COMPOSITION

VOLUME & COMPONENTS OF SAVING IN THE UNITED STATES 1933 - 1940

RESEARCH AND STATISTICS SUBDIVISION OF
TRADING AND EXCHANGE DIVISION
SECURITIES AND EXCHANGE COMMISSION

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Volume and Components of Saving in the United States, 1933-1940

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I. Nature of Report

This memorandum presents a brief summary of the results of a continuing study of the volume, components and determinants of saving in the United States. The basic methods used were developed several years ago and were set forth in detail in Special Studies No. 3 of the Research and Statistics Section 1/ submitted to the Commission in March 1939, as well as in Part Four of Volume III of the Studies in Income and Wealth, published late in 1939 by the Conference on Research in National Income and Wealth. Since that time the estimates of saving have been continued to cover the years 1938 to 1940 and numerous revisions have been made in the estimates for the earlier years. A detailed description of the methods and sources employed in deriving the estimates summarized in this report is in preparation and will be submitted to the Commission at a later date. It should be explained at the outset that the estimates do not lay any claim to decimal point precision and are subject to a fairly considerable margin of error. This qualification applies with special emphasis to the estimates for 1940 which had to be based at numerous points on preliminary figures.

While the set of estimates contained in this memorandum represents in many respects a considerable improvement over the figures which could be presented two years ago, there are still many points at which additional information or refinement of estimates now used are badly needed. It is intended to continue to improve the estimates as additional or better source material becomes available or as staff members can be spared from other assignments to work on this study. The present state of the basic material does not lend itself well to one grand attack resulting in the development of a set technique and the derivation of a final set of figures. Rather, improvement must come

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1/ "Volume and Components of Saving in the United States, 1933-1937."

in steps and must be achieved in cooperation with numerous agencies from which the basic figures for our component series are obtained.

II. Methods and Limitations of Estimation

Net saving, for the purpose of this study, has been defined as the excess of current income over current expenses (including dividend payments to equity owners) of all household, business and government units in the United States. This excess is equivalent, in conformity with the principles of accountancy, to the aggregate change in the earned surplus of all these units. Gross saving is defined as the sum of net saving and allowances for depreciation and depletion. Realized capital gains and losses, writeups and writedowns and all other revaluation items are not regarded as forming part of net or gross saving and consequently so far as possible have been excluded from the estimates of saving.

From the point of view of the country as a whole, net saving constitutes that part of the income of residents of the United States earned during any period which is not spent in the same period on non-durable consumption goods and services. This, of course, is equivalent to (a) the total value of the production of durable goods for both producer and consumer use 1/ (adjusted for net export or import balance), less (b) the depreciation and depletion on the existing stock of such goods, plus (c) the increase (or less the decrease) in inventories of non-durable goods, and plus (d) the increase (or less the decrease) in net foreign assets. Gross saving, from the same viewpoint, is the equivalent of the current production of durable goods (adjusted for net export or import balance) plus items (c) and (d) above.

1/ In this study, investment in houses, automobiles and other durable consumers' goods is considered as part of saving in the same way as investment in producers' durable goods.

The saving of any group of economic units may be measured in two ways. It may be determined either from the balance sheet as the increase in assets less the increase in liabilities, or from the income account, where it appears as the difference between current revenue on the one hand and current expense plus payments to the equity owners on the other. Since the two methods, in principle, yield the same results, estimates of saving of different economic groups derived by the two methods may safely be combined. In this study the estimates of saving by corporations and by the Federal government are derived by the income account method, while the savings of individuals, farmers and State and local governments are obtained by the balance sheet approach, i.e., from estimated changes in important asset and liability items.

The estimates are subject to two different types of error. The first is due to the impossibility of obtaining figures for a few series which theoretically should be included. 1/ The series which are omitted, however, do not appear to have been sufficiently large to seriously distort the picture here presented. Moreover, the changes in these series seem to have had a tendency to cancel out, at least in part, for the period 1933-1940 as a whole. Second, and probably more important, are the shortcomings inherent in the material now available for several important series used, notably those on saving by corporations and governmental units. 2/

1/ The most important series for which no usable estimates could be derived are (a) changes in the holdings of non-tax-exempt securities of non-financial corporations; (b) unreported retirements of securities by issuers; and (c) the changes in certain assets and liabilities of non-farm unincorporated businesses, viz., plant and equipment, inventories, and indebtedness to non-individuals.

