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Negative Personal Saving in the Chilean National Accounts: An Artifact or Reality?

Markos Mamalakis

ECONOMIC GROWTH CENTER

YALE UNIVERSITY

Box 1987, Yale Station
New Haven, Connecticut

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by

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Few items have puzzled the users of the Chilean National Accounts as much as its negative personal saving. Since personal saving is an integral part of the saving and investment account, the whole section has been viewed with persistent scepticism and suspicion and the reliability of its figures has been strongly questioned.[1]

The views of the critics are summed up in the following representative quote from the Report on Chile by the Committee of Nine:

> ". . .the Committee believes that the estimates of saving and investment included in the national accounts are significantly inferior to the real ones. . .
>
> . . .it must be noted that the level of saving and investment presented in these estimates is markedly inferior to those needed to be consistent with other indicators of economic activity. In support of this point the following can be cited:
>
> a) Net national saving of the private sector has been negative, according to these estimates, in all years falling between 1940 and 1962, with the exception of 1944, 1945, 1946, 1948 and 1953. This does not appear to be compatible with the development experienced by the Chilean economy in general and the private sector in particular, during those 25 years.
>
> b) Imported machinery and equipment constitutes, according to the national accounts of Chile, 50.1 percent of gross fixed capital formation as an average of the years 1940-1963. This is an exorbitantly high percentage,

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[1] I am thankful to Mark Leiserson for making available to me numerous publications dealing with the Norwegian national accounts and various methodological studies by Odd Aukrust and Ragnar Frisch. These and other studies made it clear that the problems faced by the early and pioneering national accountants were quite different from those discussed in the present essay.

> if compared with the other countries of Latin America. For example, this average for the years 1950-59 has been in Colombia, 26.3 percent, and in Venezuela 23 percent, according to the national accounts and imports statistics of these two republics.
>
> c) Net investment in fixed capital realized by Chile in the last 23 years amounts, in total, to only E°609,1 millions, in 1961 prices, which results in a net capital-output ratio for these years of 0.20."[1]

The present essay aims to determine the reliability of the saving and investment accounts and, in the process of doing so, to provide an explanation for the presence of negative personal saving. The objective of the study is achieved in three, simultaneously pursued, steps. The first step involves providing the background information and theoretical framework used in preparing the accounts analyzed. The second involves a detailed analysis of the problems and issues related to the specific items analyzed. And, finally, the third involves suggestions and recommendations about possible improvements in the estimates and methodology.

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[1] "Las Cuentas Nacionales de Chile Durante los Ultimos Años" Economía, 2nd and 3rd Trimester, 1964, p. 93 and p. 95. The note published in Economía in pages 93-115 is an excerpt from the unpublished report, Comité de los Nueve, Informe sobre la Ejecución del Programa de Desarrollo Económico y Social de Chile, December 1963, pp. 79-83 and 114-118.

The allegations included in the Report of the Committee of Nine were disputed and repudiated by the research group of the Chilean Development Corporation (Corporación de Fomento de la Producción = CORFO) in charge of the national accounts in the short document: CORFO, Dirección de Planificación, Departamento de Investigaciones Económicas, Comentarios Acerca de las Referencias a las Cuentas Nacionales en los Informes sobre el Programa Nacional de Desarrollo Económico y Social Presentados al Gobierno por el Comité de los Nueve de la Alianza para el Progreso. (Santiago, Chile: CORFO, February, 1964), pp. 1-8. Translation of quotes or documents from Spanish into English has been made by the author.

Saving and Investment Account: Estimation and Methodology

The outstanding characteristic of the CORFO saving and investment accounts is indeed the almost continuous presence of negative personal saving. This dissaving, which has occurred in every year since 1954, was in 1960 a stunning -523.2 million escudos representing 10.52 percent of gross domestic product. Even during the earlier 1940-1953 period, personal saving was positive only during five years, namely 1944-1946, 1950 and 1953.

The factors that are jointly responsible for and can explain household dissaving fall into the following three categories:

(A) Methodological and Statistical

(B) Behavioral, and

(C) Real and Structural

The largest part of this essay is devoted to a discussion of the methodological and statistical factors. The behavioral, real and structural are discussed, but not in great detail, at the end of the essay.

(A) Methodological and Statistical.

The method of calculation is the single most important factor leading to the presence of household dissaving. In order to explain the method of calculation, it is necessary to describe the investment and saving account within which personal saving is being calculated.

Chile, like many other underdeveloped countries, has found it impossible to make estimates for all items suggested by the United Nations. The components of the investment and saving accounts for which estimates

have been consistently made throughout 1940-1965 are presented in the following three sets of definitional equations.[1]

According to the first equation, which is the standard Keynesian, gross domestic capital formation (I) equals gross domestic saving (S). Thus,

$$(1) \quad I = S$$

The second equation defines the subcomponents of the investment account as follows:

$$(2) \quad I = I_o + I_i$$

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[1]There exist two sets of primary documents dealing with the saving-investment accounts. The first set covers the 1940-1954 period and gives detailed estimates made according to the United States Department of Commerce methodology. These estimates are presented in CORFO, Departamento de Planificación y Estudios, Sección Investigaciones Económicas, Cuentas Nacionales de Chile, 1940-1954, pp. 1-140 and Appendix Tables 1-57. (Santiago, Chile: Editorial del Pacífico, S.A. 1957.) This book, which is an invaluable source of information, contains the most detailed methodology of the national accounts. Very useful background information on saving and investment for the years 1938-1950 is also found in the thesis by Ewald Hasche Sánchez, "El Proceso de Capitalización en Chile, 1938-1950". Memoria en Economía (Santiago, Chile: Universidad de Chile, 1950). Mimeographed, 277 pp.

The second set covers the period 1940-1965 and presents in three mimeographed documents estimates made according to the United Nations methodology. The three documents are the following: CORFO, Dirección de Planificación, Departamento de Investigaciones Económicas. Cuentas Nacionales de Chile, 1940-1962 (Provisional Revised Figures), pp. 1-52. (Santiago, Chile: CORFO, June 1963.) Mimeographed; CORFO, Dirección de Planificación, Departamento de Investigaciones Económicas. Cuentas Nacionales de Chile, 1958-1963 (Provisional Revised Figures), pp. 1-30. (Santiago, Chile: CORFO, June 1964.) Mimeographed; Presidencia de la República, Oficina de Planificación Nacional. Cuentas Nacionales de Chile , 1964-1965 (Estimated figures). (Santiago, Chile: ODEPLAN, July 1966.) Mimeographed. The first document, which will be henceforth referred to as Cuentas Nacionales 1940-1962, contains final estimates for the years 1940-1957; the second document, to be referred to in the future as Cuentas Nacionales 1958-1963, embodies the revised national accounts estimates for the years 1958-1963; and, the third document, which will be henceforth referred to as Cuentas Nacionales, 1964-1965, presents the latest estimates for the years 1964-1965. The final revised estimates of all national accounts are also found in the author's Historical Statistics of Chile; 1840-1965 (forthcoming). All tables of the present essay have this document as their source.

where I_o stands for the change in inventories and I_i for gross domestic fixed capital formation. Equation (2) is decomposed into

$$(2a) \quad I_i = I_c + I_m$$

$$(2b) \quad I_c = I_{cb} + I_{cg} + I_{ce} \quad \text{and}$$

$$(2c) \quad I_m = I_{mn} + I_{mf}$$

where I stands, as before, for investment and the subscripts, c, for construction, m, for machinery and equipment, cb, for construction in buildings, cg, for construction in public works, ce, for other construction, mn, for nationally produced machinery and equipment, and mf, for imported machinery and equipment.

The components of the savings account are presented in equation (3):

$$(3) \quad S = S_f + S_n$$

according to which gross domestic saving equals the sum of foreign saving (S_f) and national saving (S_n). Foreign saving is defined as the surplus or deficit of nation on external account. That is,

$$(3a) \quad S_f = [M-X]$$

where M stands for current payments to abroad and X for current receipts from abroad.

Furthermore, as national saving has three components, that is, government saving (S_{ng}), saving by firms (S_{nb}), and personal saving (S_{np}) we obtain equation (3b):

$$(3b) \quad S_n = S_{ng} + S_{nb} + S_{np}$$

The last equation referring to the savings account states that business saving (S_{nb}) is composed of capital consumption allowances (S_{na}), and

retained earnings of corporations (S_{nz}). Equation (3c) can, therefore, be written as follows:

$$(3c) \quad S_{nb} = S_{na} + S_{nz}$$

The items of the investment and saving account which are included in the aforementioned equations are presented for selected years in Table 1.

Personal saving has been used as an accounting device to bring into balance, on the one hand, household revenues and expenditures, and on the other hand, gross saving with gross investment. Personal saving has been calculated as a residual both in the 1940-1954 period,[1] when it was equal to the difference between household receipts and expenditures, and during 1955-1965, when it was equal to the difference between gross domestic investment, on the one side, and the sum of foreign, business and government saving, on the other side. This calculation as a residual led to estimates indicating dissaving.

In the 1940-1954 national accounts, independent estimates of consumer revenues and expenditures were made and the difference was (dis) saving. No definite attempt was ever made to obtain an independent estimate of personal saving. This residual estimate of the household account was subsequently entered in the saving account and any discrepancies were resolved by entering a statistical error item.[2] This procedure concealed

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[1] Saving by persons and non-profit institutions appears both in the household account (Cuentas Nacionales, 1940-1954, p. 78, Account III) and in the gross saving and investment account (Ibid., p. 83, Account VI). Interestingly enough, in the national accounts estimates, according to the Department of Commerce methodology for the 1940-1954 period, personal saving is positive only in 1946 and 1953.

[2] This statistical error item is not included in the earlier definitional equations.

