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A NOTE ON THE DISTRIBUTION EFFECTS OF CHILEAN
AGRICULTURAL PRICE POLICIES

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A Note on the Distribution Effects of Chilean Agricultural Price Policies

Introduction

The principal mechanisms that would originate income transfers among different sectors or groups of people in an economy, are a) variations in the price system of the economy, b) variations in the physical volume of goods and services exchanges between different groups, and c) direct transfers (taxes, donations, etc.).

One of the mechanisms most frequently mentioned in literature on economic development, and which would make it possible to effect income transfers between different economic sectors, is fluctuation in the relative prices of the goods and services interchanged between the sectors. The preferred sectors or activities for the purposes of carrying out this analysis are agriculture and industry, and reference is usually made to the concept of Intersectoral Terms of Trade as an instrument and indicator that would facilitate the adequate implementation of income redistribution policies in favor of one sector or another.

Many authors have formulated theories and elaborated development models in which the Terms of Trade concept just described is used, and in which it is employed as a mechanism for the purpose of extracting --through changes in the relative prices -- an economic surplus from the Agricultural Sector, and transferring it to the Industrial Sector. This income redistribution (according to the authors) would allow an increase in the capital formation rate in the Industrial Sector, and would thus lead to economic development.

According to this, our interest will be only in that part of income transfers effected by changes on the price system. Notwithstanding, in any monetary economy the price system has at the same time the function of serving as a guide for the efficient allocation of the resources existing in the economy, which are controlled by the different economic groups operating therein. These two functions of the price system are conflicting among themselves. If on one hand the price system determines the proportion of income that will correspond to each economic group, on another hand it will be orienting the producer groups so that they will use more of those factors whose price is relatively cheaper, and vice versa. Social justice would require that not too many inequalities will be generated in income distribution, while economic efficiency would require that a lower price be assigned to those factors that are most abundant, and a higher price to those that are scarcer. Although in practice any formulation of price policy should take account of both functions and achieve the best possible compromise between them, in this study we will concern ourselves mainly with the exploration of the distributive effects of price policies and their implications for economic development.

Our central hypothesis is that, in analyzing relative price policies as a mechanism for redistributing incomes in the economy, it is theoretically inadequate to carry out the sectoral distribution in terms of the type of products or services generated. Within each productive activity, those who experience increases or decreases in their real incomes are people, not products, and the way, sense and magnitude in which they are affected does not depend on the fact of their being classified as belonging to a given

productive activity, but on the direct or indirect role that they perform in the productive process and inter-sectoral trade.

This is especially relevant to the Agricultural Sector in underdeveloped countries which cannot by any means be treated as a homogeneous set of people faced by one and the same price system, and supposedly reacting and being affected similarly by relative price changes.

Within the agricultural activity (as also in some other activities) there are groups of people who are faced by one and the same change in relative prices from completely different angles, which determines the manner in which they are affected by the said change. Thus, for instance, and with reference to the Chilean case, it makes no sense to assert that the Agricultural Sector has been penalized or benefitted by price policies if one single bracket is supposed to contain groups of people having economic roles and forms of market orientation so unlike as do the groups of small subsistence level producers ("minifundistas"), small and medium producers who produce for the market, efficient large producers, inefficient large landowners, "inquilinos", "inquilino"-sharecroppers, landless or outsider laborers, people settled by land reform, sharecroppers, etc. All of these groups are contemplated as having different roles in a process of development, some of which must be protected to subsist while others must be transformed or disappear. For another matter, and assuming that it would be worth something to know than an income redistribution has been made from the Agricultural Sector as a whole to the Industrial Sector this tells us nothing unless we know whether or not these better relative prices have benefitted the industrial producers (who "could" invest their increase profits as the economic development theorists suggest), have been passed on to the urban consumers, or have been channelled to the government (via taxation) or to the rest of the world. Hence, unless the inter-relations of the different groups existing within each sector and between sectors are explicitly taken into account, the concept of intersectoral terms of trade is inoperative as an indicator that would allow any improvement in economic policy decisions.

Some General Considerations

In order to state more clearly the orientation of the present study, we are making explicit some general considerations that have influenced the approach that we have taken.

First, our study is focused in the short run implications of price policies. Although an analysis of the price policies and their effect in the long run is necessary and would be valid for the definition of important historical tendencies in the economy, it would be of little use for decision-making and the formulation of concrete measures. An attempt at empirical quantification and economic policy evaluation like that at which this study aims must be based on a solid historical foundation, but should also be closely linked with the more recent government's specific objectives. This is essential, as the only way to appreciate the efficacy of certain economic policies is to determine to what extent they have helped the economic authority to attain its explicit or implicit goals. Moreover, in formulating hypotheses and projecting tendencies into the future, it is proper to have recourse only to a relatively recent period of time for the weights and parameters of behavior used change over the long run.

Secondly, we have adopted a global approach, considering all groups of persons, sectors, and prices of the economy (including the influence of the foreign trade). This enables us to picture the income transfers in adequate perspective, from both their origin and their destination. In other words, and reverting to Chile's case in which the Agricultural Sector has little relative importance in the economy (compared with most underdeveloped countries), even when from some farm group's viewpoint an extremely important income redistribution might be being made to the Industrial Sector, that transfer may be insignificant with relation to the magnitude of the incomes or investment needs of the industrial sector, and vice versa.

Thirdly, while fluctuations in the terms of trade admittedly cause income flows, their use as an economic policy tool makes little sense if one is working on a level of sectoral aggregation. One and the same change in relative prices affects different economic groups within each sector in fundamentally opposite ways, altering income distribution and affecting its production incentives. For the purposes of orienting economic policy, it is entirely irrelevant to know that more quintals of wheat are presently needed to buy a plough or a tractor if it is not known who is buying and who is selling these products, and in what proportions, as well as the inputs and factors needed to produce them, and who, in the last instance, within each sector, pays for or receives the benefits of these transactions.

If, as already proposed, we consider all of the transactions of products and factors, it is evident that what means more income for some people involves heavier outlay for others, and as a large part of the transactions are effected internally within each sector, one and the same overall outcome can be arrived at via countless combinations of partial results. In other words, the fact of a productive sector being better or worse of than before in terms of real income can be attributed to multiple combinations (many of them entirely opposed and conflicting among themselves) of benefits and sacrifices on the part of the different groups of people of whom each sector is composed. This situation is especially valid in Latin America, where ethnical, social, cultural, political and economic heterogeneity within the agricultural sector of one and the same country is often far greater than in those of different countries. To consider the agricultural population as a relatively undifferentiated whole is not only inadequate but could also become dangerous because of the grave mistakes that could be made in economic policy.

The foregoing paragraphs have placed emphasis on the agricultural activity because, unlike others, it is a way of life rather than a way to make a living, and in the last instance productive and trading relations are those which determine the political and social roles and opportunities of the people who take part in them.

It therefore seems evident that an analysis of relative prices should be made at the level of the different groups that take part in the productive process, as measures that favorably affect the sectoral distribution of income may be affecting in an entirely undesirable and pernicious way the functional and personal distribution of the income of groups existing within each sector. Hence the analysis should be oriented toward ascertaining upon whom the cost falls, or who enjoys the benefits of a given decision of price policy.

Finally, we shall take the position in this study that the identification of what groups of people belong in each sector, as well as of their economic inter-relations, depends on the characteristics that are peculiar to each underdeveloped country. These characteristics can only be evaluated within each country's historical and political context, for which reason it makes no sense to formulate theories which postulate a priori income flows between given sectors or groups, or which attempt to repeat the experience of already developed countries out of context. It is essential to consider that in most underdeveloped countries a substantial part of the income transfers (and probably many of crucial importance in the formulation of economic policies) will be effected not only between aggregated productive sectors but rather between groups of people within each sector; the definition of these groups of people can only be derived from the agricultural activity's historic evolution and from the political, social, and economic institutions that have taken shape therein.