2/ There is also a fairly large margin of error in several of the component series of saving by individuals. This will be discussed in the detailed description of methods and sources employed.

It appears that, as a whole, the estimates shown in this memorandum understate the level of net saving to some extent. There is no evidence, however, of any sizable distortion of the year to year fluctuations. 1/

III. The Total Volume of Saving, 1933-1940

a. Level of Total Gross and Net Saving

Table 1 and Chart I show the total estimated volumes of net saving and of gross saving for each of the years 1933 to 1940.

Gross saving increased rather steadily from close to $6 billion in 1933 to almost $18 billion in 1937. After a sharp decline in 1938, gross saving resumed its rise and in 1940 reached a new high of over $20 billion. For the period as a whole gross saving totalled $105 billion.

Net saving likewise showed a steady increase from 1933 through 1937. During the first three years of the period, net saving was negative, the deficit being at its highest point in 1933 when it amounted to over $5 billion. Net saving became positive during the 1936-1937 upswing, but even in 1937 reached only $5 billion. A second sharp increase in net saving started in 1939 and carried it to the post-depression high of $7 billion in 1940. Net saving for the entire eight year period amounted to only $7 billion.

From other data which are available 2/ it appears that the annual volume of saving over the 1933-1940 period was considerably below the level of the late 20's and approached that level only in 1940. This conclusion, which is based on the dollar amounts of saving, is somewhat modified when

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1/ One important exception is that data on investment suggest that the figures for total saving may be too high in 1933 and 1934 relative to the later years.

2/ Very crude preliminary figures, comparable in scope to those presented for 1933-1940, are available back to 1925 and were used for purposes of rough comparison. Use was also made of the National Bureau of Economic Research estimates of capital formation.

TABLE 1

NET AND GROSS SAVING IN THE UNITED STATES, 1933-1940

(BILLIONS OF DOLLARS)

	1933	1934	1935	1936	1937	1938	1939	1940	1933-1940
NET SAVING									
Individual Saving									
1. Currency & Bank deposits	-1.2	+2.4	+2.6	+3.9	+0.3	+0.2	+2.0	+3.6	+13.9
2. Savings & loan associations	-0.6	-0.3	-0.2	-0.2	+0.1	-	+0.1	+0.1	- 1.0
3. Insurance & pension reserves 1/	+0.5	+1.4	+1.8	+2.3	+2.9	+2.5	+2.9	+3.1	+17.2
4. Securities	+0.9	+0.1	-2.3	-0.1	+0.9	-0.7	-0.6	-0.2	- 1.9
5. Nonfarm dwellings 2/	-0.4	-1.9	-1.3	-0.3	-0.3	-0.4	-0.2	-0.1	- 4.9
6. Automobiles	-0.6	-0.2	+0.2	+0.4	+0.5	-0.1	-0.1	+0.3	+ 0.3
7. Other durable consumers' goods 3/	-0.9	-0.4	-	+0.9	+1.1	+0.3	+0.8	+1.4	+ 3.2
8. Liquidation of debt, N.E.C. 4/	+0.2	-0.2	-0.3	-0.7	-0.4	+0.3	-0.3	-0.6	- 1.9
9. Total	-2.1	+0.9	+0.5	+6.3	+5.2	+2.1	+4.4	+7.6	+24.9
Business Saving									
10. Agricultural	-0.3	-1.5	-	-0.6	+0.7	-0.2	+0.4	-0.1	- 1.7
11. Corporate 5/	-3.1	-2.4	-1.5	-1.3	-1.1	-2.1	-	+0.6	-10.8
12. Total	-3.3	-3.9	-1.5	-1.9	-0.4	-2.4	+0.4	+0.5	-12.5
Government Saving 6/									
13. State and local	+0.8	+1.4	+0.6	+0.6	+0.5	+0.8	+0.5	+1.0	+ 6.1
14. Federal	-0.8	-1.6	-1.5	-2.8	-0.3	-0.7	-2.0	-2.1	-11.8
15. Total	-	-0.8	-1.0	-2.1	+0.2	+0.2	-1.5	-1.1	- 5.7
16. Total net saving	-5.5	-3.3	-2.0	+2.3	+5.0	-0.1	+3.3	+7.0	+ 6.8
GROSS SAVING									
Depreciation									
17. Nonfarm dwellings 2/	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.5	11.4
18. Automobiles	1.4	1.4	1.5	1.7	2.1	2.2	2.1	2.3	14.7
19. Other durable consumers' goods	3.5	3.6	3.6	3.8	4.0	4.1	4.1	4.2	30.9
20. Farm machinery & buildings	0.7	0.7	0.8	0.8	0.9	0.9	0.9	0.9	6.7
21. Property of corporations 7/	3.7	3.6	3.6	3.7	3.8	3.8	3.8	4.0	30.0
22. Property of State & local govts.	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	2.9
23. Property of Federal government	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	1.5
24. Total	11.2	11.3	11.4	11.9	12.8	13.0	13.0	13.5	98.1
25. Total gross saving 8/	5.7	8.0	9.5	14.2	17.7	12.9	16.4	20.5	104.8

