight who were former residents remained, one of them preferring to serve as an inquilino to the cooperative.

The economic analysis in this section will focus on the following questions:

1. Can the 15 colonists meet their debt payments on land and capital?
2. How does present income of colonists differ from that in their position before the reform?
3. What is the production potential on Los Silos?

Can the New Colonists Meet Their Debt Payments?

What follows is an evaluation of one year's experience, and we cannot generalize on the basis of such a short period of time. However, aside from heavy rainfall in 1963-64, there were no unusual weather or marketing circumstances which could influence the economic performance detailed below. The analysis attempts to indicate what colonists must do if they are to meet their future debt payments. Although Los Silos is a mixture of individual and cooperative enterprises, the analysis in this section will treat the cooperative as the basic business and accounting unit.

Cropping Pattern

It will be convenient to describe the tenure system on Los Silos in terms of the three major crops grown in 1963-64.

Wheat makes up about 32 per cent of the farm's acreage, and alfalfa accounts for another 35 per cent. They are both grown on the common land, and income is designated for overhead expenses: water, electricity, machinery costs, land and interest payments. In addition, fertilizer, seed, and other direct expenses incurred by growing wheat and alfalfa are paid from this income.

Individual chacras (corn, potatoes, and beans) were planted on another 19 per cent of the land. Members drew lots for the plots averaging about two hectares. These are individual enterprises in that members have the major responsibility for planting, tending, and harvesting their respective chacra. Income above direct expenses (for fertilizer, seed, etc.) accrues to the individual provided that income from the common land is sufficient to cover all other expenses and principal payments. If income from the common land enterprises is not sufficient, this individual income can be diverted to cover any outstanding coop expense.

Small Allied Enterprises

A small building brick enterprise and the harvest of wood for sale are also operated communitarily. This income is likewise available for meeting overhead expenses.

Livestock

Los Silos had about 50 head of dairy cattle in 1963-64 with an average of 16 in milk. Although most members own only two or three dairy animals, they could, in 1963-64, pasture up to six full-grown animals free of charge on the coop's common land alfalfa pasture. (Animals under one year of age are not counted.) A small rental fee was to be charged for the seventh through tenth animal, and no member could pasture more than ten.

Labor Use and Management

In 1963-64 the coop manager (Pérez) assigned and supervised labor on the common land and brick and wood enterprises. In addition, if a member was occupied on one of the common enterprises, the manager would send another cooperator or hired laborer to work on the chacra of the member so employed. The tractor drivers, mechanics, and other members with specialized functions relied heavily on other members or hired labor to irrigate and weed their plots.

All members are obligated to work on the common land and carry out other tasks for the coop. However,

there is no clear-cut economic incentive for members to work to capacity on coop enterprises. Aside from coop censure and personal prodding by the manager, a member's major motivation is his knowledge that income from his individual enterprises will be used to meet overhead expenses if the common enterprises do not yield enough income to meet these obligations.

On the surface, this would appear to be a strong enough incentive. Yet an individual can always rationalize that the common enterprises will be well operated even if he, one individual in a group, shirks his duty at times.

Members' Income Determination

Since coop members needed a flow of income to provide for their families while awaiting the harvest, the coop made a living expense advance of E*1.1 a day.^{14/} This income was to be repaid from the individual's sales of produce, all of which was to be marketed through the coop. The coop was responsible for repaying INPROA, the original lender.

Heads of families in 1963-64 were paid this advance each day they worked as well as on days when they were ill. Illustrating the problem of incentives, as harvest approached the cooperative reported cases of malingering. Withholding advances in cases of imagined or feigned illness might

^{14/} At the time of the calculations, \$US 1 = E*3.25.

create some incentives if the family is completely dependent on advances. However, in the absence of medical evaluation, state of health is difficult to determine.

Sons of cooperators who are older than 18 can become "socios," that is, members without land rights. In 1963-64 there were four socios working for the cooperative with advances of E*1.1 a day. They are also entitled to some share in the profits as determined by a year-end accounting.^{15/} Two sons of cooperators under 18 also worked for the cooperative in 1963-64, receiving E*1.1 a day without any additional claims to profits.