The Theoretical Model

If we consider all of the goods and services of productive factors generated by a given group (including consumer goods as well as capital goods) as income, and the destination of this income to the purchase of consumer and capital goods (including savings, which can be considered as income not consumed at present, but which will make it possible to finance future consumption or investment) as expenditure, what will happen will be that, permanently and by definition, the said group's income will be equal to its expenditure.

Relating income to expenditure in period "i", we shall have

$$Y_i = \frac{\text{Income}_i}{\text{Expenditure}_i}$$

where Y_i will be equal to 1.

However, if upon comparing two time periods we assume that the quantities and composition of the goods and services of the productive factors that make up the income and expenditure remain constant with relation to any base period and we let only the prices vary, we shall have $Y_i \geq 1$, depending whether $\frac{\text{Income}_i}{\text{Expenditure}_i} \geq 1$.

This is evident as if keeping the physical quantities between the two time periods constant, the prices of the products or productive factors that constitute income increase more than those that make up expenditure, the "package" of products that constitute income will be worth more than the "package" that constitutes expenditure, and consequently $Y_i > 1$. On another hand, if the (constant) "package" of goods and services of productive factors that constitute the expenditure increases in value, because of changes in the price system, in a larger proportion than that which constitutes income $Y_i < 1$.

Now, variations in the quantity and composition of the products and of the services of productive factors that generate income will be reflecting, in addition to the economic group's preferences or tastes, changes in their productivity, as well as variations in the quantities of productive factors at the group's disposal, and which allow it to generate its income. On

another hand, for a given income, the quantity and composition of the products and services of productive factors that are acquired depend fundamentally on the economic groups' preferences, and also on the substitution elasticity between the different components of expenditure.

Hence, the assumption that the quantity and composition of the products and services of productive factors that constitute income and expenditure remain constant would imply assuming that:

- a) in the short run the technology (the proportion in which the factors that generate a given product combine) does not change much.
- b) in the short run there are no important changes in the productivity (quantity of product per unit of factor) of the factors belonging to each economic group and allow it to generate its income.
- c) in the short run there are no meaningful changes in the producers' and consumers' tastes or preferences.
- d) the substitution elasticity between the different goods produced or consumed is zero.

The first assumption is usual in short run economic analysis as the introduction of technological changes that may modify the relative use of factors meaningfully calls for longer periods of time.

For the second assumption to be satisfied, it is not essential that there be no increases of productivity, but rather it would suffice if these increases were proportionately equal in all of the economic groups. That is to say, it does not matter if the total income increases in size provided the proportion of it attributable to each group remains constant. Should some important change be detected in the productivity of the factors in the hands of a given economic group, it would be necessary to quantify it and eliminate its influence, deflating by a production index of the said factors.

The third assumption is inevitable in that up to now there are no analytical tools that would make it possible to isolate the effect that changes in tastes have on purchases or sales made by the different economic groups. This is an obligatory assumption in empirical economic analysis, inasmuch as lifting it would imply knowledge of each economic group's indifference map.

The fourth assumption is the strongest of all, for it implies that, even when variations in relative prices occur, the "package" of goods and services of productive factors that constitute a given economic group's income or expenditure remains unchanged. This assumption should be adopted, however, in any analysis in which price index numbers are used.

On the basis of these assumptions, i.e., keeping constant the physical quantities of goods and services of productive factors bought and sold in accord with a given base period, we shall define " Y_i " as the Relative Income of group "i" and it will be reflecting a given welfare situation that could be compared with other situations over time.

Expressing the variables in physical terms, we would have:

$$Y_i = \frac{\sum_j X_{ij} V_{ij}}{\sum_j W_{ij} Z_{ij}}$$

where V_{1j} = goods and services of productive factors which, when sold to group "j", generate income for group "i".
 Z_{1j} = goods and services of productive factors bought from group "j" and which consequently constitute expenditure for group "i".
 X_{1j} = price of V_{1j} .
 W_{1j} = price of Z_{1j} .

If we consider the rates of change of the variables set forth above, we have:

$$I. \quad y_1 = \sum_j a_{1j}(x_{1j} + v_{1j}) - \sum_j b_{1j}(w_{1j} + z_{1j})$$

$$\text{complying with } \sum_j a_{1j} = 1 \text{ and } \sum_j b_{1j} = 1$$

where y_1 = rate of variation of Y_1
 x_{1j} = rate of variation of X_{1j}
 v_{1j} = rate of variation of V_{1j}
 w_{1j} = rate of variation of W_{1j}
 z_{1j} = rate of variation of Z_{1j}
 a_{1j} = proportion of income of group "i" that comes from group "j".
 b_{1j} = proportion of expenditure of group "i" that is destined to group "j".

Assuming that the quantities of goods and services of productive factors bought and sold stay constant in accord with a base period "0", we shall be able to detect changes in the rate of variation of the Relative Income of group "i" (y_1) originated by price changes. Consequently, if V_{1j} and Z_{1j} are considered constant at a known level, their growth rates would be equal to zero ($v_{1j} = z_{1j} = 0$), leaving expression (I) as

$$II. \quad y_1 = \sum_j a_{1j}x_{1j} - \sum_j b_{1j}w_{1j} \text{ or else}$$

$$III. \quad y_1 = \sum_j (a_{1j}x_{1j} - b_{1j}w_{1j})$$

Both " x_{1j} " and " w_{1j} " correspond to rates of variation, between two periods, of price indices of goods and services of productive factors transacted between sectors "i" and "j". Under these conditions, it is evident that the price of what group "i" sells to group "j" has to be equal to the price of what group "j" buys from group "i", or in other terms $X_{1j} = W_{j1}$, just as $x_{1j} = w_{j1}$.

In line with the foregoing, equation III would become $y_1 = \sum_j (a_{1j}x_{1j} - b_{1j}x_{j1})$

For the purpose of calculating the values of variables " x_{1j} " and " x_{j1} ", we can use a modification of Lasneyres' formula, which allows us to obtain a rate of variation of a price index in period "t" with respect to a former period "t-1".

In an inflationary context, the variation expressed by a price index can be broken down into two types of movement:

a) that part of the variation which is attributable to the increase of all prices simultaneously and in the same proportion and

b) that part of the variation which is attributable to changes in the relative prices of certain products, which can cause a given partial index to increase more or less than the general level of prices in the economy, depending on whether the prices of the goods and services included in it have increased

more or less than the prices of the rest of the goods and services in the economy.

This last type of movement is that which is of interest in this study, and to isolate it we have to deflate each of the price indices used, via an index that represents the rise in the economy's general price level. In other words, changes in relative prices should be expressed with relation to the economy's implicit inflation index corresponding to the weighted average of the price indices of all the goods and services of productive factors transacted in the said economy. Hence, $y_i^* = \sum_j (a_{ij} x_{ij}^* - b_{ij} x_{ji}^*)$

where the symbol "*" indicates that the corresponding variable has been deflated by the economy's inflation rate.

This would be the expression that allows one to determine the total real variation of the "Relative Income" of group "i", as well as the composition of said variation in accord with the incidence that each of the "j" groups with which it trades has on it.