1/ Includes social security funds.
2/ One to four family nonfarm houses.
3/ Includes net construction of non-profit institutions; does not reflect changes in net debt incurred for purchase of other durable consumers' goods.
4/ Includes liquidation of debt attributable to purchases of consumption goods as well as other durable consumers' goods.
5/ Not adjusted for revaluation of inventories.
6/ Capital outlays of State and local governments financed by Federal funds are considered as saving of Federal government.
7/ Includes depletion.
8/ Net saving plus depreciation.

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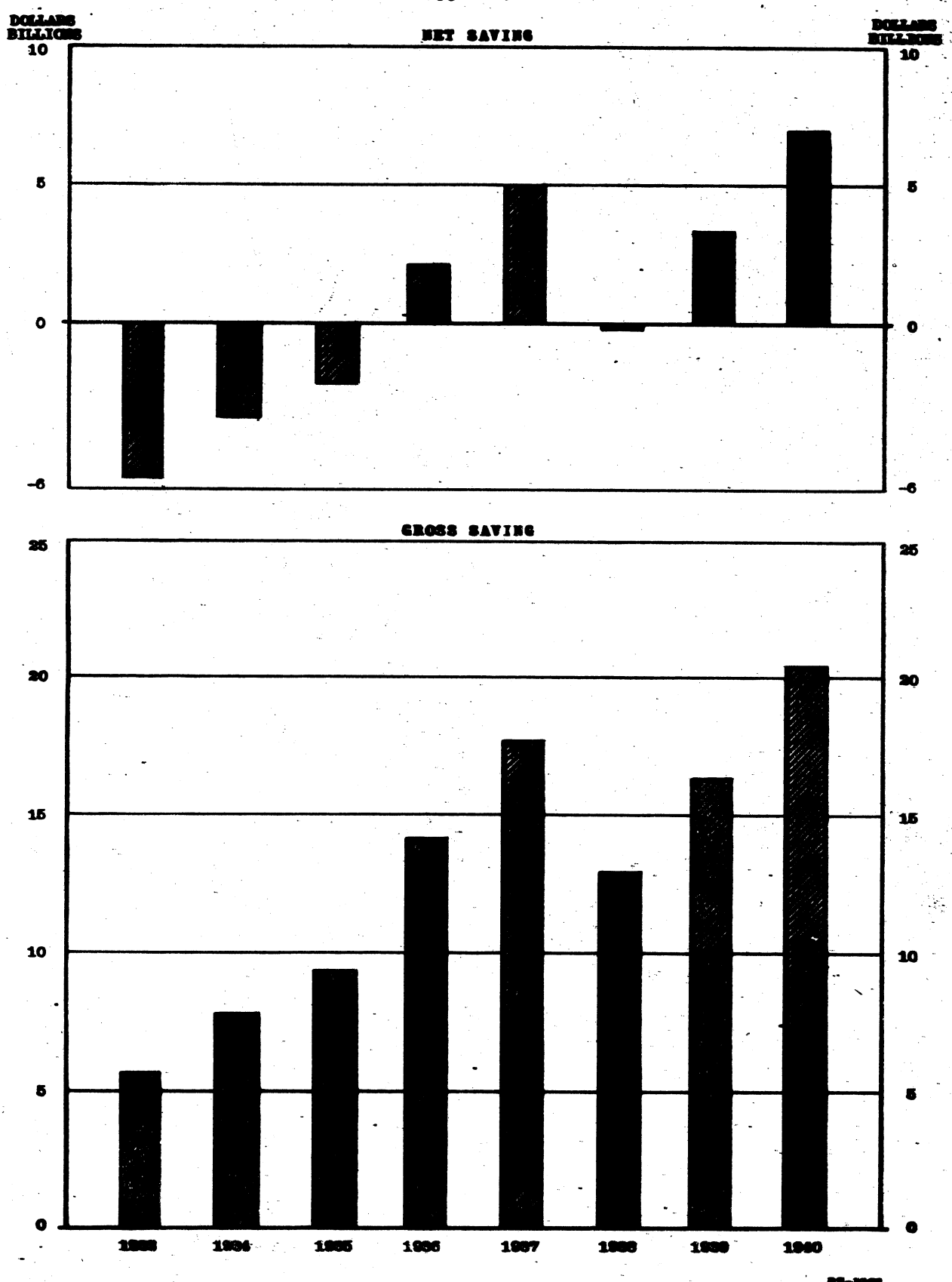
CHART I