All members with dependents received a governmental family allowance (under the Chilean Social Security laws called asignación familiar), while some members with special skills received a cash bonus in addition to some extra grazing rights. In 1963-64, then, members' cash income was expected to accrue from four sources: (1) the family allowance from the government; (2) payments from the cooperative in reward for work requiring special skills; (3) individual income above direct costs as determined by separate accounting on members' enterprises, after payment of all operating expenses, land and capital amortization, and short term

^{15/} Since, as we demonstrate later, there were no profits to divide in 1963-64, the nature of this sharing has not been clarified. The advances for socios in 1963-64 really became "wages" in the absence of profits.

production credit, income advances, and marketing charges to INPROA;^{16/} (4) if all expenses and obligations could be met from the common enterprises without drawing on "income above direct costs" from individual enterprises, and if the coop still showed a profit, profits would be divided among members at the end of the year according to days worked.

INPROA's Role

INPROA provided technical assistance, accounting services, short term production credit, and income advances. In return for its services, it charged a two per cent marketing fee plus interest of 1.3 per cent per month on its loans.

The Cooperative in 1963-64: Economic Performance

In analyzing the cooperative as the basic business unit to arrive at debt paying capacity, we must assume that all income from produce sold, whether it accrues to individual members ultimately or whether it goes directly to the cooperative account, forms part of the gross income of

^{16/} We are, of course, omitting income in kind in the form of produce consumed, house rental value, etc. These will be included in later comparisons. We are also excluding the concept of equity which could accrue to individuals from two sources: (a) from an increase in their individual livestock inventories, and (b) from an increase in inventories held by the coop and from the land and capital amortization payments made by the coop. As we shall see in the analysis that follows, (a) is relatively unimportant and (b) is irrelevant given the nature of the outcome in 1963-64.

the cooperative. Individual sales not channeled through the cooperative are also included in this gross income. Thus data on sales from the common enterprises were obtained from the cooperative records, whereas individual sales were obtained through the questionnaires administered to members. This procedure was necessary since the coop did not have records of the individual sales made through channels other than the coop.

The analysis is essentially one of cash transactions during the agricultural year 1963-64. This is justified because most of the crops and livestock products produced during the year were sold within the year. There was no accrual of inputs such as fuel, fertilizer, etc. We assume that cash sales of livestock plus depreciation of the milking cows about offsets the increased value of growing animals. No major purchases of animals were made during the year. The hay stored for the following year is about equivalent to that stored and held over from the year before.

We have included the government family allowances (asignación familiar) as an income item of the coop. This is justified because individual members are responsible for debts incurred by their cooperative. Under extreme circumstances, families might have to draw on them to meet coop commitments. Furthermore, one of the expense items of the coop is paying into the government program so that members become eligible for this family allowance. Since the

expense is an unavoidable one for the coop, we include the income from this source in coop accounts.

Including all income from individual enterprises, common land, the cooperatively operated brick and wood enterprises, and the government family allowances gave the coop a gross cash income in 1963-64 of E*63,405.80.^{17/}

Operating expenses of the cooperative, considered as a unit, totalled E*47,640.44.

The picture that emerges for the year is:

Gross income	E* 63,405.80
Operating expenses	<u>47,640.44</u>
Net cash income	E* 15,765.36

But this still makes no provision for cash income to families or for amortization payments due on capital and land.

To complete the picture, we must turn to an analysis of individual accounts. What was the magnitude of cash income actually retained by members?

Aside from the short term credit, charged as an operating expense, INPROA had loaned the cooperative E*7,628.50 for family expenses (E*1.1 a day--referred to earlier).