Table 1

Gross Domestic Capital Formation Account
(in millions of escudos, current prices)

	1940	1945	1950	1952	1955	1960	1962	1965
Gross Domestic Capital Formation								
A. Gross fixed capital formation	2.4	4.7	14.3	24.5	86.8	513.0	812.0	2,599.0
1. Construction and other works	1.3	3.4	7.6	12.9	53.5	205.0	411.0	1,158.0
a. Buildings	1.1	2.6	5.9	8.6	37.7	110.4	242.0	575.0
b. Public works	0.2	0.5	1.4	3.2	11.0	77.0	135.0	467.0
c. Other construction	0.0	0.3	0.3	1.1	4.8	17.6	34.0	116.0
2. Machinery and equipment	1.1	1.3	6.7	11.6	33.3	308.0	401.0	1,441.0
a. Imported	1.0	1.1	5.9	10.2	28.8	276.0	362.0	1,297.0
b. National	0.1	0.2	0.8	1.4	4.5	32.0	39.0	144.0
B. Change in stocks	0.1	1.3	3.3	-2.0	-2.0	22.0	21.0	51.0
C. GROSS DOMESTIC CAPITAL FORMATION	2.5	6.0	17.6	22.5	84.8	535.0	833.0	2,650.0
Gross Domestic Saving								
D. Income retained by producers	3.1	5.9	17.1	43.0	148.4	816.1	663.0	2,144.0
1. Capital consumption allowances	2.5	5.1	14.6	25.9	88.5	675.7	469.0	1,721.0
2. Retained earnings of corporations	0.6	0.8	2.5	17.1	59.9	140.4	194.0	423.0
E. Personal saving	-1.4	0.9	1.0	-17.6	-76.9	-523.2	-178.0	-475.0
F. Government surplus on current account	1.1	1.3	3.0	3.5	13.1	125.7	90.0	817.0
G. Less: surplus of nation on current account	0.1	-0.6	0.2	-1.2	-2.4	148.4	163.0	164.0
Statistical discrepancy	-0.4	-1.5	-3.7	-5.2	2.6	-32.3	95.0	--
H. GROSS DOMESTIC SAVING	2.5	6.0	17.6	22.5	84.8	535.0	833.0	2,650.0

biases that have strongly contributed to underestimates of personal saving. The biases, which have led to overestimates of consumer expenditures and underestimates of consumer revenues[1], developed for a number of reasons: first, some expenditure estimates, e.g., medical, other personal, lodging, were made by multiplying the number of persons[2] in a profession by an estimated volume of gross revenues.[3] Not all these gross revenues, however, were traced to various income groups to ensure appropriate adjustments on the income side. Instead, and this is the second reason, income estimates were based on official, mostly published, information and have thus generally tended to be on the conservative side. In the same line, expenditures were imputed without making sure that a corresponding imputation on the income side was made. Both expenditure and revenue estimates have possessed a degree of arbitrariness that makes any claim about accurate personal saving estimates void of any meaning. The degree of arbitrariness is indicated and measured by the fact that consumer expenditures in 1952 were 191 million pesos according to one estimate[4], 179 million according to a

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[1] It is possible that both receipts and expenditures have been overestimated in Chile but that the expenditure overestimate has exceeded the one affecting receipts.

[2] Or the number of hotels, restaurants and so forth.

[3] For a detailed overall evaluation of the Chilean National Accounts and a detailed examination of income and expenditures, see the forthcoming publication: Markos Mamalakis, Historical Statistics of Chile, 1840-1965, Part I, The Chilean National Accounts: An Evaluation.

[4] Instituto de Economia de la Universidad de Chile, Cuentas Nacionales de Chile, 1950-1951-1952 (Santiago, Chile: Editorial Universitaria, 1953) p. 29. In contrast to all other national accounts documents, the present one has a positive estimate for personal saving in 1951, Ibid., p. 17.

revised one[1], 205 million pesos according to the final estimates using the U.S. Department of Commerce methodology[2], and 211.6 million pesos according to the final estimate using the United Nations methodology.[3] Suggestive of arbitrariness and the role of personal saving as an adjustment factor is the fact that the sign has been changed from positive (implying saving) to negative (implying dissaving) from one estimate to another.[4]

These methodological biases become even more explicit in the estimates of saving covering the 1955-1965 period. Since personal saving was defined as $I - [S_f + S_{ng} + S_{nb}]$, and since I, S_f, S_{ng}, and S_{nb} were estimated independently, the estimate of personal saving followed as a residual in the saving-investment account. It is argued in the present essay that underestimates of I, and overestimates of S_{ng} and S_{nb} have "caused" an underestimate of the actual value of personal saving.[5]

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[1] Universidad de Chile, Instituto de Economia, Cuentas Nacionales, Informe al Ministro de Hacienda (Santiago, Chile: Editorial Universitaria, 1954), p. 18.

[2] See Cuentas Nacionales, 1940-1962.

[3] Cuentas Nacionales 1940-1954, Table III, p. 145.

[4] The 1950 estimate for personal saving was positive first (Instituto de Economía de la Universidad de Chile, Cuentas Nacionales de Chile 1950-1951-1952, op. cit., p. 17), negative in the second Instituto estimate (Universidad de Chile, Instituto de Economia, Cuentas Nacionales Informe al Hacienda, op. cit., p. 19), then negative in the early CORFO estimates, but positive in the final CORFO estimates. (See Cuentas Nacionales 1940-1954, Table III, p. 143, for the dissaving figure for 1950, and Cuentas Nacionales 1940-1962, Household Account for the positive figure.) A similar pattern from saving to dissaving estimates, for the same year, can be also found in the aforementioned publications for the years 1951 and 1952.

[5] On the other side, as it will be seen below, foreign saving may have been underestimated and thus led to an overestimate of personal saving.

The arguments in support of the above contention are presented in the rest of this section. The residual nature of personal saving makes it just another statistical discrepancy item and therefore reduces its usefulness for planning purposes.

Presented also here are two Figures which link and contrast the investment account statistics with the saving account statistics.

The first Figure, which covers the year 1952, gives a picture of the importance of the investment and saving components by expressing them as percentages of gross domestic capital formation. The second Figure, which covers the year 1960, presents the components of the investment and saving account in their absolute values and as percentages of gross domestic product.

The structure of the two Figures is the same. Both present in the left half the investment components and in the right half the saving components. The first Figure uses the symbols presented in equations (1) to (3c), while Figure two provides a complete identification of the various items included in it. Both of these Figures are presented here because they shed light from different angles into the problems discussed below.

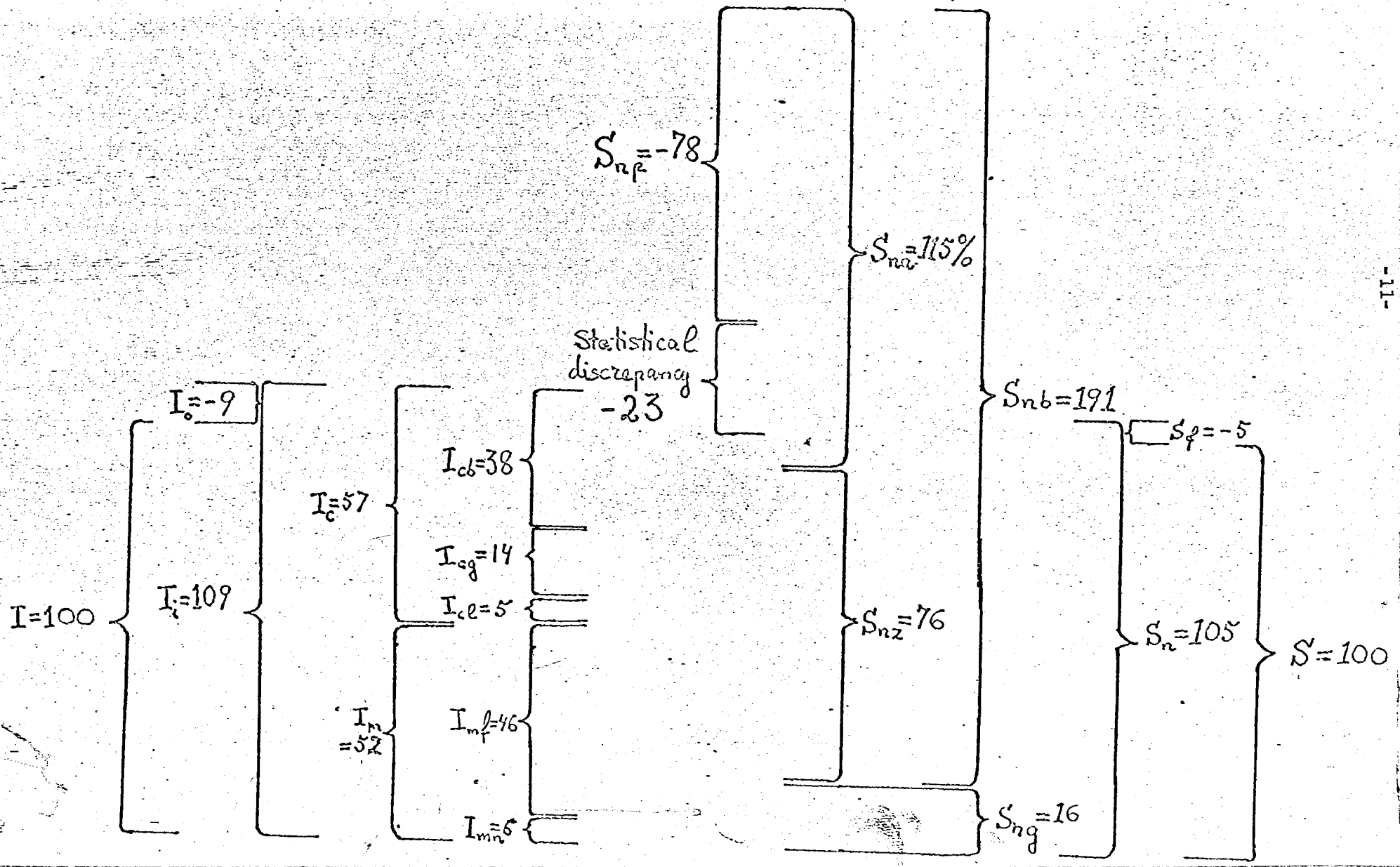
Offered below, with the help of these Figures, is a description and evaluation of the method of estimation of each item.

A1. Gross Domestic Investment and its Components.

Gross domestic investment is estimated independently of other national accounts items and can be regarded as being, mutatis mutandis, rather accurate. Gross domestic investment is calculated by using both direct, relatively complete, information as, e.g., in the case of public

Figure 1

GROSS DOMESTIC CAPITAL FORMATION AND SAVING ACCOUNT FOR CHILE, 1952.
THE FIGURES ARE PERCENTAGES OF GROSS DOMESTIC CAPITAL FORMATION.



works, explorations and imported capital goods, and indirect, less accurate information, as in the case of construction and nationally-produced capital goods.[1]

Gross domestic investment in machinery and equipment, which was the largest component of gross fixed capital formation during the 1940-1960 period, is estimated from the supply or production side as the sum of imported and nationally produced producer durables. As shown in Figure one, I_m, accounted for 52 percent of total investment, and in 1960, as shown in Figure two, it accounted for 6.2 percent of gross domestic product and close to 60 percent of I. Furthermore, throughout the period under discussion, imported capital goods have accounted for almost 90 percent of the machinery and equipment component of investment. This is true also for the years 1952 and 1960 and can be seen at the lower left side of Figures one and two.

The data on which the estimates for the imported investment component are based is highly reliable and is obtained from publications of the Central Bank, in particular the annual Balanza de Pagos.