GROSS AND NET SAVING
1933 - 1940



account is taken of the fact that, in view of the decrease in the general price level and the price level of investment goods in particular, the same dollar amount of saving in the 30's represented a somewhat larger quantity from the technological point of view than it did in the late 20's. Even in real terms, however, the level of saving characterizing the late 20's does not appear to have been reached prior to 1940.

b. Comparison of Total Gross and Net Saving

The relationship between total gross and net saving is, of course, determined by the fact that the allowances for depreciation and depletion, the difference between the two measures of saving, are relatively constant in spite of wide fluctuations in net saving. In view of the comparatively low level of total gross saving over the period 1933-1940, by far the greatest part of such saving was needed as an offset to the consumption of capital equipment. For 1933-1935, calculated capital consumption actually exceeded gross capital formation as reflected in gross saving. Even during the last five years net saving was a smaller part of gross saving than in the late 20's as a result of the considerable decline in the volume of gross saving and a slight increase in depreciation and depletion allowances.

c. Relationships of Total Saving to National Income

For the period 1933-1940, the year-to-year fluctuations in total saving can be explained quite satisfactorily in terms of national income (Chart II). There is extremely high correlation between the level of total saving and national income, 1/ so high in fact that there is relatively little point to a statistical study of the effect on saving of such other economic