In the same way, it is possible to obtain a similar equation for each of the economic groups considered in the analysis, and we could represent the "n" groups that make up the economy by using the following system:

$$\begin{aligned} y_1^* &= (a_{11} x_{11}^* - b_{11} x_{11}^*) + (a_{12} x_{12}^* - b_{12} x_{21}^*) + \dots + (a_{1n} x_{1n}^* - b_{1n} x_{n1}^*) \\ y_2^* &= (a_{21} x_{21}^* - b_{21} x_{12}^*) + (a_{22} x_{22}^* - b_{22} x_{22}^*) + \dots + (a_{2n} x_{2n}^* - b_{2n} x_{n2}^*) \\ y_3^* &= (a_{31} x_{31}^* - b_{31} x_{13}^*) + (a_{32} x_{32}^* - b_{32} x_{23}^*) + \dots + (a_{3n} x_{3n}^* - b_{3n} x_{n3}^*) \\ &\vdots \\ y_n^* &= (a_{n1} x_{n1}^* - b_{n1} x_{1n}^*) + (a_{n2} x_{n2}^* - b_{n2} x_{2n}^*) + \dots + (a_{nn} x_{nn}^* - b_{nn} x_{nn}^*) \end{aligned}$$

This system of equations allows us to isolate and quantify the net redistributive effects that are derived from any change that has occurred in the price system, i.e., it would enable us to reach our goal of determining who are benefitted or prejudiced and to what extent (values of y_i^*) when changes in relative prices occur. It also allows us to determine which are the ("j") groups that contribute, and in what proportion, to these implicit income transfers ($a_{ij} x_{ij}^* - b_{ij} x_{ji}^*$).

Finally, we can also determine --and quantify --whether the implicit income transfers originated from sales ($a_{ij} x_{ij}^*$) or from purchases ($b_{ij} x_{ji}^*$) of goods and services of productive factors made in the "j" group.

If the "n" economic groups considered cover all of the transactions made in the economy, and due too to the fact that the model only detects redistributive aspects, the sum of the variations in the different groups' Relative Income, weighted by the importance of each group in the total income generated in the economy, should equal zero.

That is to say, if we call the proportion of total income generated by group "i" " c_i ", we shall have $\sum_i c_i y_i = 0$ where $\sum_i c_i = 1$ for $i = 1, 2, 3, 4, \dots, n$.

In other words, having isolated the redistributive effects implies that it is not possible to use relative price policies to improve a given group without this implying the simultaneous worsening of another or other groups.

The weights used in the equation for each group (a_{ij} , b_{ij}), allow us to express the variations of Relative Income with relation to the total income generated by the same group. If one wishes to relate the different values of y_i as well as its components to the total income generated in the economy in order to make them comparable with each other in absolute terms, it will suffice to weight each weight of income and expenditure in group "i" by its corresponding participation in the total income, complying with

$$\sum_i c_i = \sum_i \sum_j a_{ij} = \sum_i \sum_j c_i b_{ij} = 1, \text{ for } i = 1, 2, 3, \dots, n$$

and $j = 1, 2, 3, \dots, n$.

The results described above correspond to the descriptive solution, which would enable us to quantify and evaluate "ex post" the effects derived from adopting certain relative price policies.

However, the model can also be used to obtain normative solutions, i.e., if it is deliberately decided to have recourse to the price system to benefit or prejudice given groups to a desired magnitude, one can fix the values of y_i^* that one wishes to obtain, and then work out the equation system to determine what groups of prices have to be changed, and to what extent, to obtain the desired effect.

As we are dealing with an undetermined equation system (we have more variables than equations), we shall have to assume pre-determined values for a certain number of variables, so that the number of unknowns shall equal the number of equations. If we have "n" equations, we shall have a maximum of $(n^2 + n)$ variables. Out of these, "n" variables will correspond to the y_i whose values we have fixed beforehand and shall try to attain. In addition, there will be "n" x_{ij} variables for $i=j$ which are irrelevant for the results of the model. That is to say, we shall have "n" equations and $n(n-1)$ unknowns. Consequently, if we assign predetermined values to $n(n-2)$ unknowns, we shall be able to solve the system for the values of the "n" remaining unknowns in such a way that they will reach the goals of the y_i^* that we have fixed.

The Environment for Evaluation of Agricultural Price Policies

At this stage we need to establish a meaningful breakdown of the economy (groups of people instead of groups of products) that would enable us to evaluate the redistributive effects that recent changes in the price system have had in the Chilean agriculture. Furthermore, it is evident that any income redistribution process can only be analyzed in connection with a given economic development strategy, designed to attain specific objectives (explicit or implicit) of the economic authority, failing which the analysis becomes a mere description of a historic-economic phenomenon having no normative implications. Therefore, we feel in the need to provide also some brief information regarding the stated goals of the recent government's price policies, and the general economic conditions prevailing when these policies tried to be implemented.

(a) Social environment:

Based on an historical analysis of the origin and evolution of the present agrarian structure in Chile, we have attempted a first approach to the most important economic groups operating in the agricultural activity. These would be:

Group 1: Large Producers - These correspond to large and medium multi-family farms. In all, these exploitations accounted in 1955 for 11.7% of the productive units, had 78.9% of the arable land at their disposal, and generated 60.3% of the total value of agricultural and livestock production. As a whole (considering owners, renters, occupants and concessionaires, besides managers, professionals and technicians), these exploitations were controlled by 9.5% of the total agricultural population. These producers face the market under quite favorable conditions (with relation to the rest of the agricultural groups). They have access to foreign trade, the sources of input supplies, are connected with banking, business and industrial interests, and many ranifundia exploitations, towns, villages, hamlets and some family-sized exploitations depend on them. The person who directs the exploitation is the owner or renter, or a delegate of his, who counts on obedience from a sizeable number of permanent workers, mostly "inquilinos" and outsiders, with the establishment between them of highly dependent living and working relations. Due to their considerable economic power within the sector, they are in a position to negotiate to their own advantage many of the economic policy decisions that might affect them, as well as to bring considerable pressure to bear on the making of those decisions.

Group 2: Small producers - The small producers include family and sub-family sized exploitation groups. In 1955 they comprised 44.1% of the total agricultural population, with a breakdown of: producers on sub-family exploitations, 7.7%; Indian community members, 13.6%; and hereditary community members, 3.7%. They represented 40.4% of the exploitation units, controlled 11.6% of the arable land area, and generated 16.0% of the total value of agricultural and livestock production. The small exploitations are managed by a proprietor, renter, concessionaire, occupant, or an eventual combination of those types, who work the land with their family's help. They can be characterized by the semi-extensive use of land resources (cereals, truck-gardening and some cattle-crop combination), lack of credit and capital, and no technical advice. They imitate the cultivation methods of their neighbors, large or small. But, in contrast with large producers who have motorized farm machinery at their disposal, the small ones have a couple of oxen, and sometimes just manpower. They are ignorant about or have no facilities for using fertilizers, improved seeds, or other inputs. Generally speaking, one might say that the Small Producers group is weakly oriented toward the market, as it keeps a great deal of its production for its own consumption. Its production is effected at relatively low levels of efficiency, so that any marketable surpluses, as well as income derived therefrom, tend to be quite small. Most of its income goes to meet its own most elementary consumption needs, and the investment corresponds mainly to capital goods generated within its own exploitation (cattle breeding, light building construction, fencing, ditches, etc.). The Small Producers often obtain additional income from the sale of handicraft products, or from acting as small middlemen or traders when they are located

near urban centers.