The imported component of investment is estimated by converting the dollar figures appearing in the Balanza de Pagos into escudos and adding various mark-ups to allow for import duties, foreign exchange taxes, and local expenditures related to marketing, transportation and installment of machinery. The underlying quantitative information is good and

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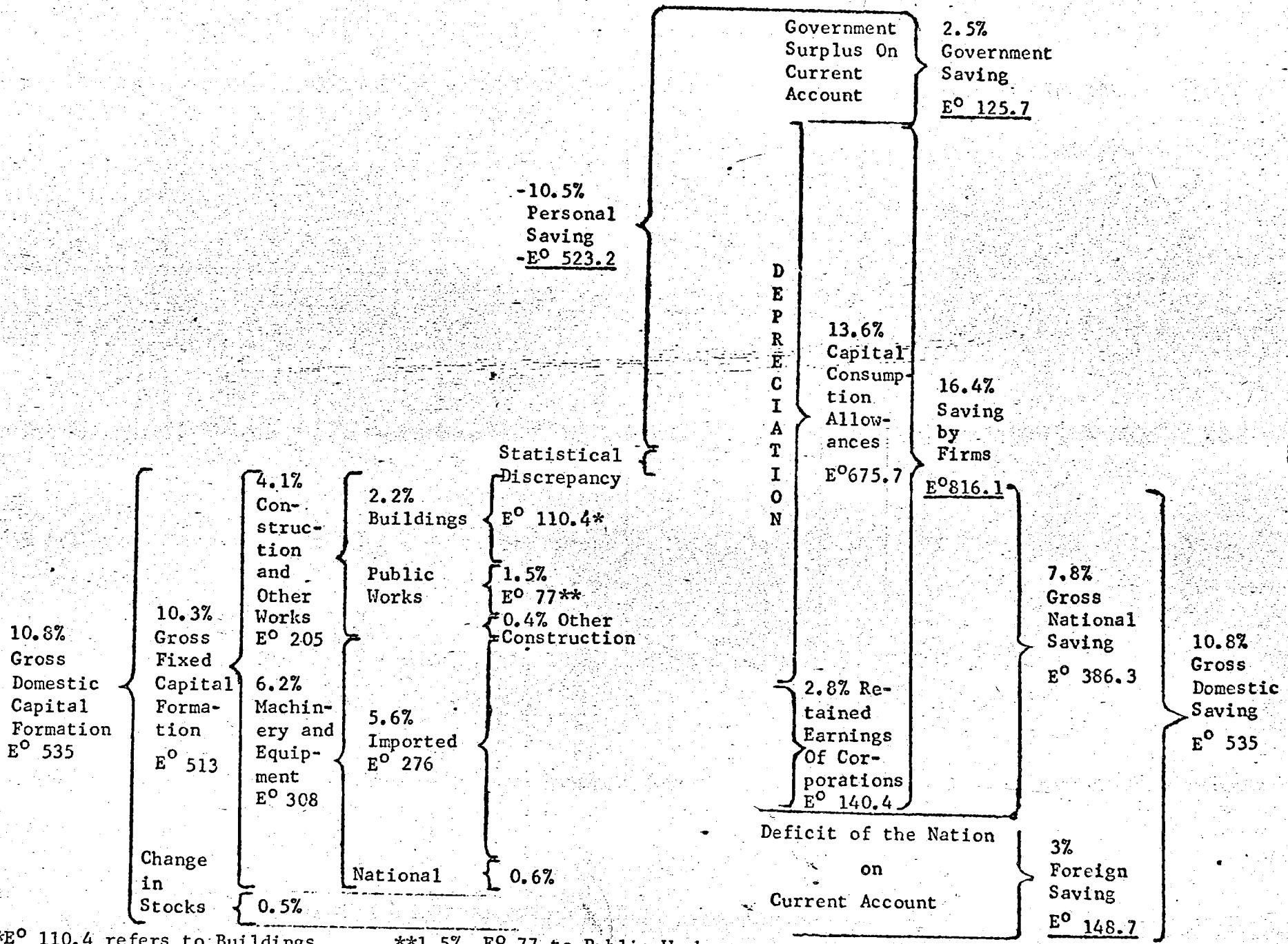
[1] United Nations, Economic Commission for Latin America. Seminario de las Naciones Unidas sobre Cuentas Nacionales para América Latina (Rio de Janeiro, Brazil. II-26 de Junio de 1959) (ST/TAO/SER.C/44), pp. 164-165. This publication will be referred to in the future as UNECLA, Seminario.

GROSS DOMESTIC CAPITAL FORMATION AND SAVING ACCOUNT FOR CHILE, 1960. ABSOLUTE FIGURES AND AS % OF GDP
(In millions of escudos, current prices)



*E° 110.4 refers to Buildings. **1.5%, E° 77 to Public Works

Figure 2

the estimate of this item is one of the most accurate in the national accounts.

Smuggling in machinery and equipment has been periodically uncovered, but is hardly as important in Chile as elsewhere in Latin America. The import statistics have been adjusted for smuggling and there is little reason to consider its impact on the estimate of I_{mf} as significant.

Gross construction investment is in part estimated from the expenditure side, as in the case of public works and explorations, and, in part, through a sui generis income-product approach for housing construction, where a housing index and a cost-of-production-per-square-meter-of-construction index are combined, to obtain an estimate of construction investment.

In spite of the high degree of accuracy of some components of investment, the global gross domestic investment estimates are imperfect for a number of reasons, the most important ones being presented below.

Non-monetary capital formation[1] is underestimated. There exists little or no official information about capital goods produced by and within such sectors as agriculture, small and medium-scale mining, and some services. However, it appears, mainly from first-hand observation, that such capital formation as opening canals, building rural unregistered homes, building mining equipment, and opening roads, which is not adequately covered in the accounts, is important.

The second, and possibly gravest omission refers to maintenance, repair, and improvement expenditures. Their exclusion from the national

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[1] Capital formation is non-monetary in the sense that the respective capital goods do not pass through a market and labor used to produce them is only partially paid money wages.

accounts[1] leads to a substantial underestimate of investment. The importance of these expenditures can be understood best if they are divided into two categories. The first type of expenditure is necessary for the normal performance of a capital good and in order for a capital good to live a "normal" period. The "normal" life expectancy can be defined as the one assigned to the capital good in the country which produces it.[2] I do not believe that this type of maintenance and repair expenditures should be included in the national accounts. The second type of repair and improvement expenditures multiplies the normal life expectancy of a capital good and therefore has a distinct function from the first one. Since for all practical purposes, "new" capital goods are created as a result of these improvement and repair expenditures, their exclusion from capital formation would lead to omission of an important part of "national capital goods production." It can be said that in Chile there exists a "repair quasi-capital goods sector" which uses as inputs old second-hand capital goods and comes out with "new ones." The very scarcity of imported machinery and equipment provides the inducement for such operations, and the extremely high prices paid for "second-hand" and old capital goods proves that repairs have indeed been prolonging the useful life of capital goods. In Chile it is not difficult to find moderately priced, efficient machines and other capital goods from the 19th century.

Furthermore investment figures are likely to have been underestimated because of the use of inadequate methods for converting dollar values into escudo values, and due to inadequate deflation indexes. The

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[1] UNECLA, Seminario, p. 165.

[2] This country would normally be a developed one.

variety of regulations covering imports of capital goods, the presence of free ports in Arica and Punta Arenas, the continuous but uneven inflation, and the diversified origin of capital goods, cast doubt on CORFO's procedure of using one exchange rate for all conversions of dollar values into escudo values. Although this procedure is regarded by many as the only operational one, it has tended to underestimate the relative escudo value of capital goods imports as a result of the overvaluation of the peso in general, and the even higher degree of overvaluation with respect to many capital goods imports.

The undervaluation of investment, due to the aforementioned major biases, is estimated to be in the neighborhood of 20 to 40 percent. In order to measure the impact of this underestimate on personal saving, two revised sets of the investment account were prepared. In the first set, gross investment was adjusted upwards by 20 percent; in the second set, a 40 percent adjustment was made. A corresponding adjustment was made only in the construction component of investment even though at least part of this adjustment should be attributed to the machinery and equipment component.

A2. Gross Domestic Saving and its Components.

Gross domestic saving has not been estimated independently, but was assumed to be equal to gross capital formation. The global figures of investment and saving, which appear in the extreme left and right sides of Figures one and two, were always identical.

As already mentioned, personal saving has been estimated residually. Its magnitude depends, therefore, on the value of investment, on the one

side, and on the values of the various saving components deducted from investment to reach personal saving, on the other side. We have discussed three biases in investment estimate and can therefore conclude that personal saving has been underestimated by as much as investment has been underestimated. The next step is to examine and evaluate the various saving components that are being deducted from gross saving to obtain personal saving.

A2a. We start with the surplus or deficit of the nation on external account which we have also called foreign saving. This item is calculated in the external transactions account, which is presented below for selected years, and is subsequently entered in the saving account. If the external transactions account shows a deficit of the nation on external account, foreign saving in the saving account is positive, and vice versa. Foreign saving is entered in the lower right side of Figures 1 and 2.

The external transactions account shows that Chile had a deficit in 1940, a surplus during 1941-1946, 1948, 1952 and 1954, and deficits in the remaining years until 1965. A continuous deficit of the nation on external account started after 1956. During seven years between 1940 and 1950 the nation had a surplus on external account, but only during three of these years, were savings of persons and non-profit institutions positive. It does not therefore follow that a surplus on external account is causally linked with positive personal saving. Furthermore, both in 1950 and 1953, personal savings were positive even though the nation was incurring a deficit on external account. An examination of the foreign trade statistics also shows that between 1940 and 1956 imports exceeded exports only in 1949,

Table 2

External Transactions Accounts Selected Years.
(in millions of escudos, current prices)

Receipts from Abroad	1940	1945	1950	1952	1955	1960	1962	1965
A. Exports of goods and services	3.7	7.0	17.0	33.8	96.8	562.0	671.0	2578.0
B. Factor income from abroad	-	-	-	-	0.4	-	-	-
C. Transfer payments to individuals	-	-	-	-	-	38.9	15.0	60.0
D. Transfer payments to government								
E. Current receipts from abroad	3.7	7.0	17.0	33.8	97.2	621.2	686.0	2638.0
Payments to Abroad								
F. Imports of goods and services	2.7	5.6	14.5	28.3	80.1	690.9	745.0	2412.0
G. Factor income paid abroad	1.1	0.8	2.7	4.3	14.6	79.0	104.0	390.0
H. Transfer payments from individuals	-	-	-	-	0.1	-	-	-
I. Transfer payments from government								
Current Payments	3.8	6.4	17.2	32.6	94.8	769.9	849.0	2802.0
J. Surplus of nation on external account	-0.1	0.6	-0.2	1.2	2.4	-148.7	-163.0	-164.0
K. Current payments to abroad and surplus	3.7	7.0	17.0	33.8	97.2	621.2	686.0	2638.0

and even then only by a small margin. Also, therefore, it does not follow that negative personal savings are exclusively caused by a deficit on external account. Such a deficit can be a major, but by no means the only, cause for negative personal saving.

It is important to pause at this moment and analyze three major definitions of foreign saving. According to the first, and most narrow definition, foreign saving is defined as the excess of imports over exports.