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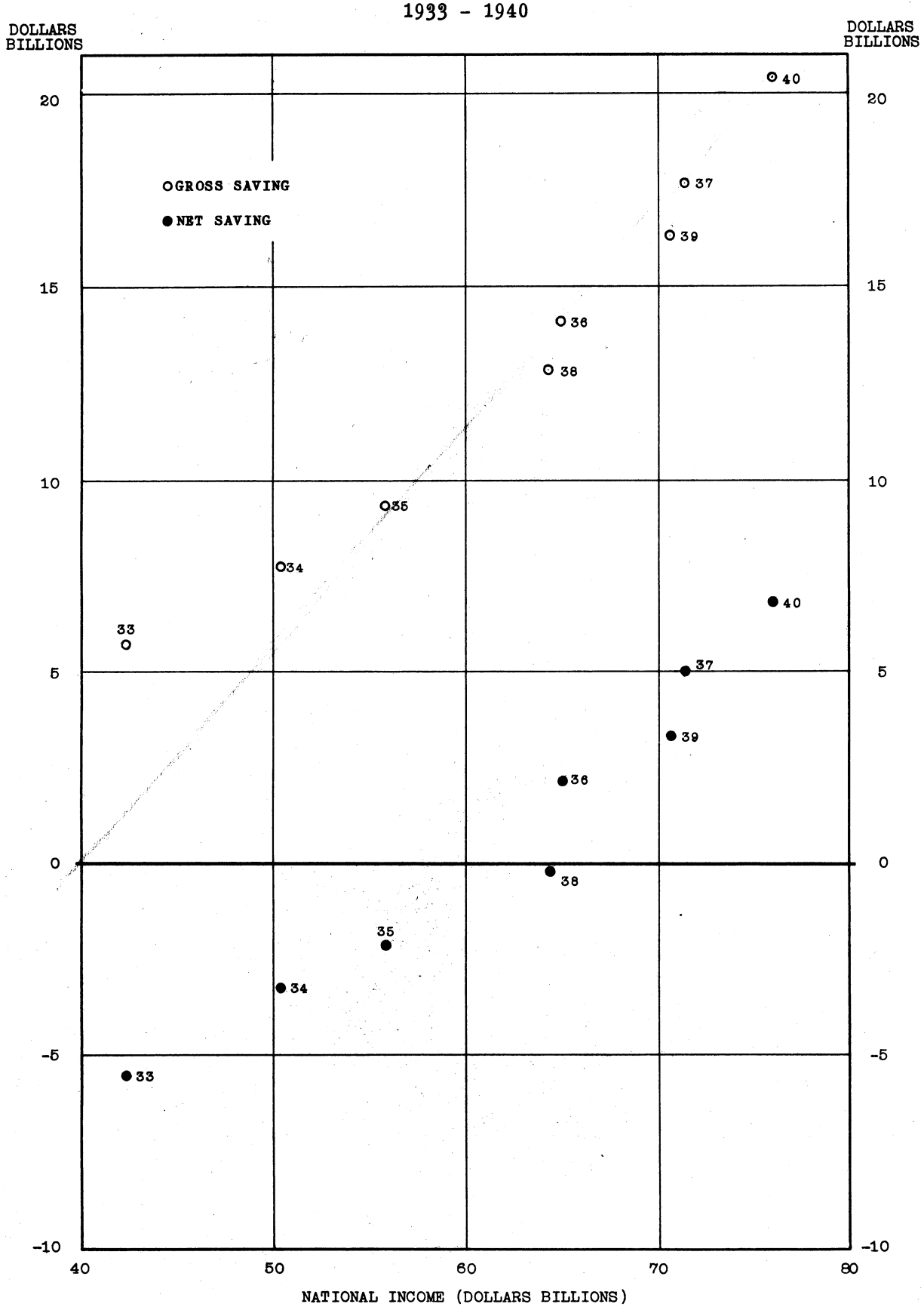
1/ The various statistical relationships are summarized in the Appendix Table.

CHART II

RELATIONSHIP BETWEEN GROSS SAVING, NET SAVING AND NATIONAL INCOME
1933 - 1940



DS-1864

variables as long-term interest rates, population, taxes, or the distribution of income -- particularly in view of the paucity of the data and the margin of error involved. 1/

Because of the limitations of the data and of the statistical analysis, 2/ the results presented in Chart II, and in the Appendix Table, should be interpreted with caution, particularly for purposes of prediction. They appear, however, to indicate that for every billion dollar increase (or decrease) in national income there was on the average an increase (or decrease) of close to $450 million in total gross saving and an increase of slightly over $350 million in total net saving. Conversely, each increment of one billion dollars in gross saving was accompanied by an increment of somewhat over $2 billion in national income, while a rise of one billion dollars in net saving was associated with a rise of slightly more than $2.5 billion in national income. 3/

1/ The apparent curvilinearity of the relationship does not seem to be of any economic significance and disappears when saving and income are converted into constant dollars. (This is true whether an investment price index or a cost of living index is used to deflate saving.) The curvilinearity may be due in part to estimates of total saving which are too high in 1933 and 1934 relative to the later years (see p. 4, footnote 1).

2/ The limitations of statistical analysis referred to are those generally associated with economic time series -- serial correlation, high correlation between independent variables, the difficulties of holding economic factors constant, etc. It is feasible to adjust for such deficiencies only qualitatively.

3/ It might be considered preferable to relate gross saving to gross national product instead of national income, but this was not done for technical reasons which need not be discussed here. It may be noted, however, that the results would not be appreciably different from those given in the text.

d. Individual, Business and Government Saving 1/

For the period 1933-1940 as a whole, of the three major groups of economic units individuals alone showed net saving, their saving totalling about $25 billion for the eight years. Business and government, on the other hand, from the accounting point of view, made inroads on their capital, their net dissaving adding up to about $13 and $6 billion respectively for the period. 2/ Even during the last five years, which may be taken to represent a more nearly normal level of economic activity, only individuals had a net saving, although the dissaving of government and particularly that of business was smaller than for the entire period. This state of affairs differs considerably from the late 20's when -- according to the rough estimates available -- both government and business exhibited considerable net saving. Even in that period, however, according to the very tentative data available, between 50% and 60% of total net saving was contributed by individuals and close to 70% by individuals and entrepreneurs in unincorporated enterprise combined. The relation between the saving of these three groups for each of the years 1933 to 1940 is shown in Chart III.