Group 3: Tenant Laborers - With this denomination we wish specifically to designate those individuals who have access to a certain area of land on which they act as small producers, but who, in exchange for their precarious tenure, have to supply labor to the Master's enterprise (or, if they are sharecroppers, have to deliver part of the product generated by the sub-tenure). This economic group covers 40.2% of the total agricultural population, and is composed of inquilinos and inquilino-sharecropper (25.9%), strawbosses and skilled workmen enjoying productive fringe-benefits (7.6%) and sharecroppers (7.0%), all of whom enjoy, as part of their income, the right to cultivate a certain area of land. In 1955 the Tenant Laborers controlled 47.9% of the country's exploitation units, had access to 9.5% of the arable land area, and generated 23.7% of the total value of agricultural and livestock production. The Tenant Laborers' market orientation is similar to that of the poorest small producers. Generally speaking, they sell enough to be able to buy the goods that they cannot produce. Their productive efficiency is relatively low, having regard to the large amounts of family labor used. For another matter, their inputs are few and primitive (seeds from the last crop or supplied by the landlord, some cultivating implements and tools, and occasionally animal haulage power). Capital for exploitation is practically non-existent; recourse is often had to the landlord to obtain credits or advances, which are discounted from the crop. Their situation of dependency on the master enterprise (very limited price bargaining power), and their dual role of obligatory worker (part of their income comes from the sale of labor) and small producer (part of their income comes from the real or imputed sale of products) causes them as a group to face a characteristic price system. In keeping with the present study's objectives, this fact justifies their inclusion in a separate group.

Group 4: Agricultural Workers - This group heading refers specifically to landless farm laborers. In 1955 these people represented 6.3% of the total agricultural population. They include Volunteers, or permanent farm laborers, and Outsiders, or transient or seasonal farm laborers.

To have squeezed all of the different fractions that make up the agricultural sector into four economic categories or groups is an evident oversimplification, as quite strong contradictions probably still exist within these groups (e.g., between traditional small producers and commercial small producers; between inefficient landowners who are unresponsive to economic stimuli and dynamic, progressive agricultural entrepreneurs, etc.). Nevertheless, these four categories enable us to make a first approximation to the problem, and quite adequately represent most of the Chilean agricultural sector.

For another matter, inasmuch as this study is especially concerned with the farming sector, when we come to consider the rest of the Chilean economy we shall fall into a still greater oversimplification. In this connection, the rest of the economy would be represented by :

Group 5: Non-Agricultural Producers - Would be all of those individuals whose income is derived from the sale of non-agricultural products and services (profits), as well as from capital rents and interests. In terms of occupational classification they would be employers and workers for their own account. According to the 1960 population census, the Non-Agricultural Producers would be 18.6% of non-agricultural population, or 13.7% of total population.

Group 6: Non-Agricultural Workers - Include the people who supply the Non-Agricultural Producers with labor, i.e., employees and workers in non-agricultural activities whose income is fundamentally attributable to salaries and wages. In 1960 they were 59.9% of total population.

Group 7: Rest of the World - Would correspond to the group of nations with which Chile maintains commercial relations. Chile's imports would be income for the rest of the world, whereas Chilean exports would be expenditure for the rest of the world.

This level of aggregation seems adequate for the purpose of setting forth the set of analytical tools that we wish to propose. This does not mean that in trying to break down the agricultural sector we have fallen into the error of aggregating the rest of the economy excessively. It seems obvious that if it is desired to view the rest of the economy analytically, it would be necessary to consider several additional economic groups. Nevertheless, just as when we discussed the agricultural sector, it would be a mistake to determine these groups according to the type of products that they generate. In order to have data that would be operationally useful for the formulation of economic policies, it would also be essential to define the said groups with respect to the role they perform in the economy and in a development process.

Finally, it must be pointed out that the rapid process of change that the Chilean agricultural sector is going through makes any relative price analysis other than a short-run one operatively redundant. The parameters and weights calculated for a given period change very rapidly, hence altering the results of the analysis. Thus, new economic groups are appearing, which perform new roles and figure differently in the development process. Urban-rural relations are no longer the same due to the growing penetration of mass communication media (political and commercial propaganda, elementary ideological and cultural education, etc.). The traditional agrarian structure is disintegrating, and a large part of agricultural activity is being adapted to the needs of the urban areas: less use of the labor force, increasing monetarization of the peasantry, signs of the town's effect on clothing, customs, consumption, etc. The new economic roles are at the same time cause and effect of the new social roles, and contribute toward the creation of a highly dynamic situation of change in the agricultural sector. As we have seen, this situation is reflected in that large producers are using modern technology, are organizing themselves, and are responding quickly to economic stimuli; in that small producers, although weakly organized, will tend to increase through Agrarian Reform; in strong union organizations which strengthen the workers' bargaining power; in a growing proletarianization of agricultural labor, based on wage relations and the disappearance of payment in kind or in precarious tenures; in the linking of the wage figure with the economic result (piecework and sharing); and in the emergence of a medium and small rural bourgeoisie based on non-agricultural occupations and roles (trade, transportation, services, etc.), etc. The fact that many of

these roles are of a transitional nature gives all of the economic and social variables tremendous dynamism. This, which forms a part of the essence of a modernization and development process, obliges one to reconsider and constantly correct any projections or estimate based on static parameters.

(b) Economic environment:

It is extremely difficult to identify in Chile any set of economic measures that can be rightly called a "relative price policy". The chronic inflation that has been every government's main problem for nearly a century (and especially in the last two decades) has led to most of the changes in the price system being direct or indirect by-products of the inflation process and of the attempts at stabilization. For this reason, in making a brief summary of agricultural price policies, it is practically impossible to avoid frequent references to the inflationary process. On the other hand, and especially in the most recent decades, economic policies have been closely related with presidential periods. As the President stays in office for six years and cannot be reelected, this fact detracts from the continuity of economic policies. For another matter, most economic policies are directly or indirectly related with the inflation process, and as so far no government has had any success in the battle against inflation, every new President tries to apply new ideas and economic policy measures that affect the price system and eventually (consciously or unconsciously) favor or prejudice certain economic groups. Therefore, in this brief review we are going to refer ourselves to the last two presidential periods: the six years of President Alessandri (1959-1964) and the first three years of President Frei (1965-1967).

In the mid-fifties the economic situation in Chile was very dim. Despite a transitory improvement attained in 1956, the outlook turned black in 1957: copper prices deteriorated on the international markets; industry had become practically stagnant due to credit restrictions and price controls; social discontent was increasing dangerously; there was unemployment and per capita income was decreasing. In these circumstances, the Government lost control of inflation completely, decreed the liberation of many prices in an attempt to revive the economy, and the rate of inflation reached 33% in 1958.

The population's general discontent with this chaotic situation was reflected in the presidential elections at the end of 1958. Jorge Alessandri, backed by the rightist parties and with an austerity program and a firm hand, won the election by an extremely narrow margin over the candidate backed by the Socialist and Communist parties, who had a program of drastic reforms in the social and economic structure.

Alessandri's government, postulating a free competition policy, initiated its attack on inflation in mid 1959. It imposed a severe control on credit expansion and set a single exchange rate. It created a new monetary unit valued at par with dollar, and used it as an image of stability, guaranteeing the availability of foreign exchange. In order to obtain an adequate supply of some goods the government eliminated or reduced drastically import restrictions. All of these measures led to a considerable increase in imports during 1960 and 1961, which inundated the domestic market with products and naturally, reduced the inflationary pressures. On another hand, helped by

the image of stability provided by the exchange rate and the abundance of products early in 1960 Alessandri's government succeeded in imposing a wage adjustment which varied on the average between 10 and 20 % (the rate of inflation in 1959 had been 33%). Thereafter, through its influence on the industrial entrepreneurs, it brought pressure to bear for most of this wage increase to be absorbed by the enterprises' profits, and not to be reflected in prices. In the domestic market, it kept its control over certain key farm products (rice, sugar, sunflower seed, wheat and milk), and completed the image of stabilization with an austerity program in fiscal expenditures.