According to information supplied by the cooperative and confirmed by INPROA, the coop was not able to collect the family living advances. This means that the 15 members

^{17/} Since the data is excerpted from the author's thesis, no effort will be made to round off figures. Tabular support for this data may be found in William C. Thiesenhusen, Experimental Programs of Land Reform, Unpublished Ph.D. thesis, University of Wisconsin, 1965, pp. 110-171.

plus the four "socios" retained this cash. Also, the asignación familiar went directly to members, a total of E*3,602. Total income from individual enterprises amounted to E*20,733, but the coop did withhold about 50 per cent of the chacra harvest to cover expenses, a total of E*5,765, leaving net cash to members from their individual enterprises of E*14,968 (E*20,733 minus E*5,765). Thus the total cash income accruing to members was E*26,198.50 (the sum of E*7,628.50 plus E*3,602 plus E*14,968).

Returning now to an earlier calculation, we noted that the coop had a net cash income of E*15,765.36. But analyzing the individual accounts, we see that members retained E*26,198.50 in cash. Adding this figure of E*26,198.50 to the amortization payments due in that year, E*18,200 (E*10,500 for land and E*7,700 for machinery), ^{18/} yields a total of E*44,398.50. Setting net cash income of the coop against this we have:

Cash income retained by individual members plus amortization payments due in 1963-64	E* 44,398.50
Net cash income available to the coop to meet these payments	<u>15,765.36</u>
Coop deficit for the year	E* 28,633.14

^{18/}Whether Los Silos should have contracted such a large debt for labor saving machinery when labor is such an abundant factor of production is surely doubtful.

One interesting question that remains is the extent to which the members used their cash income for consumption as against saving and investment. The members with land rights were asked to estimate their living expenses according to the following categories: "What are your cash food expenses for a week?" "What are your cash expenses for clothing for a month?" "What other consumption expenditures do you have?"

An itemization of these self estimates totals E*21,080. Since family living advances and the asignación familiar totalled only E*11,230.50 for the 15 members, it seems from these estimates that their consumption was not restricted to this amount. This points up a general condition to be taken into account in a reform program. The pressures for increased consumption on the part of those who have long lived in dire poverty are strong. In addition to lacking technical and managerial skill on the production side, the coop lacked power and perhaps the will to restrict consumption for cash to levels which would still be somewhat higher than that of most agricultural workers. This weakness of the coop is seen in its inability to prevent some of the produce from being marketed outside the coop channels. In the case of milk, the coop paid members monthly without deducting expenses due the coop.

Cash income available to the 15 members (E*26,198.50) compared to self estimates on cash consumption expenditures

(E°21,080), would indicate a net savings of E°5,118.50. Our data do not permit us to estimate whether this was actually invested in production goods or whether the self estimates of consumption were low.

In answer to the first major question posed, whether or not new colonists can meet their debt payments on land and capital, the conclusion is negative for 1963-64. Judgment regarding a generalization on this point must be withheld until the other questions are analyzed.

How Does Present Income of Colonists Differ From That in Their Position Before the Reform?

The year before the cooperative was founded, the average income (cash plus evaluated perquisites) of all of the 15 cooperative members was E°1,156.51.^{19/}

Cash income may be a better measure of participation in the market economy. The year before the coop was founded the average cash income of all 15 cooperators was E°749.

Under the conditions existing on Los Silos in 1963-64, cash income of the 15 averaged E°1,640, an increase of E°891 over the former situation. Total income, including home consumption and perquisites averaged E°2,158 or E°1,002 more under the reform.

The legal minimum wage for inquilinos in Santiago Province for 1963-64 was E°1.354 daily (cash plus

^{19/} All figures are expressed in terms of 1964 prices.

perquisites), or about E°494 annually. Asignación familiar for a husband with four dependents would total about E°236, bringing the legal minimum to about E°730. The average for colonists on Los Silos was about three times this amount.

On a well-operated neighboring fundo, a profit sharing plan has been put into effect. While it does not break with the traditional system as the Los Silos plan does, it gives the best workers an opportunity to earn more than the poorer ones. These are among the best paid inquilinos in the zone. Yet, the colonists on Los Silos had 1963-64 incomes that averaged E°563 more than the best paid of inquilinos.