Individual saving also constituted a predominant portion of gross saving for the period 1933-1940. Of total gross saving of $105 billion, individuals

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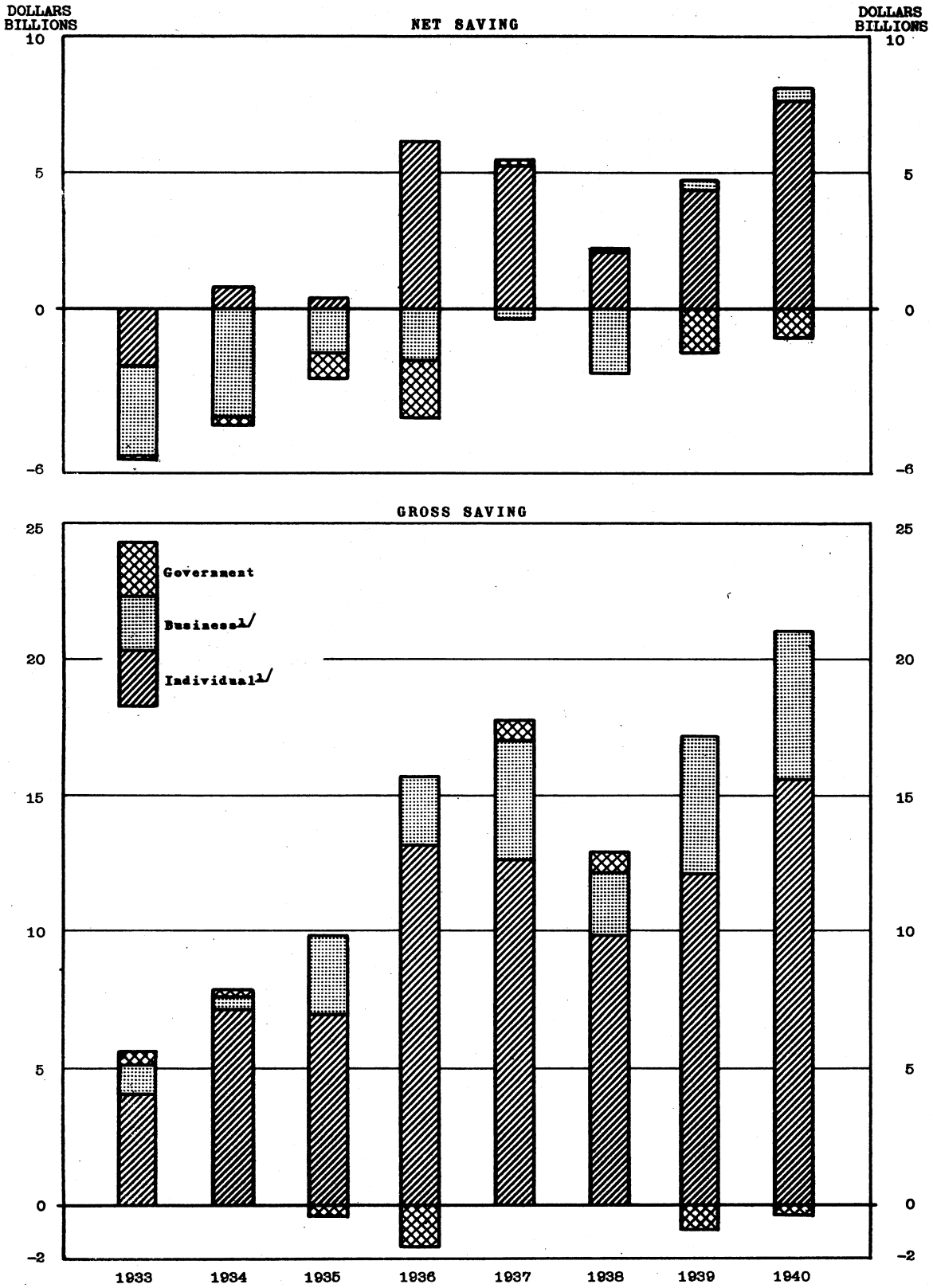
1/ Individual saving covers the saving of individuals, private non-profit organizations, and the liquid saving of unincorporated enterprise; business saving covers the saving of corporations and the business saving of farmers, the latter being relatively unimportant; government saving covers the saving of the Federal, State and local governments.