Thus under attack from all sides, inflation gave way to it, and only a 5% price increase was recorded in 1960, the lowest since 1938.

At the beginning of his term, Alessandri made it clear that one of his primary interests would be to increase agricultural production and gradually recover farm products' purchase value. He stated, however, that having regard to the urgent need to adopt general measures that would make it possible to halt the inflation, it would be necessary to withdraw attention for the moment from the problems that were troubling the agrarian sector. The tax on farm land was reduced and a bonus was being granted for fertilizers, as a palliative for the fixation of low prices for wheat and milk.

Although those "sacrifices" were supposed to be transitory, circumstances turned them into permanent ones. Thus, in May 1960 a violent earthquake occurred, which seriously affected nearly one third of Chile, especially the farming areas in the south. Against its will (and ideology) the government had to declare the prices of all articles of prime necessity frozen at the levels that had existed on the day of the earthquake, in order to avoid speculation. Although this lapse from virtue was to have been as short as possible, inflation, despite being considerably diminished, could by no means be considered defeated, and consequently freezing of the main farm product prices remained in force through 1961. In order to offset the impact on the producers, input bonuses were continued and an attempt was made to increase agricultural yields through technical assistance, but without much effect. In any case, the rate of inflation only reached 10% through 1961.

Unfortunately, this great victory over inflation seems to have been a sandcastle: the demand for imported goods, unsatisfied after long years of controls, and favored by a single fixed exchange rate (which had soon substantially overvalued the Chilean currency), only took two years to exhaust the Central Bank's foreign exchange reserves completely. Even though the government had received large foreign credits (the level of the foreign debt doubled itself between 1958 and 1962) in addition to important foreign exchange donations because of the earthquake, the monetary authorities "realized" in December 1961 that their foreign currency had become exhausted. This was the beginning of the end. Several restrictive measures tending to control the situation were taken immediately: operations with foreign exchange were suspended and a double exchange area was implanted (a banking one for official operations and another very limited one for brokers, destined to satisfy in part the needs of invisible trade); importation of a large number of products was prohibited, and those that were permitted could only be imported subject to the Central Bank's prior authorization; taxes were established on trips abroad, etc.

These measures were not sufficient, however, and the government was forced to devalue the national currency in October 1962, thus giving inflation a loose rein. The sudden increase of the dollar made its first repercussion on prices of the essential products which have to be imported anyhow (food, raw material, spare parts, fuel, etc.), and the effect of these raises quickly expanded to the rest of the economy, increasing production costs and forcing prices up. This, plus detention of the flow of imported products, fanned the flame of inflation which rose to 28% in 1962 and culminated with 45% in 1963. Another group had had the opportunity to fight inflation, and another battle had been lost.

The frustration over Alessandri's unsuccessful attempt to stop inflation was expressed by the fact that in the presidential election of 1964 over 90% of the total votes were obtained by the two candidates whose programs offered drastic structural, social and economic reforms. The victory was for Eduardo Frei, who set forth from the beginning very concrete goals to be achieved during his government, and the corresponding policy measures to implement them.

The key features of the government's economic program can be summarized as follows: a) the detention of inflation; b) redistribution of income in favor of the most neglected sectors; and c) economic development, based substantially on the increase of farming and cattle production and on the promotion of exports.

Out of these, the detention of inflation, and those income redistribution features having to do with changes in the prices of products and factors, are those that are of most interest for the present study.

What constituted a real innovation compared with what had happened under former governments was that the agricultural activity became crucially important for the development process. As stated in the President's inaugural address, "There is no possibility of getting out of stagnation, overcoming the scourge of inflation and achieving a better equilibrium in our balance of payments (since we are importing over 120 million dollars per year in food alone) if we are not capable of materializing an agrarian policy that will increase our farm and livestock production substantially." Among the different measures contemplated to achieve agricultural development (agrarian reform, organization of the peasants, technical assistance, etc.), there were important real price increases to incentivate the production of most important crops, and improvements in the marketing of several agricultural inputs in order to reduce production costs.

An important feature of the new battle against inflation was that no attempt would be made to defeat it out of hand, but that it would be fought by following a gradual process. As and when the structural changes advocated by the government had effect, the price growth rate was to be reduced slowly until it reached zero after a lapse of four years.

In order to detain inflation, in addition to the usual controls over foreign trade (import restrictions, control of the exchange rate, etc.) and over the amount of money (standbys, credit and issue restrictions, etc.), the struggle against inflation was to be based on a rigid price control, through both state inspectors and a campaign to educate the consumer. The prices were not supposed to exceed certain growth goals established beforehand. Very briefly, the general targets were as follows: During 1965, with the object of reducing

the rate of inflation to 25%, price increases of about 28% would be allowed for agricultural products and 22% for industrial products; during 1966, in order to reduce the rate of inflation to 15%, increases of 17.5% would be authorized for farm products and of 12.5% for industrial ones; during 1967, in order to reach a target of 12% of inflation, all products (agricultural and industrial) would be allowed an average maximum price increase of 12% and from then onward minimum rates of inflation would be achieved, with the intention of only adjusting prices to maintain the real value of the different products.

As it can be seen, a substantial improvement in average farm prices compared with the rest of the economy was contemplated for the first two years. For certain strategic products, such as milk, wheat and milk, much higher price increases were to be authorized. In order to avoid the farm price adjustments having a very strong repercussion on consumers, marketing margins were to be reduced by trying to eliminate unproductive middlemen as much as possible.

Given the importance attributed to the gradual stabilization program and to the concrete targets for increases in the price level announced by the government at the outset, the Consumer Price Index became the image or indicator of the results of the government's action, a similar role to that which the fixed exchange rate had had under the previous government.

The policy regarding remuneration was based on the granting of wage adjustments equivalent to 100% of the increase in the cost of living during the previous period for everyone, seeking the collaboration of the strongest and best organized guilds so that they would not press for larger adjustments. The exception within this scheme was to be farm workers, for whom substantial increases were contemplated to the point where they would be level with urban workers in terms of minimum wage and family allowances, together with legislation for all of their minimum wage to be paid in cash.

The redistributive effects of the price and wage policies announced are clear. On one hand, the intention was to transfer to the agricultural sector, via better prices for its products and lower ones for the inputs, part of the non-agricultural sectors' incomes. But at the same time, through the wage policy which was intended to conserve the Non-Agricultural Workers' buying power and substantially increase farm laborers' real incomes, this redistribution was being forced to come out of Non-Agricultural Producers (or the Rest of the World), and, passing through the Agricultural Producers' hands, finally to reach the Agricultural Laborers.

The government initiated this program under the best of auspices: it counted on a strong majority backing and a revolutionary mysticism regarding individual liberties (the presidential campaign slogan was "revolution in liberty"). Soon after being elected it achieved an absolute majority in the Chamber of Deputies, thus counting on a better parliamentary backing than any previous government, although it did have some problems in the Senate; copper prices reached the highest levels in history (a byproduct of the Vietnam War); it had a team of professionals and economists of the highest quality; and furthermore, being a new political departure that could provide the solution for eradicating communism in Latin America, it could count on the financial support (renegotiation of the foreign debt) and sympathy (the sending of material assistance and many experts) of important countries and international credit organisms.