That is,

$$(4) \quad S_f^1 = M - X$$

where M stands for imports and X for exports. The unique characteristic of this definition is that it excludes factor payments on both sides.

The second definition, which is broader and has been used in the Chilean national accounts, was already presented earlier in this essay and states that foreign saving is equal to the surplus or deficit of the nation on external account. That is,

$$(5) \quad S_f^2 \equiv M - X$$

where M stands for current payments to abroad and X for current receipts from abroad. According to this definition, foreign saving is the sum of the trade gap, as defined in equation (4), and net repatriated income of foreign factors, of production (Y_f). That is,

$$(5.1) \quad S_f^2 = M - X + Y_f$$

Thus, if factor payments are excluded both on the export and the import side, the first definition is obtained; if they are included, the second is obtained. In either case, foreign saving is determined by an accounting procedure and has little or nothing to do with the actual stock of foreign investment or saving in the country, or, with the total financial flows with abroad.

The size of S_f^2 determines the net foreign borrowing that the economy has to undertake in order to maintain its actual level of imports and foreign factor payments. Since the term (M - X) stands for payments for the use of foreign-produced commodities, and Y_f reflects the actual price the economy has to pay, over a one year period, for the services provided by foreign capital and labor, I cannot see any particular reason why one type of payment for the

use of foreign resources is included in the first definition of foreign saving, namely (M -X), while another type of payment, that is Y_f is excluded.

However, even the second definition provides an inadequate picture of what an economy is receiving from or giving abroad. To cure this deficiency, which will be further explained below, a third concept of foreign saving is presented. Foreign saving is defined here to include also the volume of external resources the economy needs to meet its actual depreciation and amortization (A) payments on its external debt. Thus

$$(6) \quad S_f^3 = (M - X) + Y_f + A$$

The rationale behind this definition is simple. In order for an economy to maintain the observed levels of investment and consumption, it is forced to borrow from abroad sufficient funds to meet its current contractual amortization payments, its current income payments to foreign factors of production, and also what is necessary to pay for the excess of imports over exports.

The value of S_f^3 describes the gross foreign resource requirements of an economy. These gross foreign resource needs can be usefully contrasted with the net foreign resource requirements arising from a simple excess of imports over exports. The normal experience in models dealing with the import or foreign exchange gap is to deal with the net rather than the gross gap and corresponding resource (aid) needs. It is the real resource influx that matters, the argument goes, and this influx is adequately measured by the magnitude of $M - X$.[1] This attitude is rather simplistic and assumes, first, that the refinancing of foreign debt is an easy matter, second, that

[1] Most of the so-called two-gap models deal with foreign saving as determined by (M-X).

the magnitude of $M - X^1$ that an economy can maintain or aim for has no relationship to the size of the economy's foreign debt, and, third, that insofar as planning of external financing is concerned, the use of net magnitudes is superior to the use of gross magnitudes.

Both for consistency and practical reasons, it may be necessary to redefine foreign saving and make it broader than the surplus of the nation on external account. The consistency factor is the most compelling one. Currently, the savings account includes an internal saving flow and a foreign saving flow. The internal saving flow is a gross one, with a "replacement" and a net saving component. The foreign saving flow, however, is a net saving one and excludes the component of the foreign saving flow needed to replace the foreign debt component that is amortized. The present formulation of the foreign saving component is also inadequate in the sense that it does not provide an accurate measure of the total or gross contribution of foreign countries to the domestic development effect and is also underestimating the future needs for external financial resources.

In the following table we present S_f^2 and S_f^3 as percentages of gross domestic product, investment, and imported machinery and equipment. This permits disucssion of some actual measurement problems.

The following observations and conclusions can be made or drawn from Table 3. First, S_f^3 has been consistently and substantially higher than S_f^2. Second, during many years, especially of the 1942-1952 period, when the economy was lending resources abroad according to the S_f^2 definition of foreign saving,

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[1] Or, $M' - X'$.

Table 3

Foreign Saving and its Relation to Investment in Chile, 1942-1964

Year	S_f^2 as % of GDP (1)	S_f^3 as % of GDP (2)	S_f^3 as % of I (3)	I_{inf} as % of GDP (4)	Column (2) as % of Column (4) (5)	Column (1) as % of Column (4) (6)
1942	-1.9	.31	3.53	2.4	13.0	-79.2
1943	-2.8	.55	5.84	2.2	25.0	-127.3
1944	-0.9	1.89	15.86	1.9	99.5	-47.4
1945	-1.2	2.27	20.29	2.1	108.1	-57.1
1946	-0.3	2.51	15.43	2.8	89.6	-10.7
1947	1.9	3.48	55.60	4.4	79.1	43.2
1948	-0.7	1.47	12.06	3.6	40.8	-19.4
1949	2.0	3.41	29.31	4.5	75.8	44.4
1950	0.1	2.16	19.44	3.7	58.4	27.0
1951	1.0	2.43	23.85	4.3	56.5	23.3
1952	-0.5	2.07	24.18	3.9	53.1	-12.8
1953	0.7	2.46	19.66	3.2	76.9	21.9
1954	0.3	2.24	34.95	2.2	101.8	13.6
1955	-0.2	2.00	24.54	2.7	74.1	-7.4
1956	0.1	2.02	20.20	4.3	47.0	2.3
1957	3.1	5.81	58.16	7.5	77.5	41.3
1958	2.1	5.49	54.68	7.5	73.2	28.0
1959	0.7	4.76	47.22	5.3	89.8	13.2
1960	3.0	6.94	64.58	5.6	123.9	53.6
1961	4.7	9.54	71.09	6.7	142.4	70.1
1962	2.5	8.97	72.16	5.4	166.1	46.3
1963	2.2	9.94	77.90	6.7	148.4	32.8
1964	2.5	8.34	62.24			

Notes: Column (1) presents the surplus of the nation on external account as a percentage of gross domestic product. All statistical information necessary to make this calculation was extracted from official CORFO and ODEPLAN documents. A negative sign in front of the figures means that the country had a surplus, while a positive sign implies the presence of a deficit of the nation on external account.

Column (2) presents the foreign exchange deficit of Chile as a percentage of its gross domestic product. This deficit was measured by contrasting all current earnings of Chile, i.e., exports of goods and services, plus transfers, plus various miscellaneous earnings listed in the current account of the Balanza de Pagos, with all current expenditures, including amortization and other non-returned revenues of foreign investors. This deficit was identically equal to the sum of long - and short-term capital inflows.

Column (3) presents the percentage of the country's gross investment that has been financed by gross foreign saving (S_f^3).

Column (4) presents the value of imported machinery and equipment as percentage of gross domestic product.

Column (5) shows the fraction of machinery and equipment imports financed out of S_f^3 and Column (6) shows the fraction of machinery and equipment imports financed out of S_f^2.

Source: This information is extracted from a series of detailed tables prepared by the author from official information of the Chilean Central Bank, the Chilean Development Corporation, and the Planning Office of the Presidency of the Republic.

it was actually borrowing heavily from abroad according to the more general S_f^3 definition of foreign saving. Fourth, and this brings us to a crucial point of measurement, S_f^2 and S_f^3 have not always moved in the same direction. In reality, it is possible for them to develop in completely different patterns. This phenomenon develops because foreign dollar expenditures of Chile can be classified as belonging either to the current or capital account depending on a number of factors. As an example, repatriated profits of foreign investors do consistently appear in the capital account because of special legal dispositions. Furthermore, foreign enterprises are influenced in classifying their repatriated funds as profits or amortization by changing laws. Fifth, the rising share of S_f^3 in total saving, which is shown in column (4), leads to a secular reduction in the share of national saving, and, ceteris paribus, also to a reduction of personal saving. Thus, the possibility of obtaining a residual estimate of personal saving with a negative sign increases if the definition of S_f^3 is adopted for the national accounts, instead of the S_f^2 definition. Finally, column (6) shows that foreign saving defined by S_f^3 has frequently exceeded the total value of capital goods imports. This explicitly

shows that such saving has been used for consumer goods imports.

The aforementioned discussion of the foreign saving component of the saving account has shown some of the limitations of the existing methodology and has also indicated the indirect impact of different definitions of foreign saving on the magnitude of personal saving.

A2b. The second item in the saving account, which is estimated independently, is the government surplus on current account. This item is introduced from the general government and current expenditure account presented in Table 4. Government, according to this table, has shown a surplus on current account throughout the 1940-1954 period.

There exist strong reasons to suspect the accuracy of this estimate. First, the government may run a continuous deficit but come up with a nominally balanced budget at the end of the calendar or fiscal year. The reason behind the phenomenon is the continuous inflation. As a result of rapid inflation, the revenues collected at the end of the year (it has been customary in Chile for most of the taxes to be paid once and at the end) have the same nominal value, but a substantially lower real value, than the same expenditure incurred during the course of the preceding year. The procedure of lumping together receipts and expenditures of government for a fiscal year, as if the timing of the respective transactions were of no material consequence, is acceptable in an economy with no significant inflation but implies using one yardstick for measuring two distinctly different entities in an economy suffering from inflation. A government deficit or surplus in an inflationary economy can be measured accurately only if revenues and expend-

Table 4

General Government and Current Expenditure Account, Selected Years
(in millions of escudos, current prices)

Current Revenues	1940	1945	1950	1952	1955	1960	1962	1965
A. Payments by producers								
1. Corporate profits taxes	0.5	1.3	3.5	9.2	31.0	152.1	193.0	728.0
2. Property income paid to government	0.3	0.4	1.9	2.5	10.4	60.8	53.0	167.0
B. Payments by individuals								
1. Social insurance contributions	0.7	2.0	6.6	11.6	51.6	364.3	480.0	1621.0
a. By wage and salary earners	0.3	0.9	2.1	4.5	16.6	98.6	130.0	423.0
b. By employers	0.4	1.1	4.5	7.1	35.0	265.7	350.0	1198.0
2. Taxes on personal income	0.2	0.3	2.0	2.9	9.1	49.9	72.0	390.0
C. Transfer payments from abroad	-	-	-	-	-	25.6	10.0	9.0
D. TOTAL RECEIPTS	3.1	7.9	25.0	44.1	182.4	1141.9	1488.0	4989.0
Current Expenditures								
E. Government current expenditures	1.6	5.0	13.7	24.4	106.8	510.7	761.0	2143.0
F. Subsidies	0.1	0.3	2.0	4.7	14.4	136.4	156.0	515.0
G. Transfer payments to individuals	0.3	1.3	6.3	11.5	48.0	369.1	481.0	1514.0
H. Transfer payments to abroad	-	-	-	-	0.1	-	-	-
I. Surplus on current account	1.1	1.3	3.0	3.5	13.1	125.7	90.0	817.0
J. TOTAL CURRENT EXPENDITURES AND SURPLUS	3.1	7.9	25.0	44.1	182.4	1141.9	1488.0	4989.0

itures are deflated properly and expressed in real terms. It would be necessary to publish monthly revenue and expenditure statistics, then deflate each month's (or even day's if inflation is rampant) figures by an appropriate price index, and compare the totals. One year's inflation in Chile has been as much as forty years inflation in the United States. Everyone would consider

it absurd to define the government's budget as balanced if expenditures of forty or thirty years ago were covered by the depreciated currency of today. For the same reason, the receipts would have to be discounted for inflation, if they come at the end of the year, to be comparable to early expenditures. Without the use of an appropriate discount factor the receipt and expenditure items are not strictly comparable.