2/ This does not mean that business plant and equipment represented a smaller productive capacity at the end of 1940 than at the end of 1932. The opposite probably is true, reflecting the difference between the accounting and the technological changes in business plant and equipment.

CHART III

INDIVIDUAL, BUSINESS AND GOVERNMENT SAVING
1933 - 1940



1/ Saving by unincorporated business in the form of currency and deposits and equity in securities is included under "Individual". Other saving by such business does not appear in the estimates with the exception of business saving of farmers which is included under "Business".

DS-1865

accounted for close to four-fifths and business for somewhat over one-fifth, while the gross saving of all government units taken together cancelled out for the period as a whole. The proportions are not changed much if only the years 1936-1940 are considered. In the late 20's, on the other hand, considerably less than 60% of aggregate gross saving was accounted for by individuals, while less than 70% was accounted for by individuals and entrepreneurs combined; corporations were responsible for somewhat over one-fifth of gross saving in that period while government was responsible for about one-tenth of gross saving.

This concentration of total saving in the hands of individuals is of considerable significance for economic policy, and reflects, in part, developments in the field of government and business finance. Thus, the relatively high level of individual saving is due, to some extent, to the excess of government expenditures over income in the 30's, reflecting deficit financing by the Federal government, contrasted with the excess of income over expenditures of government in the 20's. The low level of gross saving and the lack of net saving by business in the 30's, though due in large part to the relatively low level of national income and consequently of profits, is partly attributable to an increase in the ratio of dividend distributions to profits, 1/ a factor which in turn helps to explain the relatively high level of individual saving.

1/ This increase in the ratio of dividend distributions to profits (after taxes) in the 30's as compared to the 20's does not appear to be explainable in terms of the level of profits alone. The decrease in the ratio of corporate saving to profits, or the increase in the ratio of dividend distributions to profits, might conceivably be explained simply by a greater understatement of corporate profits in the 30's than in the 20's as shown on income tax returns which are used in estimating corporate saving; this, however, does not appear to be likely. For 1936, 1937 and, to a lesser extent, in 1938, the tax provisions relating to undistributed profits were, of course, an important incentive to increased dividend distributions.

IV. Individual Saving 1/

a. Level of Individual Gross and Net Saving

The net saving of individuals was positive in every year of the period 1933-1940 with the exception of 1933. It fluctuated from a dissaving of about $2 billion in 1933 to a saving of close to $8 billion in 1940 and aggregated $25 billion for the entire period. The gross saving of individuals was about $7 billion higher on the average, ranging from slightly over $4 billion in 1933 to over $15 billion in 1940. 2/ Both sets of figures are illustrated in Chart III.

As would be expected, there is a high positive correlation between the saving of individuals and total saving. In the neighborhood of three-fourths of each billion dollar increase in total saving represented individual saving. Individual saving and corporate saving likewise show a fairly high correlation 3/ though it is less pronounced than the relationship between individual and total saving.

b. Relationships of Individual Saving to Income Payments 4/

As in the case of total saving, a very large part of the variation in individual saving over the period 1933-1940 is explainable in terms of income payments (Chart IV). The relationship between saving and income, however, is not quite so close for individual saving as for total saving. 5/ Attempts to

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1/ Saving, or the change in equity of individuals, in government insurance funds (i.e., social security and pension funds) is considered as individual saving unless otherwise noted.

2/ The whole series of annual estimates is given in Table 1. There is some evidence that the estimates for 1935 and 1937 are somewhat too low relative to the other years while the estimate for 1936 is somewhat too high. (also '33-34 (see p. 6 n.1)

3/ The correlation becomes quite small when national income is held constant.