During the first two years results as regards the price policy were fairly acceptable: with a target of 25% increase in 1965, the end of December was reached with an effective increase of 26%. In 1966 the effective price increase was 17%, whereas the target had been 15%. In 1966, however, and still more so in 1967, the stabilization program began to run into difficulties. In the agricultural sector, although it was within the government's policy to favor wage increases exceeding the increase in the cost of living, the explosive increase in unionization was of such magnitude (by the end of 1964 there were only 24 agricultural unions in the country, with 1,658 members; by the end of 1967 there were 412, with over 80,000 members) and their bargaining power so great that early in 1968 the government believed that agricultural real wages should have close to doubled the level they had in 1964.

Union pressures had similar effects in the rest of the economy, although on a much smaller scale. The result was that, on the average considerable higher wage increases were obtained in the private sector than those anticipated (the stabilization projections had been made on the basis of an average wage increase equal to the increase in the consumer price index), and although it was possible to keep adjustments within the public sector close to the projected limits, the fact that a deceleration of inflation occurred in 1965 and 1966 implied a substantial increase in the cost of labor in all types of activities

The problem became more serious in 1967, in that, in line with the projected rate of inflation, price adjustments of 12% only were permitted. The rise in labor costs, increased demand due to some groups' larger buying power, periodical increases of the exchange rate (every fortnight) and the extraordinary increase in public expenditures, led to loss of control over many prices, and the rate of inflation again soared up to 22% in 1967, measured by the Consumer Price Index. Furthermore, the fact of this index being the image of the government's anti-inflationary action caused the exercise of a rigid control over the prices of products figuring therein, which tended on one hand toward an under-estimate of the price level's real rise, and on another affected the prices of agricultural products more seriously (in the present index, items coming under the heading of foodstuffs represent nearly 50% of the total weight).

Although the government reiterated its decision to improve farm prices, the outlook for 1968 was not very promising. In the face of an acceleration of inflation in 1967, and with prospects of larger price increases in 1968, the different guilds, the strong agricultural unions among them, were pressing for the highest possible wage adjustments. On another hand, the prices of farm products were subjected to strict controls to avoid a rise in the Consumer Price Index as far as possible. And, as if all of the foregoing were not much, it was aggravated by an extraordinary drought, auguring losses of crops and animals, a decrease in the marketable surplus, a scarcity of food for agriculture's own consumption, and unemployment for farm laborers. That is to say, it was foreseeable that the shift of incomes via changes in the relative prices of productive goods and factors will turn against the agricultural economic groups, so that part or all of the ground gained in 1965 and 1966 will be lost.

A Sample of Empirical Results

Having regard to the availability of statistical information, the fact that the base for the weights is 1962, as well as the interesting changes that have recently occurred in economic policy, we have decided to choose the nine year period of 1959 to 1967, inclusive, in this attempt at quantification. For purposes of analysis, this period has been subdivided into three: the three year periods of 1959-1961 and 1962-1964, which comprise the first and second halves of President Alessandri's administration, respectively, and the three year period of 1965-1967, which covers the first half of President Frei's administration.

We have seen fit to make the main comparisons by using the average figures for each of these three year periods, thus avoiding circumstantial alterations in the price system caused by elements that are foreign to economic policy (earthquakes, for instance).

Table I shows the changes that have occurred in the Relative Income¹ of the different groups between the three-year periods of 1959-1961 and 1962-1964. It will be recalled that the most important events in that period were the monetary devaluation that took place in 1962 and the increase in the rate of inflation in the second three-year period. Moreover, an occurrence that was not very important in itself, but which served as the basis for measures that were taken later, was the passing of a mild agrarian reform law at the end of 1962. In accord with this law, a decree was dictated in 1963, establishing a raise of 50% in agricultural wages and ruling that at least 30% of them had to be paid in cash in 1963, which percentage was to increase to 50% in 1964. The decrease in inflation during 1960 and 1961 was attained partly through the exchange policy (overvaluation of the Escudo) and partly by granting smaller wage adjustments than the cost of living increase in the preceding period. When devaluation occurred in 1962 and prices started to rise again, union pressures commenced to increase, tending toward obtaining larger wage adjustments than the rise in prices, as a defense against expected faster inflation.

These facts are clearly reflected in Table 8, where, too, their importance for the different groups is quantified. So the Large Producers (Group 1) saw their situation improve between the two periods, mainly due to their inputs costing less. This is attributable to bonuses granted toward the price of certain inputs, as well as to inflation which substantially reduced the cost of credits, which represented an important part of the said group's expenditure. There was also a rise in the price of certain agricultural products used as inputs in non-agricultural activities (beetroot and wool especially), which strengthened the last mentioned effect. In this way, the Non Agricultural Producers' (among whom the credit institutions figure) contribution to the increase of the RI of Group 1

1. In what follows "Relative Income" will be abbreviated as RI.

amounted to 7.4%. On another hand, devaluation made returns on agricultural exports substantially larger, offsetting the higher cost of input imports and giving a credit balance of 1.4%. These gains were partly offset by an increase in the cost of farm labor, the greatest impact coming from the Tenant Laborers (they were supplying most of the labor needed by the Large Producers) with -3.2%, reinforced by -0.4% corresponding to Farm Laborers. The positive effects of devaluation and inflation were greater than those of the higher cost of labor, so that the Large Producers' economic welfare improved by 5.5% between the two periods.

The Small Producers (Group 2) also improved their RI by about 5%, mainly through income transfers coming from Group 5 and for similar reasons to those mentioned with regard to the Large Producers (reduction of the relative prices of the inputs and non-agricultural consumer goods used by the Small Producers, and higher relative prices of the inputs sold by them to other activities). Although they derived no benefits from devaluation (it is assumed that they exported nothing), neither were they negatively affected by the increase in the cost of labor (it is assumed that they used family labor or exchanged it within the same group).

The Tenant Laborers (Group 3) substantially increased their economic welfare between the two periods (by 7.5%), as they simultaneously enjoyed the favorable effect of the increase in the cost of labor (5.1%) and of the reduction in the relative price of inputs and agricultural consumer goods (3.0%).

The Agricultural Workers (Group 4) were those who benefitted most from price policies, obtaining a 12% increase in their RI, attributable almost entirely to the effect of the real rise in the level of farm wages between the two periods.

The Non-Agricultural Producers (Group 5) maintained their situation practically unchanged (their RI increased by 1%). The negative effects originated by the drop in the relative price of inputs sold to agriculture (credit, fertilizers and bonused transportation, etc.), which effects are reflected in the negative sign of the RI components attributable to Groups 1, 2 and 3, were more than offset by the increase in income derived from better prices in Escudos for exports (+1.7%), attributable to devaluation and possibly to better international copper prices. It is most interesting to note that the Non-Agricultural Producers' net result with respect to the Non-Agricultural Workers is zero. Breaking this figure down, we find that the income component's influence ($a_{56} \times_{56}$) equals -0.8%, which is exactly offset by expenditure's influence ($b_{56} \times_{65}$), which amounts to +0.8%. This seems to indicate that urban union pressures were not strong enough to hold back the negative effect of accelerated inflation on non-agricultural salaries and wages, so that a real reduction of 0.8% took place in Non-Agricultural Producers' expenditure due to this concept. However, the decrease of 0.8% in their incomes because of the drop in the relative prices of consumer goods sold to Group 6 compensates exactly for the above effect.