Second, the government surplus on current account has been inflated by shifting current expenditures into the capital account for "window-dressing" purposes. Stated differently, the Chilean capital account includes expenditures, such as administrative wages and salaries, which are not included on the investment side of the investment-saving account. To be specific, general administrative expenditures of the Land Reform Corporation and other agricultural corporations appear under agricultural investment in the capital account.[1]

It is possible, even though it cannot be proven in this essay, that government has run a deficit in its current account for many years.[2] The presence of such a deficit automatically raises personal saving above the figure currently reported in the national accounts.

A2c. Saving by firms is composed of undistributed profits, adjustments in the valuation of stocks, reserves for depreciation, indemnification for acci-

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[1]For the figures concerning agriculture see Tables 25 and 28 in República de Chile, Balance Consolidado del Sector Público de Chile, Año 1964 (Santiago, Chile: Talleres Gráficos "La Nación", 1965). The same is true for other sectors also even though to a lesser degree. See, Ibid., tables 22-28, and especially summary tables 23, 27, and 28.

[2]According to published, official information the general government incurred a deficit in its total (current plus capital) account between 1950 and 1957 even though the national accounts have reported a surplus in its current account.

dental damage of fixed assets, and the statistical discrepancy.[1]

Undistributed profits are estimated residually by deducting from total profits direct taxes and distributed profits. "The figures have an error inherent in all estimates of profits, in addition to the one present in the estimates of distributed profits."[2]

The figures about adjustments in the valuation of stocks refer to the inventories of industry and trade. The corresponding calculations are based on data concerning the assets of industry published in the continuous official statistics and concerning the assets of the commercial joint-stock corporations. Since it is reputed that this information indicated stocks inferior to the real ones, it is almost certainly true that the estimates concerning adjustments in the valuation of stocks have errors. However, it has been impossible to correct these errors for lack of background information about the size of the underestimate mentioned above.[3]

Finally,[4] according to the official CORFO document, "capital consumption allowances are an estimate of depreciation at replacement value based on data concerning the age of equipment and the assets of enterprises or the valua-

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[1] UNECLA, Seminario, p. 164. In the final revised estimates of saving both by CORFO and the Planning Office, saving by firms is merged into undistributed profits and capital consumption allowances.

[2] Ibid., p. 164.

[3] UNECLA, Seminario, p. 164.

[4] The estimates of the indemnification for the accidental damage of fixed assets are based on information originating from insurance companies. They constitute complete and reliable information (Ibid., p. 165)

tion of fixed capital goods. The use of this statistic, which suffers from sizeable and fluctuating underestimates, creates complex problems which have not yet been totally resolved even though this is in the process of being done."[1]

Among the various components of business saving, it is the estimate of depreciation allowances that is the most questionable one. I therefore intend to provide a detailed evaluation of only this item and assume that the margin of error in the other ones is relatively small.

For depreciation purposes, capital goods have been divided into four major categories: (1) rolling material, with a useful life of six years; (2) furniture, tools and fixtures, with a useful life of ten years; (3) machinery and equipment, with a useful life of twenty years, and (4) buildings and installations, with a useful life of fifty years. Up to 1949, depreciation allowances were calculated on a global level. Since 1949, however, and increasingly so in recent years, attempts have been made to estimate capital consumption allowances on a sectoral level and by estimating the life expectancy of a more detailed variety of capital goods.[2] The aforementioned division

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[1] Ibid., p. 164.

[2] A serious effort to obtain more realistic estimates of the useful lifetime of capital goods was started by the Planning Office in 1966. Presented below is a list of the useful life (vida útil) assigned to capital goods by the Planning Office, which is currently in charge of the preparation of national accounts. In agriculture, irrigation works, drainage and constructions are assigned a useful life of 50 years; installations, closures and fruit plantations, 10-50 years; vineyards, 30 years; forest plantations, 8-20 years; artificial meadows with more than one year's duration, 2-6 years; cultures with more than one years' duration, 2-4 years; livestock, up to 10 years; machinery, 10-30 years; and tools and fixtures, 10 years.

Capital consumption allowances, which have exceeded investment in eight years[1] and have ranged between 50 and 100 percent of investment during the remaining years of the 1940-1965 period, appear to be strongly overestimated for the following major reasons. First, the life expectancy assigned to them is not only below what they are being assigned in developed nations, as, e.g. in the case of buildings, but also substantially below the real period of useful life they seem to enjoy in Chile. Although only the current research efforts by the Planning Office can provide the evidence necessary to revise the life expectancy tables previously applied to capital goods, it is suggested here that, on the average and for the majority, actual useful lives are at least twice as high as the ones mentioned above. Since it is believed that depreciation allowances have been overstated during 1940-1960 by at least 50 percent, a 50 percent downward adjustment of the respective figures were made and the respective figures are presented at the end of the essay. These revisions, it should be added, have the character of suggested recommendations, even though, it is believed, they come very close to reality. The two new estimates of personal saving, along with the original, official one, are presented in Figure 3. It is worth noting that the second revised estimate, which results from a 50 percent reduction in depreciation allowances and a 40 percent increase in investment, leaves personal saving negative only in 1954.

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[1] In 1952, as shown on the right side of Figure 1, capital consumption allowances exceeded gross investment by 15 percent. As Figure 2 shows, capital consumption allowances have exceeded gross investment in 1960 by more than 50 percent. Even during earthquake years such depreciation levels are excessively high.

PERSONAL SAVING AS % OF GROSS DOMESTIC PRODUCT

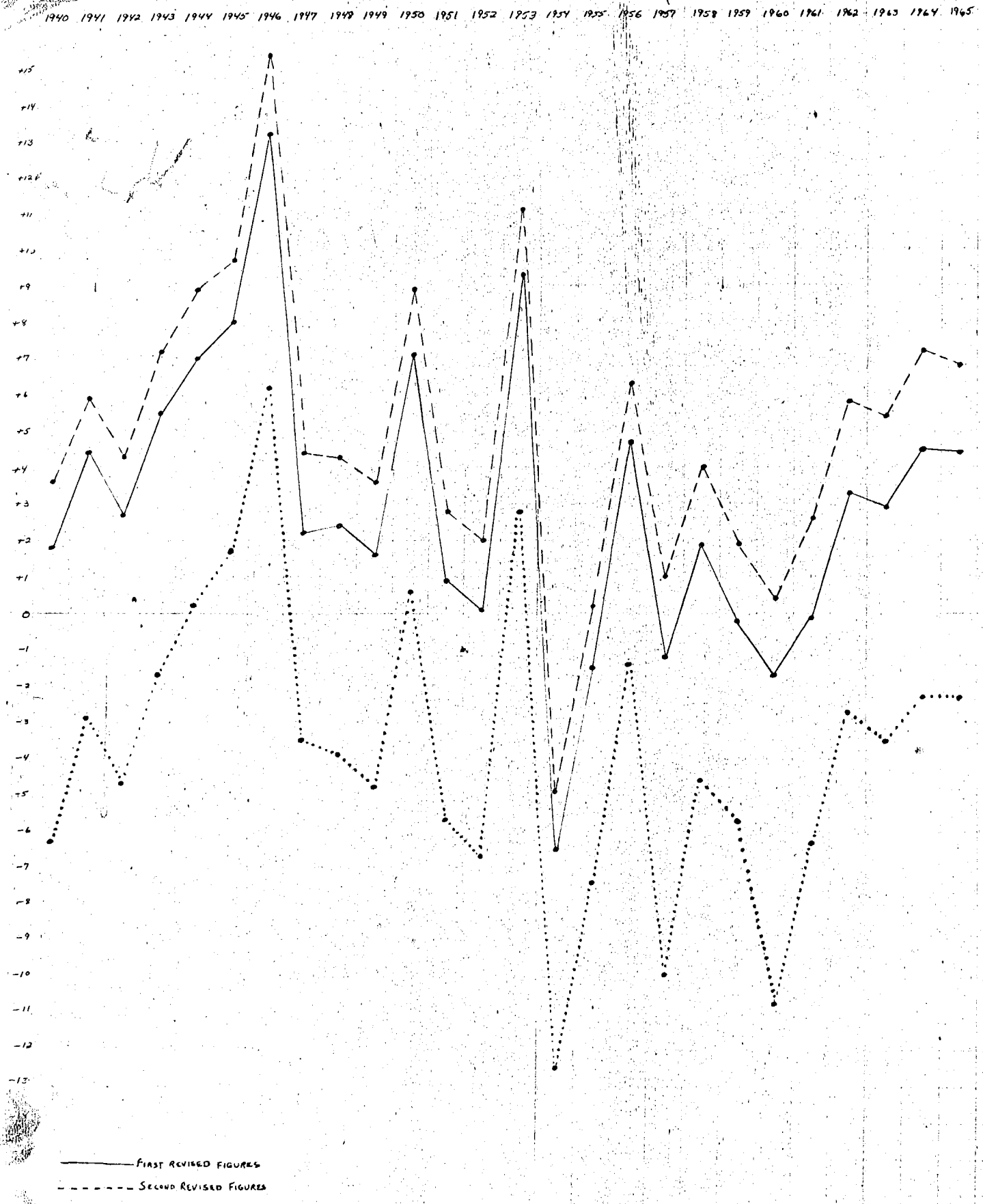

FIGURE 3

The following indirect evidence is cited in support of the view that depreciation allowances are too liberal and useful life estimates too conservative. All types of automobiles and vehicles enjoy extremely high market values; the 1940 models are as expensive as new cars in the United States. The same is true with practically all machinery and equipment. It appears that in Chile the only reason a capital good will not operate is the lack of imported spare parts. Furthermore, the high resale value of old, second-hand, producer durables, their lengthy utilization, and the following factors causing these phenomena can be cited as indirect evidence.

Chile is forced to import almost all necessary producer durables and has operated since 1930 under a severe balance of payments constraint that has repeatedly led to heavy rationing of capital goods imports. Machinery and equipment goods are not easily replacable, and the economy has relied on heavy spare parts imports, and repair and maintenance expenses to prolong the machinery's lifetime. Due to the relative abundance and low cost of labor, and by applying labor to preserve the capital stock, the capital-labor ratio is being reduced below the one originally incorporated in the capital good. This is achieved by constantly applying labor to prolong the capital good's useful life. Heavy maintenance and repair expenditures and a prolonged lifetime are actually a method by which imported capital-intensive technology is adapted to the local resource endowment and transformed into a labor intensive one.