This again raises the question of whether or not income accruing to coop members might be too high. There is no question that workers as poorly paid as those on Los Silos before the reform must experience some direct and substantial participation in the reform effort as expressed in higher incomes and improved living conditions. Even eliminating all cash incomes received by individuals would not have solved the financial problem of 1963-64. But this is not to say that incomes of individual members could not have been reduced and still leave the colonists much better off than before the reform. Once the debt burden is reduced and interest payments decline, further increases in individual incomes will be possible.

What is the Production Potential on Los Silos?

Our previous analysis has shown that Los Silos showed a deficit of about E*28,633 in 1963-64. Could Los Silos have increased its gross income by this amount? This would imply a gross of E*92,039 (E*63,406 plus E*28,633). In other words, does potential exist to maintain individual income at the 1963-64 levels and also meet repayment commitments? Let us assume for the moment an increase in gross to cover this deficit of E*28,633 without raising cash expenses. Later, we will show how present expenses might be reallocated to make this possible.

Data from a study describing Los Silos in 1947-48^{20/} supplies physical yields of wheat, corn, potatoes, hay, and eggs. The physical data when multiplied by current prices shows that comparable gross income in 1947-48 was probably very close to the equivalent of E*90,000.

Comparable gross income the first year under reform (1962-63--when the technical committee's technician was in charge of management on Los Silos) was about E*83,000, not counting that produce sold outside the coop marketing channels.^{21/}

^{20/} Jacques Chonchol, Informe Pericial, Tasación y Cálculo de Rentabilidad del Fundo "Los Silos de Pirque," Unpublished thesis, Facultad de Agronomía, Universidad de Chile, 1948.

^{21/} Los Silos, Memoria Anual, 1962-63.

A third measure of potential is available by comparing Los Silos to the well managed neighboring fundo referred to previously. According to maps of the Photogrametric Project in Chile,^{22/} soils on this neighboring farm are very similar to those on Los Silos. Water for irrigation is plentiful, in both cases coming from the nearby Maipú River.

There are some difficulties in this comparison since the cropping pattern is different. The neighboring farm does have a peach orchard and a small vineyard to which it devotes five per cent of its acreage. The latter is not open to everyone who wants to produce grapes, but is dependent on a hard-to-get license issued by the central government if grapes are to be grown for wine.

Gross income per hectare on the neighboring farm was E°549 as compared to E°327 on Los Silos (excluding the asignación familiar formerly included in gross income). This is a difference of E°222 per hectare or slightly over 40 per cent. A 40 per cent increase in Los Silos in 1963-64 would have brought gross income near E°89,000.

Data from these three comparisons seem to indicate a production potential of gross income of somewhat more than E°87,000. This is less by about E°5,000 of that needed to meet 1963-64 obligations. In other words, potential seems

^{22/}This mapping project, completed in 1964, details land use capacity, ownership, and irrigation sources. It covers most of Chile, and its immediate use will be for tax purposes. In this case map 3330-7030C was used.

to come fairly close to the requirements we have set up.

Earlier in this section we mentioned the possibility of increasing gross income without raising expenses--that is, by a re-allocation of present inputs. For example, one major means of yield increases in crop production is to increase the application of commercial fertilizer. The neighboring farm uses about 30 per cent more fertilizer per hectare than Los Silos.

What are the prospects of cutting some expenses to permit this increased expenditure on fertilizer? Our analysis shows that Los Silos in 1963-64 spent E*5,196 on wages for hired labor. All indications are that this figure could be reduced.

For example, the neighboring farm uses 30.6 man-days per hectare while Los Silos uses 59.6.^{23/} Although it is difficult to make a meaningful comparison with respect to labor-substituting capital on these two farms, it must be emphasized that the cropping pattern on the neighboring farm is more labor intensive.

^{23/} This assumes they all work the same number of hours a day. This is slightly incorrect as workers on the neighboring farm work about ten hours while on Los Silos they work eight. But most Los Silos workers said they worked harder when they worked now than before the reform. Another factor may be more important: according to INPROA, neighboring farm workers are very highly selected from the best in the zone. It has already been noted that Los Silos before the reform was a haven for poor workers. But in this comparison we are assuming that the eight colonists who came to Los Silos from outside the fundo up-graded the average so this comparison is more or less valid.