In like manner, upon analyzing the results for Non-Agricultural Workers (Group 6), the opposite effect can be appreciated. The income component attributable to Group 5 ($a_{65} \times \frac{1}{5}$) amounts to -2.9%, and is neutralized by the expenditure component with respect to Group 5 ($b_{65} \times \frac{1}{56}$) which is also 2.9%. This means that, despite stronger union pressure and higher wage adjustments, a real decrease took place in Non-Agricultural Workers' incomes between the two three-year periods, but without consequences for them as that decrease was offset by a lower cost of non-agricultural consumer products. Despite the foregoing, the total change in Non-Agricultural Workers' RI was negative and sizeable (-4.8%). This loss of economic welfare is attributable almost entirely to the increase in the prices of imported consumer articles between the two periods, caused by the devaluation.

Finally, the Rest of the World (Group 7) clearly shows the effects of the devaluation of the Escudo, having experienced decreases in its RI due to a higher price for exports in Escudos, and at the same time increases because the devaluation made the prices of imported goods rise within the country, thus partly neutralizing the above effect. The rise in the price of exports seems to have been considerably larger than that in the price of imports, as, for instance, the deterioration in the Rest of the World's RI attributable to Non-Agricultural Producers (22.6%) breaks down into 13.4% corresponding to higher income from the sale of Imports ($a_{75} \times \frac{1}{75}$), and -36.0% attributable to larger expenditure on the purchase of Exports ($b_{75} \times \frac{1}{57}$). This is probably where an upward tendency in copper prices in the international markets began to have influence, reinforcing the internal effect of the devaluation. If the deterioration of the Rest of the World's RI was no greater, it was fundamentally due to the important income transfer from the Non-Agricultural Workers, caused by a higher cost of imported consumer goods.

It is of interest to stress the fact that all of the figures are proportionate to the magnitude of the income generated in each group. Thus, although we can see that the Large Producers, Small Producers and Tenant Laborers have experienced large increases in their economic welfare due to deterioration in the relative prices of some inputs (credits, transportation, fertilizers, etc.) and consumer goods coming from non-agricultural activities, as well as to the increase in the relative price of certain inputs destined to non-agricultural activities (sugarbeet, wool), this had an almost negligible impact on the Non-Agricultural Producers' RI, as the gross income generated by them was eight times that of the three agricultural producer groups.

When the change of government occurred in late 1964, several important modifications took place in economic policy. Among the most relevant ones for the objectives of this study, we might recall the intention of improving the real prices of agricultural and cattle farming products; the will to favor the real increase in farm wages (stimulating peasant unionization and putting farm laborers on a level with urban ones in terms of minimum wage and family allowance) and the upkeep of Non-Agricultural Workers' buying power (through wage adjustments equivalent to 100%

of the increase in living costs); promotion of a redistribution of income toward the neediest groups (through both price systems and direct transfers); and the encouragement of exports by means of a more realistic exchange rate which (complemented by returns of taxes and other export facilities), upon periodical adjustment, was intended to maintain the real internal value of exports.

Table II gives the empirical results obtained from a comparison of the last three-year period of Alessandri's government with the first three-year period of Frei's government.

It would appear that, out of the policies mentioned above, that which was best carried out was that of raising workmen's wages in general, and especially those of Agricultural Laborers. Thus we can appreciate that the Large Producers saw their RI decrease by 9.5% due to the higher cost of Tenant Laborers' labor, and by 1.6% through the higher cost of Agricultural Workers. This was partly offset by a positive transfer of 4.7% coming from the Non-Agricultural Producers, but this cannot be attributed to better relative farm prices (as had been anticipated when the policy was formulated) but rather to a real deterioration in the prices of inputs and consumer goods of industrial origin ($b_{15,51}^* = +4.9$). That is to say, industrial prices increased less than agricultural ones, these last remaining practically unchanged. In part, this was established in the policy formulated by the government, as the intention was (and it was apparently attained) to decrease substantially the real prices of agricultural inputs, mainly through a reduction of the marketing margins. The transfers mentioned, which seem to have been the most important implicit income transfers, caused a reduction of 6.4% in the Large Producers RI. However, there is a figure which, although it has no influence on RI, it is of interest to analyze in more detail. The RI component attributable to the Rest of the World is practically nil, which would indicate that no net transfers have occurred. But upon analyzing income and expenditure corresponding to this component separately, it is seen that farm exports caused a reduction in the RI of Group 1 of approximately 1.4%, which was compensated by an increase of RI, attributable to imports, also of about 1.4%. This seems to indicate a decrease in the relative price of exports and a reduction in the cost of imports. Although part of this last feature could be attributed to lower marketing costs for machinery and other imported inputs, the double effect on exports and imports is more symptomatic of an over-valuation of the Escudo. And as the Escudo has permanently lost value with approximate relation to the Consumer Price Index, this would lead us to think that the said Index greatly under-estimates not only the economy's real price level when it is used as an indicator of inflation (it does not include many important prices, that of labor among them), but would also be under-estimating the consumer price level (farm exports are mainly consumer goods).

The Small Producers, who were not affected by the increase in the cost of labor, show an improvement in their RI of about 3%, attributable fundamentally to lower prices of physical inputs and consumer goods purchased from non-agricultural activities. The prices of the agricultural products that they sold did not experience a real improvement, which had

been the intention in the formulation of the policy; on the contrary, they dropped, as shown by an implicit transfer of 2% of their income to the Non-Agricultural Workers (who are the main buyers of agricultural consumer goods), so that they lost part of the advantage gained due to lower prices for non-agricultural products.

The Tenant Laborers improved their economic welfare substantially (by 22.3%), as they derived benefit from both the rise of farm wages (an increase of 15.3% in RI attributable to this factor) and the lower relative price of inputs and non-agricultural consumer goods (8.1% attributable to these factors). The decrease in the real price of agricultural products sold by the Tenant Laborers (although it was smaller than that suffered by the real price of non-agricultural products) is seen to have been reflected in a reduction of 1.1% of their RI, derived from sales of agricultural consumer goods to Non-Agricultural Workers.

The Agricultural Workers, as pure and simple wage earners had a spectacular increase of economic welfare. Between the two periods their RI increased 50%, 47% of which is attributable to better wages and the rest to a reduction of the real price of agricultural products (0.4% and 0.6%), and, to a greater extent, to a decrease in the real price of non-agricultural consumer goods (6.2%).

The Non-Agricultural Producers saw their RI diminish substantially (-7.4%), due especially to a higher cost of labor, which, added to a decrease in the real price of the products that they sold in the internal market, gave a loss of over 8%. This loss was partly compensated by an increase of 1.3% in their RI due to favorable prices in their trade with the Rest of the World. This, which could be explained perfectly by the extraordinary prices of copper, is not as clear as it looks. The income component ($a_{57} \times 57$) is practically nil (-0.1%), while the expenditure component ($b_{57} \times 75$) amounts to +1.4%. The only plausible explanation for this phenomenon would be in the over-valuation of the Escudo, which would have caused an instantaneous reduction of the higher copper prices (in dollars) when they were converted into Escudos at the official exchange rate, so that their favorable effect was neutralized. On the other hand, the expenditure component (purchase of imported goods and inputs) would have caused an increase of the RI, as the cost of imported products would have decreased upon over-valuation of the Escudo.

An analysis of the figures corresponding to Non-Agricultural Workers confirms the foregoing hypothesis, as this group, which purchases only consumer goods from abroad saw its RI increase by 3.3% due to the reduction in the price of imports. In addition to this income, the Non-Agricultural Workers enjoyed a considerable increase in their RI, mainly at the expense of Non-Agricultural Producers (29.3%). This increase was due mainly to better real wages (22.1%), reinforced by a reduction in the price of non-agricultural consumer goods (7.2%). Besides to the above, they also received less important transfers from the agricultural producer groups, owing to a decrease in the real prices of agricultural consumer products.