The second major factor leading to an overestimate is related to the method developed to estimate depreciation in replacement values. Hernán Kappes, who was assigned in the middle 1950's the task of eliminating the distorting

impact of inflation from the depreciation estimates, developed a method of expressing investment, depreciation and capital stock figures in "replacement values".[1]

The replacement value depreciation formula has the serious shortcoming that, if applied partially, it can distort the relation between gross and net investment. In the Chilean national accounts an error arises because gross domestic investment is estimated by one method, namely the mixed product-expenditure procedure described earlier, which does not take complete account of the inflationary price rises, and depreciation is calculated at "replacement values" which are not linked to the cost of foreign exchange but the domestic cost-of-living index. Depreciation figures estimated by the Kappes method are inflated upwards, if compared to gross investment, by the difference in the rate of increase of the cost-of-living index and the index of the escudo-price of the dollar. Some of the inflation-induced distortions in the components of the saving account would have been eliminated if they were expressed in constant prices. Such a task has, unfortunately, never been undertaken.

Finally, it seems that the coverage of depreciation estimates has been more extensive than that of investment, and that, as a consequence, items were being depreciated that had not been previously included in the investment estimates. This seems to have been the case with respect to construction and related works in agriculture, mining, and services.

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[1] For a detailed description of this method see Hernán Kappes Barrientos, Calculo de Depreciación para Uso en Cuentas Sociales. Un Método General Aplicado a la Industria, Memoria en Economía. Santiago, Chile: Universidad de Chile, 1959 (mimeographed).

B. Behavioral Factors Affecting Personal Saving.

Whatever the biases or errors in the statistical methodology might be, they do not provide a complete explanation for the low level of personal saving. It is, therefore, important to discuss other factors that may have contributed to their low level.

The vast transfer payments from government to households, which are an effect and symptom of the Welfare State is one factor that had a downward impact on personal saving. These transfers, and family allowances have been the major one, have either exceeded or been very close to the total employer and employee contributions to the social security system during 1950-1965. Apparently, households have treated these transfers as gifts and adjusted their consumption patterns upwards.

In a Welfare State it is possible that the behavior of government rather than that of households causes low overall household savings. If the poor, who presumably consume all they are given, receive an amount of resources exceeding the savings of the upper-income households, total personal savings can be reduced and possibly turned into negative.

Furthermore, to the extent that government converts part of the income of the business sector, that could be invested, into subsidies to the poor, by means of imposing high employer's social security contributions and handing out high transfers, as it is doing in Chile, it introduces an unsettling and negative element in the growth process. Investment funds which, if invested, would provide future employment and higher income for all, including the poor, are spent today on household subsidies and consumption. This process has a transitory short-run palliative effect but substantial

negative long-run growth consequences.[1]

Under such circumstances, the phenomenon of overall negative savings of the household sector reveals little about the average and marginal propen- to save of the upper or middle income groups.[2] For example, household savings out of income, excluding transfers, could run a healthy 3-4 percent of domestic product, with all saving done by the rich, but net government transfers to the household sector of 5 percent of domestic product, could wipe out all personal saving by subsidizing the non-saving lower income groups.

A remedy to excessive government transfers to households can be introduced by setting a legal ceiling on such transfers. According to one such ceiling, not more than 80 percent of the household sector's nontax contributions to government could be returned in the form of transfers.

C. Real and Structural Factors Affecting Personal Saving.

It is not sufficient to state that government prefers to consume rather than invest. After all, government has shown through its investment and development program that it can be a massive, if not always efficient, investor. Furthermore, it is also not sufficient to say that households

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[1] An extensive discussion of non-statistical factors influencing directly the level of investment and indirectly personal saving is found in Markos Mamalakis, "Public Policy and Sectoral Development. A Case Study of Chile 1940-1958", published in Essays on the Chilean Economy by M. Mamalakis and C. W. Reynolds (Homewood, Illinois: R. D. Irwin, Inc., 1965), pp. 54-82, and 149-168. This earlier study does not contain an evaluation of the national accounts or any specific item of the accounts.

[2] Juan Crocco presents figures on saving provided by persons, and saving received by persons for 1950-1962. These figures indicate that some persons saved vast amounts, while these same or other persons proceeded to borrow even vaster amounts. See Juan Crocco Ferrari, "El Ahorro y la Inversión" Geografía Económica de Chile, Texto Refundido, published by CORFO (Santiago, Chile: Editorial Universitaria, 1965), Tables 1 and 2, pp. 858-59.

will consume rather than save their disposable income. Some years they have displayed positive savings and it is also known that during earlier decades this dissaving process did not take place. More important than that, we have to explain the process that has permitted households to dissave. Did they increase their liabilities in the hands of government and business firms? Did they continually liquidate previously accumulated net assets? Or, did government, business, and foreign transfers fill the gap between current earnings, and other receipts and consumer and other expenditures?

The answer is that households were able to borrow continuously and still have the real value of their outstanding debt fall. Inflation wiped out most of the household sector's debts.

The following real, structural, or institutional factors seem to have facilitated household spending, or reduced household saving. First, the almost unlimited possibility to borrow without an escalator clause attached to debts.[1] Second, the expectation that inflation would reduce the real burden of debt. Excalator clauses have been strongly and effectively objected to by households, who relied on inflation to reduce the real value of their debts. Third, the lack of symmetry between real foreign debt and real domestic debt. Chile's foreign indebtedness rose from $800 million in 1955 to close to $2 billion in 1964 without any traceable increase in internal indebtedness of government, firms, or households. Households were able to consume far more than they produced without increasing, thanks to

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[1]According to Juan Crocco, who has up to recently been in charge of of the preparation of national accounts, personal dissaving was made possible by the credit extended to the household sector by enterprises.

inflation, their liabilities. Without any built-in constraint on excessive consumption either in terms of reduced or more expensive borrowing, "burdenless" dissaving increased. Finally, and this is by no means a complete list, saving was made difficult by the lack of inflation-proof assets.

Without question one of the important reasons why savings were not higher during the years of inflation was the lack of adequate savings channels.[1] Savings deposits in banks[2] were not readjusted and the interest rate authorized was highly negative, so that these deposits in effect were elimated. In 1965 a law was passed introducing a cost-of-living index clause to saving deposits but has not yet resulted in any substantial increase in saving, mainly because the State Bank has a monopoly in accepting saving deposits.[3] Furthermore, insurance, during the inflation, was used exclusively for protection and not as investment.[4] Also, although the social security institutions had a considerably greater income than their current payments, and an important part of this surplus was invested in housing construction, another important part was dissipated in fixed value loans to favored members

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[1] Instituto de Economia, unpublished study on Saving and Investment.

[2] The lack of adequate money and capital markets in Chile and its negative impact upon personal saving is described in detail in the following document. International Bank for Reconstruction and Development, International Development Association, Development of a Capital Market in Chile, The Report, (Washington, and Chile: IBRD, January 19, 1965) pp. 1-13 and Appendices.

[3] Banks cannot receive desposits in dollars and although stock brokers received dollar deposits in the late fifties, to be re-lent in large part for import deposits, a number of brokers went bankrupt at great loss to the depositors, so that this channel was not considered reliable. Even though the brokers had not gone bankrupt, this channel would not have been open for the great mass of small investors.

[4] A discussion of the effects of inflation on the insurance companies is found in Jorge Bande, La Política del Seguro Privado (Santiago, Chile: Editorial Universitaria, 1953), pp. 112-120.

of the pension plans.[1]

The Chilean stock market also proved to be an unsatisfactory investment opportunity, as many shares failed to increase in value enough to compensate for inflation.[2] Furthermore, the anti-inflationary policy introduced at the end of 1964, and lack of confidence, have caused an unprecedented decline in stock prices.

One of the best investment opportunities during the inflation has been agricultural land. A study by the Institute of Economic Research[3] showed that in the period 1940-1958 agricultural land increased in value much more rapidly than the dollar on the free market and increased in real terms whether deflated by the cost of living, wholesale prices, or agricultural prices.[4]

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[1] A discussion of this problem can be found in the report of the Klein-Saks Mission, El Sistema de Previsión Social Chileno.

[2] The results of three studies of the return on stock investments are found in Luis Escobar Cerda, El Mercado de Valores, (Santiago, Chile: Editorial del Pacífico, 1959), pp. 1-274, together with a general description of how the Chilean stock market operates.

[3] Instituto de Economía, Universidad de Chile, La Tributación Agrícola en Chile, 1940-1958 (Santiago, Chile: Instituto de Economía, 1960), pp. 1-213.

[4] Some of the first measures of the Alessandri government were intended to improve savings and investment opportunities. Banks were permitted to receive dollar deposits and the government itself sold dollar bonds, thus providing the investor with a partial hedge against inflation. Bank savings-deposit interest rates were permitted to revalue their assets so as to bring depreciation into line with the increased cost of replacement of their capital goods.

Another important innovation was the establishment of personal savings accounts by the Corporación de la Vivienda (CORVI) a government institution charged with the construction of low-cost housing in Chile both for its own account and for the account of the social security institutions. At present, private individuals can open an account and sign a contract with CORVI promising to deposit a certain sum monthly in their account. When they have accumulated a minimum sum under the terms of the contract, they are entitled to a housing loan from CORVI. Both the savings deposit and the con-

We can conclude this section by stating that introduction of escalator clauses in most consumer, and other types of credit, and assets in the economy can be a most efficient means of raising personal saving. Such clauses could reduce, or even wipe out, the massive net borrowing of the debtor part of the household sector, and possibly stimulate further saving by the "creditor segment" of the household sector.

Conclusion

The presence of negative personal saving in Chilean national accounts has to a large extent been a methodological artifact. Accurate estimates of personal saving are needed for planning but will not be obtained as long as this item is calculated residually. The nature of Chile as a medium-sized underdeveloped country relying heavily on imported producers' durables and suffering from acute secular inflation are the factors largely responsible for the methodological problems faced by those making the estimates. However, any attempt to raise personal savings in the future, once accurate estimates

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Footnote 4 from page 38 continued

struction loan are readjustable in line with general wage increases. In 1964, a one percent payroll tax has been established, the proceeds of which go to CORVI. For the worker the tax is in effect forced savings, as part of it will be credited to his savings account in CORVI if he has one.

Another innovation, the establishment of private savings and loan associations, was made possible by government decree in the late fifties.

Long urged by the Cámara de Construcción and supported by Point IV, the associations would receive readjustable deposits and make readjustable construction loans.

Two studies by the Instituto Chileno del Acero describe the proposal and demonstrate how it could work out in practice: Antecedentes para el establecimiento de un sistema de ahorro y préstamo para la vivienda, and Asociaciones de Ahorro y Préstamo para la vivienda, análisis de su funcionamiento.