A recent university-government study based on extensive field interviews establishes the average number of man days per hectare of different crops for various provinces in Chile under different conditions of farm size and mechanization.^{24/}

Although this study does not provide estimates for livestock enterprises, it indicates that Los Silos should have required about 4,000 man days for its crop production (using the coefficients most nearly fitting the case of Los Silos). Since 6,600 man days of labor are available within the cooperative (including members and their six sons working in 1963-64), it seems likely that sufficient labor was available also to handle the dairy operations. Actually 10,120 man days were used on Los Silos in 1963-64. The difference between labor available and used represents labor hired. Although these comparative measures are crude and do not take into account peak labor loads when additional help may need to be hired even though the permanent work force is unemployed during other seasons, it does seem clear that some expenses could be shifted--from present labor costs to other productive inputs.

A serious objection could be raised to this point, however. While it is true that Los Silos could benefit

^{24/} CORFO, Ministerio de Agricultura, Universidad de Chile, Insumos en la Agricultura, Año 1961-62, 572 pages, Santiago, 1964.

from reducing its hired labor costs and investing in other inputs (thus implying that present members would have to work more), this is not a solution when the agrarian problem is considered nation-wide. Employing labor from outside Los Silos was, in fact, spreading the effects of reform to a larger number of people than its own colonists.

Looked at in another way, we need not necessarily conceive of fertilizer and labor costs as being directly competitive. Given the productivity potential that appears to exist (in comparison to yields and returns on a neighboring farm with similar soil type and irrigation possibilities) more fertilizer certainly appears profitable. The problem, then, is not so much one of direct competition between labor hired and fertilizer purchased. It is a matter of credit availability and a knowledge of input-output relations in production that will provide the incentive to use it.

Over several years, given sufficient time for establishment of higher yield levels and more livestock, it may indeed be possible to achieve the higher income levels claimed by colonists in addition to utilizing additional labor from outside, thus spreading the benefits of reform to a wider group of workers.

VII

It is important to point out that, in view of the difficulties of any reform of this kind and the importance of the experiments, this analysis is not intended as criticism of INPROA. INPROA and the cooperative leadership on Los Silos recognize the weaknesses of the 1963-64 operation.

Some of the changes already introduced in the 1964-65 year are that no labor from outside was hired during the planting season. Also a two per cent marketing charge for all milk sold through the coop is being collected monthly by INPROA. Funds from the sale of milk are not being returned to members (as they were in 1963-64) until final accounting time. Rental fees for each animal grazed on the common pasture are being charged to redress some of the inequalities of the previous arrangement and to capture more of the costs incurred by INPROA. Each cooperator knows his total debt since it was pro rated among all members early in the 1964-65 crop year.

However, all these are minor in comparison to the requirements of success at Los Silos. The assignment of debt to individuals may merely result in frustration unless plans for increasing production are effected. But plans have been made, and in some cases are well advanced, for making Los Silos a going concern.

In October 1964, Los Silos received a E*55,000 loan from the Chilean development agency (Corporación de Fomento de la Producción), to purchase 100 good quality cows. These will be sold to members and the loan is to be repayed in five years with interest at 18 per cent. Some poorer animals in the present herd will be used to partially pay off the principal. The new stock will allow all members to own at least six good quality dairy animals. The farm has sufficient stable space and hay and pasture producing capacity to support this herd.

As this enterprise is expanded, another of the coop's plans may become feasible. With more sons of members reaching adulthood and joining the potential labor force, additional employment will be required. The dairy cattle operation in itself will require more labor. Also, the hope of establishing some dairy processing functions (butter and cheese making) may become feasible. And a planned-for feeder pig project may one day be realized.

The feasibility and success of all these plans will depend on the capacity of management and the ability to train and establish discipline among coop members. In addition to management problems in 1963-64, accounts were not well kept, and it was not until the agricultural year was well along that the cooperative and INPROA realized their financial difficulties.