Finally, analyzing the figures for the Rest of the World, we clearly see the effects of the over-valuation of the Escudo, as this group suffered a decrease of almost 30% in its RI, caused mainly by lower import prices.

From the analysis contained in Table II, we can summarize some aspects related with the goals fixed by the government. In the first place, there has been a strong income redistribution toward the worker groups (both agricultural and urban) due to higher wage rates. With regard to the prices of agricultural

products, although the government's wish had been to improve substantially their real price level, we can see that their previous acquisitive power could only barely be maintained, small decreases being noted in the income component of all agricultural producer groups. Notwithstanding, the objective of improving them with relation to industrial products was fully attained, as these last deteriorated considerably more. Now, as we are aware of the rigidities existing in the marketing margins of most consumer products in Chile, it seems extremely doubtful that the producers could have faced the large increases in the cost of labor without passing a large part of them on to the product's final price. If so, this would mean that the Consumer Price Index would not only not give an adequate estimate of the economy's real price level (as it only includes consumer goods), but would also be substantially under-estimating the price level for consumer articles. This would also enable us to explain the possible over-valuation of the Escudo, for if the Consumer Price Index were to underestimate the rise of the price level very much, adjustments in the price of the dollar based upon this index would not be enough to maintain parity, thus tending toward a growing over-valuation of the Escudo.

Among some of the most important overall conclusions, we might tentatively highlight the following:

(1) Different economic groups within one and the same activity are affected in a substantially different way when changes in the price system occur, for which reason aggregated results for the entire activity as a whole may lead to mistaken interpretations of a given price policy's implications. This can be clearly seen when comparing the total variations in the RI of the different agricultural groups in Tables I and II. Depending on the importance that each group has in the total gross income generated in the sector, a favorable or unfavorable result will be obtained for the activity as a whole, which result will be covering the internal transfers being made between the groups that make up the activity, and may be fundamentally important in the evaluation of policies.

(2) It can be clearly appreciated, moreover in countries like Chile where agricultural activity as a whole has relatively little importance, that it is fundamentally essential when making the analysis of income transfers to maintain the adequate proportion between the magnitude of the transfer and the total gross income generated by each economic group, in order to keep a proper perspective. Thus, for instance, it can be seen from the different tables calculated that those income transfers from Non-Agricultural Producers that made it possible to improve the agricultural groups' situation substantially had a negligible effect on the Non-Agricultural Producers' RI. Inversely, if an attempt were made to utilize agricultural activity as a source of capital for non-agricultural development, the magnitude of the income transfers that would have to be extracted from agricultural activity to have any impact on the non-agricultural activities' capital formation rate would be so great that it would seriously affect productive capacity and incentives in the agricultural activity.

(3) In analyzing income transfers motivated by changes in the price system, it is fundamental to consider all of the economy's prices, especially the price of labor, which is the most important of all. It can be clearly seen from the results of the model that the producer groups' economic welfare is greatly diminished when increases in the wage rate occur, which, as in the case of the Large Producers, neutralizes any attempt to improve their real income through better prices for their products. In the same way, in considering solely

prices of goods in elaborating an economy's inflation indices, without including therein prices like those of capital, land and labor (though could even be given to some form of including the tax rate as the price of services rendered by the government), strong biases are being created in the estimates of the inflation rate (downward when wages are omitted and upward when the interest rate is omitted). These omissions create serious problems for evaluating the impact that changes in the price system have on income distribution in the economy.

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TABLE I
TOTAL AND PARTIAL CHANGES IN RELATIVE INCOME^a PERIOD OF 1959-61/1962-64

Total Variation in Relative Income ^b $\sum_j (a_{ij} x_{ij}^* - b_{ij} x_{ji}^*)$	Partial components attributable to each group ($a_{ij} x_{ij}^* - b_{ij} x_{ji}^*$)					
	Large Producers (Group 1)	Small Producers (Group 2)	Tenant Laborers (Group 3)	Agricultural Workers (Group 4)	Non-Agric. Producers (Group 5)	Non-Agric. Workers (Group 6)
Large Producers (Group 1)	+5.49	(-0.02)-(-0.01)	(-0.50)-(2.71)	(0.01)-(0.43)	(1.54)-(-5.90)	(0.25)-(-)
Small Producers (Group 2)	+4.97	(-0.05)-(-0.07)		(-0.03)-(-)	(1.04)-(-5.16)	(-1.22)-(-)
Tenant Laborers (Group 3)	+7.50	(4.35)-(-0.79)		(-0.02)-(-)	(-)-(-3.01)	(-0.63)-(-)
Agricultural Workers (Group 4)	+11.96	(12.0)-(0.20)	(-)-(-0.26)	(-)-(-0.34)		(-)-(0.44)
Non-Agricultural Producers (Group 5)	+1.01	(-0.37)-(0.10)	(-0.09)-(0.02)	(-0.11)-(-)	(0.00)-(-)	(-0.79)-(-0.79)
Non-Agricultural Workers (Group 6)	-4.76	(-)-(0.06)	(-)-(-0.07)	(-)-(-0.09)		(-2.90)-(-2.91)
Rest of the World (Group 7)	-6.09	(0.57)-(1.79)				(-3.40)-(-35.96) (17.69)-(-)

PRELIMINARY FIGURES--NOT FOR QUOTATION

^aThe changes have been expressed as percentages of variation between the limits of the period considered. Total variation corresponds algebraic sum of partial variations.

^bThe sum of the variations of Relative Income in all groups, weighted by the importance of each group in the total income generated in is equal to zero.

TABLE II

TOTAL AND PARTIAL CHANGES IN RELATIVE INCOME^a PERIOD OF 1962-64/1965-67

Total Variation in Relative Income ^b $\Sigma(a_{ij}x_{ij}^* - b_{ij}x_{ji}^*)$	Partial components attributable to each group ($a_{ij}x_{ij}^* - b_{ij}x_{ji}^*$)					
	Large Producers (Group 1)	Small Producers (Group 2)	Tenant Laborers (Group 3)	Agricultural Workers Group 4)	Non-Agric. Producers (Group 5)	Non-Agric. Workers (Group 6)
Large Producers (Group 1)	-6.37	(0.23)-(-0.02)	(0.39)-(9.93)	(-0.01)-(1.54)	(-0.20)-(-4.87)	(-0.25)-(-)
Small Producers (Group 2)	+3.04	(-0.09)-(0.88)		(-0.06)-(-)	(-0.64)-(-6.78)	(-2.07)-(-)
Tenant Laborers (Group 3)	+22.31	(15.91)-(0.62)		(-0.04)-(-)	(-)-(-8.13)	(-1.07)-(-)
Agricultural Workers (Group 4)	+50.14	(42.70)-(-0.20)	(-)-(-0.44)	(-)-(-0.58)	(-)-(-6.22)	
Non-Agricultural Producers (Group 5)	-7.42	(-0.31)-(-0.01)	(-0.12)-(-0.01)	(-0.31)-(-)	(-0.01)-(-)	(-1.97)-(6.01)
Non-Agricultural Workers (Group 6)	+32.98	(-)-(-0.06)	(-)-(-0.12)	(-)-(-0.15)	(22.10)-(-7.23)	
Rest of the World (Group 7)	-29.44	(-1.17)-(-1.14)			(-18.11)-(-0.77)	(-12.07)-(-)

PRELIMINARY FIGURES--NOT FOR QUOTATION

^aThe changes have been expressed as percentages of variation between the limits of the period considered. Total variation corresponds algebraic sum of partial variations.

^bThe sum of the variations of Relative Income in all groups, weighted by the importance of each group in the total income generated in economy is equal to zero.