The Christian Democratic government has introduced since 1965 saving accounts protected from inflation.

have been obtained, will have to include policies affecting the money and capital markets, taxation, the social security program, the balance of payments and inflation.

TABLE : 3

Gross Domestic Capital Formation Account
(Millions of escudos, in 1961 Constant Prices)

Gross Domestic Capital Formation	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949
A. Gross fixed capital formation	241.0	237.6	189.0	202.9	228.2	241.0	333.8	366.9	325.8	372.6
1. Construction and other works	132.9	133.2	104.2	115.7	152.3	151.2	201.4	175.7	149.1	163.0
a. Buildings	106.9	111.6	85.0	94.5	113.0	113.7	164.4	131.5	114.2	116.4
b. Public works	22.0	18.3	16.1	14.3	20.2	26.8	30.9	37.1	23.7	26.0
c. Other construction	4.0	3.3	3.1	6.9	19.1	10.7	6.1	7.1	11.2	20.6
2. Machinery and equipment	108.1	104.4	84.8	87.2	75.9	89.8	132.4	191.2	176.7	209.6
a. Imported	95.2	88.8	64.8	70.1	62.2	78.2	115.8	174.0	160.6	191.8
b. National	12.9	15.6	20.0	17.1	13.7	11.6	16.6	17.2	16.1	17.8
B. Change in stocks	10.0	6.2	8.5	22.0	62.3	66.0	139.6	-142.6	92.9	39.1
C. Gross domestic capital formation	251.0	243.8	197.5	224.9	290.5	307.0	473.4	224.3	418.7	411.7
Gross Domestic Saving										
D. Gross Domestic Saving	251.0	243.8	197.5	224.9	290.5	307.0	473.4	224.3	418.7	411.7
E. Deficit of the nation on current account										
F. Gross national saving										

Continued

TABLE 3

Gross Domestic Capital Formation Account
(Millions of escudos, in 1961 Constant Prices)

Gross Domestic Capital Formation	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959
A. Gross fixed capital formation	344.0	391.5	409.6	413.7	400.8	464.1	442.1	505.7	497.7	429.2
1. Construction and other works	151.5	160.7	170.1	198.9	210.6	226.4	163.9	135.8	127.2	169.5
a. Buildings	113.5	107.8	110.5	141.1	142.3	162.3	107.2	82.8	77.2	106.2
b. Public works	30.7	38.8	44.1	42.8	47.3	44.5	39.3	35.2	33.7	47.7
c. Other construction	7.3	14.1	15.5	15.0	21.0	19.6	17.4	17.8	16.3	15.6
2. Machinery and equipment	192.5	230.8	239.5	214.8	190.2	237.7	278.2	369.9	370.5	259.7
a. Imported	174.9	213.2	221.1	197.6	172.2	219.5	259.1	353.1	357.2	246.3
b. National	17.6	17.6	18.4	17.2	18.0	18.2	19.1	16.8	13.3	13.4
B. Change in stocks	72.5	22.7	-26.9	132.3	-69.3	-8.1	70.2	-31.1	-12.7	22.3
C. Gross domestic capital formation	416.5	414.2	372.7	546.0	331.5	456.0	512.3	474.6	485.0	451.5
Gross Domestic Saving										
D. Gross domestic saving	416.5	414.2	372.7	546.0	331.5	456.0	512.3	474.6	485.0	451.5
E. Deficit of the nation on current account									83.4	26.2
F. Gross national saving									401.6	425.3

Continued

TABLE . 3

Gross Domestic Capital Formation Account
(Millions of escudos, in 1961 Constant Prices)

Gross Domestic Capital Formation	1960	1961	1962	1963	1964	1965
A. Gross fixed capital formation	556.0	720.0	746.0	758.0	777.0	808
1. Construction and other works	230.2	315.0	336.0	303.0	323.0	321
a. Buildings	135.0	180.0	180.0	154.0	146.0	144
b. Public works	77.5	110.0	125.0	111.0	145.0	142
c. Other construction	17.7	25.0	31.0	38.0	32.0	35
2. Machinery and equipment	325.8	405.0	410.0	455.0	454.0	487
a. Imported	293.6	370.0	374.0	419.0	416.0	443
b. National	32.2	35.0	36.0	36.0	38.0	44
B. Change in stocks	22.2	23.0	19.0	-	20.0	15
C. Gross domestic capital formation	578.2	743.0	765.0	758.0	797.0	823
Gross Domestic Saving						
D. Gross domestic saving	578.2	743.0	765.0	758.0	797.0	823
E. Deficit of the nation on current account	147.4	258.0	155.0	145.0	157.0	170
F. Gross national saving	430.8	485.0	610.0	613.0	640.0	653

TABLE I-3

Gross Domestic Capital Formation Account
(Millions of Escudos, in 1961 Constant Prices)

A. Gross fixed capital formation. Item "inversión geográfica bruta en capital fijo" from CORFO Table 5B (6) for the years 1940-1957. Same item from CORFO Table 4B (7) for the years 1958-1963, and from ODEPLAN Table 4B (13) for 1964 and 1965.

A1. Construction and other works. Item 1 from CORFO Table 5B (6) for the years 1940-1957. Item 2.1 from CORFO Table 4B (7) for the years 1958-1963 and from ODEPLAN Table 4B (13) for 1964 and 1965.

A1a. Buildings. Item 1.1 from CORFO Table 5B (6) for the years 1940-1957. Item 2.1.1 from CORFO Table 4B (7) for the years 1958-1963, and from ODEPLAN Table 4B (13) for 1964 and 1965.

A1b. Public works. Item 1.2 from CORFO Table 5B (6) for the years 1940-1957. Item 2.1.2 from CORFO Table 4B (7) for the years 1958-1963, and from ODEPLAN Table 4B (13) for 1964 and 1965.

A1c. Other construction. Item 1.3 from CORFO Table 5B (6) for the years 1940-1957. Item 2.1.3 from CORFO Table 4B (7) for the years 1958-1963, and from ODEPLAN Table 4B (13) for 1964 and 1965.

A2. Machinery and equipment. Item 2 from CORFO Table 5B (6) for the years 1940-1957. Item 2.2 from CORFO Table 4B (7) for the years 1958-1963, and from ODEPLAN Table 4B (13) for 1964, 1965.

A2a. Imported. Item 2.1 from CORFO Table 5B (6) for the years 1940-1957. Item 2.2.1 from CORFO Table 4B (7) for the years 1958-1963, and from ODEPLAN Table 4B (13) for 1964 and 1965.

A2b. National. Item 2.2 from CORFO Table 5B (6) for the years 1940-1957. Item 2.2.2 from CORFO Table 4B (7) for the years 1958-1963, and from ODEPLAN Table 4B (13) for 1964, and 1965.

B. Change in stocks. Item 4 from CORFO Table 1B (6) for the years 1940-1957. Item 3 from CORFO Table 4B (7) for the years 1958-1963, and from ODEPLAN Table 4B (13) for 1964 and 1965.

C. Gross domestic capital formation. Sum of items A and B.

D. Gross domestic saving. Item C from present table.

E. Deficit of the national current account. Item 3 from CORFO Table 4 (6) for the years 1940-1957. Item 1 from CORFO Table 4B (7) for the years 1958-1963, and from ODEPLAN Table 4B (13) for 1964 and 1965.

F. Gross national saving. Item "ahorra nacional bruto" from CORFO Table 4 (6) for the years 1940-1957. Item "ahorro nacional bruto" from CORFO Table 4B (7) for the years 1958-1963, and from ODEPLAN Table 4B (13) for 1964 and 1965.

TABLE 5

Gross Domestic Capital Formation Account - First Revised Figures*
(Current Prices)

Gross Domestic Capital Formation	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
A. Gross Fixed Capital Formation	2.9	3.2	3.2	4.1	5.4	5.6	9.4	10.9	12.0	15.8	17.2
1. Construction and Other Works	1.8	2.0	2.1	2.9	4.2	4.3	7.2	6.9	7.6	9.4	10.5
a. Buildings	1.1	1.2	1.3	1.8	2.6	2.6	4.8	3.8	4.5	5.0	5.9
b. Public Works	0.2	0.3	0.3	0.3	0.4	0.5	0.7	1.1	0.8	1.0	1.4
c. Other Construction	.5	.5	.5	.8	1.2	1.2	1.7	2.0	2.3	3.4	3.2
2. Machinery and Equipment	1.1	1.2	1.1	1.2	1.2	1.3	2.2	4.0	4.4	6.4	6.7
a. Imported	1.0	1.1	0.3	0.9	0.9	1.1	1.9	3.5	3.9	5.8	5.9
b. National	0.1	0.1	0.3	0.3	0.3	0.2	0.3	0.5	0.5	0.6	0.8
B. Change in Stocks	0.1	0.1	0.3	0.4	1.1	1.3	3.2	-4.1	3.2	1.5	3.3
C. Gross Domestic Capital Formation	3.0	3.3	3.5	4.5	6.5	6.9	12.6	6.8	15.2	17.3	20.5
Gross Domestic Saving											
D. Income Retained by Producers											
1. Capital Consumption Allowances	1.25	1.45	1.95	2.20	2.30	2.55	3.05	2.75	4.95	5.60	7.30
2. Retained Earnings of Corporations	0.6	0.4	0.6	1.0	0.5	0.8	1.2	1.6	5.5	5.6	2.5
E. Personal Saving	0.4	1.2	.9	2.2	3.3	4.3	8.9	1.8	2.7	2.0	11.2
F. Government Surplus on Current Account	1.1	1.2	1.5	1.3	1.4	1.3	0.9	1.6	3.3	4.3	3.0
G. Less: Surplus of Nation on Current Account	0.1	-0.1	-0.6	-1.1	-0.4	-0.6	-0.2	1.5	-0.7	2.5	0.2
H. Statistical Discrepancy	-0.4	-0.8	-0.8	-1.1	-0.6	-1.5	-1.2	-2.4	-0.5	•2.7	-3.7
I. Gross Domestic Saving	3.0	3.3	3.5	4.5	6.5	6.9	12.6	6.8	15.2	17.3	20.5

Continued

TABLE [illegible]5

Gross Domestic Capital Formation Account - First Revised Figures *
(Current Prices)