This again points to a broader generalization. Since reform implies liberation from domination by the landlord or patrón, the technicians should not make all the decisions that need to be made. Members must participate. The administrator during the first year (1962-63) left Los Silos partially because he was being turned to as a patrón, even though he made Los Silos an economically successful concern.

Technical help in a reform effort must combine a high degree of agricultural and management skill with a knowledge of how to teach cooperative members to make their own decisions. This also implies careful vigilance over the farm accounts and attention to institution building. If Los Silos is to be parcelled into individually owned small farms, which is also part of the future plans, 16 entrepreneurs (the inquilino became a member in 1964-65) must be prepared to make management decisions. For the intermediate period between inquilinaje and individual proprietorship, all evidence seems to indicate that technical help must be coercive enough so that high production, very necessary for a successful reform, is maintained. This makes it doubtful whether the cooperative leader and the technician can be the same person--at least initially--as they were in 1963-64 on Los Silos. A good manager must be hired for Los Silos, one who will preferably live on the fundo and who will assist cooperators in decision making.

Further neglect of the entrepreneurial function will continue to result in costly losses for Los Silos. And "allowing cooperators to make their own mistakes" will not hasten the day when cooperators become rational decision makers in their own right. To expect a person untrained in farm management who is suddenly given access to the land to become an entrepreneur overnight--simply because the traditional system has been broken--is folly.

It is planned that the new manager will not work with individuals, but through the cooperative. A farming program will be drawn up with his help, and credit will be given in conformity with how closely the cooperative complies with plans. Credit, in other words, will be strictly supervised, and if members elect to diverge from plans, INPROA credit funds will be withdrawn. This system will be continued even if Los Silos is sub-divided into smaller farms.

VIII

1. Illustrated by the two year history of Los Silos, a reform effort which truly breaks the master-serf relationship is a complicated process. Problems which arise center about hard-to-solve social and political, in addition to economic, problems with which few of the participants in the reform have had experience:

a. Replacing the patrón with leadership by participants in the reform effort means that effective campesino leadership must be developed.

b. A great effort must be placed on institution building within the campesino organization and within the reform agency. Communications internal to both (i.e., leader-member) and one with the other must involve a maximum of "feedback" for optimal performance. Functions of each institution must be clearly understood by all parties to the reform.

2. The experiment releases the colonists from the traditional system and gives them the opportunity to be land-owners if they are able to pay. It also creates a cooperative institution through which they are able to make their needs known and through which help can be given.

3. Although the first year under reform was quite successful, allowing the coop to meet some of its debts, in 1963-64 production was not sufficient to allow its colonists to pay off their land and machinery debts and to finance their increased income.

4. Average income for colonists on Los Silos in 1963-64 was about three times the zonal minimum for inquilinos and also above the income for best inquilinos on the neighboring well-managed farm which has established a profit-sharing scheme for its inquilinos.

5. A study written in 1948 detailing Los Silos' farming program at that time, production on Los Silos the first year after reform, and income per hectare on the well-managed neighboring farm all seem to indicate Los Silos

has potential to produce more than in 1963-64 and could produce nearly enough gross income to meet its current obligations assuming these obligations remain about as they were in 1963-64.

6. Income accruing to individual colonists might be lowered slightly during years of heavy debt repayment and still leave them with much more income than before the reform and better off than workers on the neighboring fundo. This, coupled with increased productivity and more or less constant expenses, would leave little doubt that the reform would be economically successful and meet its obligations.

7. Operating expenses on Los Silos could probably be re-allocated so that less is spent on labor and more on yield increasing capital and still remain about the same in total.

8. Los Silos is taking steps to intensify its operation in 1964-65. Other steps are being taken to strengthen the cooperative institution.

9. Technical managerial help seems vital to an experiment of this nature. Whatever system is used, it must help teach members to make their own rational decisions on their cropping pattern and use of inputs besides helping their coop keep accurate accounting records. The cooperative leader and the technician probably cannot be the same person--at least initially.

10. It seems very likely that the cooperative farming phases of this experiment will end in several more years and each colonist will receive his own plot of land, thus underlining the necessity of developing individual entrepreneurs.