Gross Domestic Capital Formation	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960
A. Gross Fixed Capital Formation	23.0	29.4	38.6	57.0	104.2	166.0	296.4	371.9	486.0	615.6
1. Construction and Other Works	13.2	17.8	25.8	41.4	70.9	86.2	112.9	137.5	249.9	307.6
a. Buildings	6.6	8.6	14.2	22.3	37.7	35.6	33.4	39.9	107.9	110.4
b. Public Works	2.3	3.2	3.8	6.6	11.0	16.0	20.3	24.5	45.0	77.0
c. Other Construction	4.3	6.0	7.8	12.5	22.2	34.6	59.2	73.1	95.1	120.2
2. Machinery and Equipment	9.8	11.6	12.8	15.6	33.3	79.8	183.5	234.4	238.0	308.0
a. Imported	8.7	10.2	11.3	13.1	28.8	72.0	173.7	224.7	225.4	276.0
b. National	1.1	1.4	1.5	2.5	4.5	7.8	9.8	9.7	12.6	32.0
B. Change in Stocks	1.3	-2.0	11.9	-9.7	-2.0	28.5	-18.0	-9.2	211.0	22.0
C. Gross Domestic Capital Formation	24.3	27.4	50.5	47.3	102.2	194.5	278.4	362.7	507.0	637.6
Gross Domestic Saving										
D. Income Retained by Producers										
1. Capital Consumption Allowances	9.55	12.95	16.40	26.00	44.25	73.70	153.30	132.85	177.10	337.85
2. Retained Earnings of Corporations	8.5	17.1	5.9	61.6	59.9	65.6	76.1	84.9	263.0	140.4
E. Personal Saving	1.9	.3	32.8	-38.5	-15.2	77.6	-27.2	58.0	7.5	-82.7
F. Government Surplus on Current Account	7.3	3.5	2.6	11.6	13.1	20.3	67.8	31.5	24.2	125.7
G. Less: Surplus of Nation on Current Account	2.0	-1.2	2.4	1.6	-2.4	1.8	40.2	62.4	26.9	148.7
H. Statistical Discrepancy	-4.9	-5.2	-9.6	-15.0	2.6	-44.5	-61.8	-6.9	-101.7	-32.3
I. Gross Domestic Saving	24.3	27.4	50.5	47.3	102.2	194.5	278.4	362.7	507.0	637.6

Continued

TABLE 15

Gross Domestic Capital Formation Account - First Revised Figures*
(Current Prices)

Gross Domestic Capital Formation	1961	1962	1963	1964	1965
A. Gross Fixed Capital Formation	864.0	974.4	1,530.0	2,440.8	3,118.8
1. Construction and Other Works	459.0	573.4	804.0	1,268.8	1.677.8
a. Buildings	180.0	242.0	300.0	421.0	575.
b. Public Works	110.0	135.0	185.0	362.0	467.
c. Other Construction	169.0	196.4	319.0	485.8	635.8
2. Machinery and Equipment	405.0	401.0	726.0	177.2	1,441.
a. Imported	370.0	362.0	665.0	1,076.	1,297.
b. National	35.0	39.0	61.0	96.	144.
B. Change in Stocks	23.0	21.0	-	49.0	51
C. Gross Domestic Capital Formation	887.0	995.4	1,530.	2,489.8	3,169.8
Gross Domestic Saving					
D. Income Retained by Producers					
1. Capital Consumption Allowances	205.5	234.50	377.00	619.00	860.50
2. Retained Earnings of Corporations	141.0	194.0	304.0	432.0	423
E. Personal Saving	-1.5	218.9	287.	682.8	905.3
F. Government Surplus on Current Account	198.0	90.0	323.0	436.	817.
G. Less: Surplus of Nation on Current Account	288.0	163.0	213.0	320.	164.
H. Statistical Discrepancy	86.0	95.0	26.0	-	-
I. Gross Domestic Saving	887.0	995.4	1,530.	2,489.8	3,169.8

Continued

TABLE 5

*Gross Domestic Capital Formation Account - First Revised Figures
(Current Prices)

The figures found in this table are the same as those found in the table for Gross Domestic Capital Formation Account (current prices) and which were taken from CORFO documents, except that:

1. the figures for gross fixed capital formation were increased by 20%;
2. the 20% increment in the figures for gross fixed capital formation was also added to the figures for:
   a. construction and other works
   b. other construction;
3. the figures for capital consumption allowances were reduced by 50%; and
4. the figures for gross domestic capital formation, personal saving and gross domestic saving were adjusted accordingly.

TABLE . 16

Gross Domestic Captial Formation Account - Second Revised Figures *
(Current Prices)

Gross Domestic Capital Formation	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
A. Gross Fixed Capital Formation	3.4	3.7	3.7	4.8	6.3	6.5	11.0	12.7	14.0	18.4	20.1
1. Construction and Other Works	2.3	2.5	2.6	3.6	5.1	5.2	8.8	8.7	9.6	12.0	13.4
a. Buildings	1.1	1.2	1.3	1.8	2.6	2.6	4.8	3.8	4.5	5.0	5.9
b. Public Works	0.2	0.3	0.3	0.3	0.4	0.5	0.7	1.1	0.8	1.0	1.4
c. Other Construction	1.0	1.0	1.0	1.5	2.1	2.1	3.3	3.8	4.3	6.0	6.1
2. Machinery and Equipment	1.1	1.2	1.1	1.2	1.2	1.3	2.2	4.0	4.4	6.4	6.7
a. Imported	1.0	1.1	0.3	0.9	0.9	1.1	1.9	3.5	3.9	5.8	5.9
b. National	0.1	0.1	0.3	0.3	0.3	0.2	0.3	0.5	0.5	0.6	0.8
B. Change in Stocks	0.1	0.1	0.3	0.4	1.1	1.3	3.2	-4.1	3.2	1.5	3.3
C. Gross Domestic Capital Formation	3.5	3.8	4.0	5.2	7.4	7.8	14.2	8.6	17.2	19.9	23.4
Gross Domestic Saving											
D. Income Retained by Producers											
1. Capital Consumption Allowances	1.25	1.45	1.95	2.20	2.30	2.55	3.05	2.75	4.95	5.60	7.30
2. Retained Earnings of Corporations	0.6	0.4	0.6	1.0	0.5	0.8	1.2	1.6	5.5	5.6	2.5
E. Personal Saving	0.8	1.6	1.4	2.9	4.2	5.2	10.4	3.6	4.6	4.6	14.1
F. Government Surplus on Current Account	1.1	1.2	1.5	1.3	1.4	1.3	0.9	1.6	3.3	4.3	3.0
G. Less: Surplus of Nation on Current Account	0.1	-0.1	-0.6	-1.1	-0.4	-0.6	-0.2	1.5	-0.7	2.5	0.2
H. Statistical Discrepancy	-0.4	-0.8	-0.8	-1.1	-0.6	-1.5	-1.2	-2.4	-0.5	-2.7	-3.7
I. Gross Domestic Saving	3.5	3.8	4.0	5.2	7.4	7.8	14.2	8.6	17.2	19.9	23.4

Continued

TABLE 6

Gross Domestic Capital Formation Account - Second Revised Figures*
(Current Prices)

Gross Domestic Capital Formation	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960
A. Gross Fixed Capital Formation	26.8	34.3	45.0	66.5	121.7	193.7	345.8	433.9	547.0	718.2
1. Construction and Other Works	17.0	22.7	32.2	50.9	88.3	113.9	162.3	199.5	309.0	410.2
a. Buildings	6.6	8.6	14.2	22.3	37.7	35.6	33.4	39.9	107.9	110.4
b. Public Works	2.3	3.2	3.8	6.6	11.0	16.0	20.3	24.5	45.0	77.0
c. Other Construction	8.1	10.9	14.2	22.0	39.6	62.3	108.6	135.1	156.1	222.8
2. Machinery and Equipment	9.8	11.6	12.8	15.6	33.3	79.8	183.5	234.4	238.0	308.0
a. Imported	8.7	10.2	11.3	13.1	28.8	72.0	173.7	224.7	254.7	276.0
b. National	1.1	1.4	1.5	2.5	4.5	7.8	9.8	9.7	12.6	32.0
B. Change in Stocks	1.3	-2.0	11.7	-9.7	-2.0	28.5	-18.0	-9.2	21.0	22.0
C. Gross Domestic Capital Formation	28.1	32.3	56.7	56.8	119.7	222.2	327.8	424.7	568.0	740.2
Gross Domestic Saving										
D. Income Retained by Producers										
1. Capital Consumption Allowances	9.55	12.95	16.40	26.00	44.25	73.70	153.30	132.85	177.10	337.85
2. Retained Earnings of Corporations	8.5	17.1	5.9	61.6	59.9	65.6	76.1	84.9	263.0	140.4
E. Personal Saving	5.6	5.2	39.2	-29.0	2.2	105.3	22.2	120.0	78.5	19.8
F. Government Surplus on Current Account	7.3	3.5	2.6	11.6	13.1	20.3	67.8	31.5	24.2	125.7
G. Less: Surplus of Nation on Current Account	2.0	-1.2	2.4	1.6	-2.4	1.8	40.2	62.4	26.9	148.7
H. Statistical Discrepancy	-4.9	-5.2	-9.6	-15.0	2.6	-44.5	-61.8	-6.9	-101.7	-32.3
I. Gross Domestic Saving	28.1	32.3	56.7	56.8	119.7	222.2	327.8	424.7	568.0	740.2

Continued -

Table 6

Gross Domestic Capital Formation Account - First Revised Figures*
(Current Prices)

Gross Domestic Capital Formation	1961	1962	1963	1964	1965
A. Gross Fixed Capital Formation	864.0	974.4	1,530.0	2,440.8	3,118.8
1. Construction and Other Works	459.0	573.4	804.0	1,268.8	1.677.8
a. Buildings	180.0	242.0	300.0	421.0	575.
b. Public Works	110.0	135.0	185.0	362.0	467.
c. Other Construction	169.0	196.4	319.0	485.8	635.8
2. Machinery and Equipment	405.0	401.0	726.0	177.2	1,441.
a. Imported	370.0	362.0	665.0	1,076.	1,297.
b. National	35.0	39.0	61.0	96.	144.
B. Change in Stocks	23.0	21.0	-	49.0	51
C. Gross Domestic Capital Formation	887.0	995.4	1,530.	2,489.8	3,169.8
Gross Domestic Saving					
D. Income Retained by Producers					
1. Capital Consumption Allowances	205.5	234.50	377.00	619.00	860.50
2. Retained Earnings of Corporations	141.0	-194.0	304.0	432.0	423
E. Personal Saving	-1.5	218.9	287.	682.8	905.3
F. Government Surplus on Current Account	198.0	90.0	323.0	436.	817.
G. Less: Surplus of Nation on Current Account	288.0	163.0	213.0	320.	164.
H. Statistical Discrepancy	86.0	95.0	26.0	-	-
I. Gross Domestic Saving	887.0	995.4	1,530.	2,489.8	3,169.8

Continued

TABLE [illegible]6

Gross Domestic Capital Formation Account - Second Revised Figures*
(Current Prices)

The figures found in this table are the same as those found in the table for Gross Domestic Capital Formation Account (current prices) and which were taken from CORFO Documents except that:

1. The figures for gross fixed capital formation were increased by 40%;
2. The 40% increment in the figures for gross fixed capital formation was also added to the figures for:
   a. construction and other works
   b. other construction
3. The figures for capital consumption allowances were reduced by 50%; and
4. The figures for gross domestic capital formation, personal saving and gross domestic saving were adjusted accordingly.