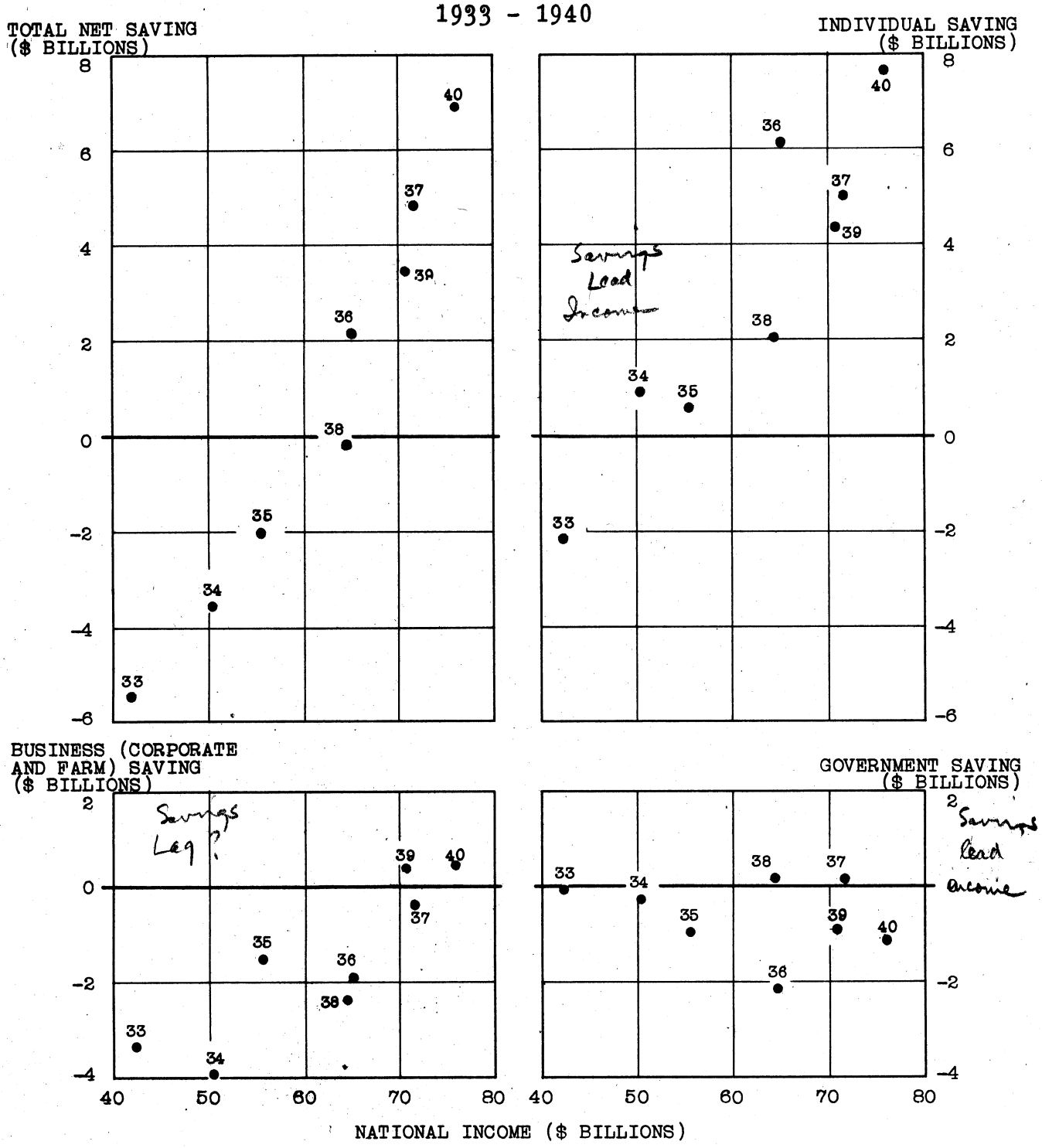
4/ Individual saving is more closely related conceptually and empirically to income payments than to national income. However, the actual differences are rather small.

5/ The apparent curvilinearity of the relationship again disappears when saving and income are converted into constant dollars. See p. 6, footnote 1.

CHART IV

RELATIONSHIP BETWEEN INDIVIDUAL, BUSINESS AND GOVERNMENT NET SAVING AND NATIONAL INCOME

1933 - 1940



DS-1866

explain statistically the residual variation in individual saving, after eliminating the effect of income, did not prove very fruitful.

Each increment of one billion dollars in income payments was accompanied on the average by an increment of somewhat more than $350 million in individual gross saving and slightly over $300 million in individual net saving. Conversely, for each increase of one billion dollars in individual gross saving there was an increase of approximately $2.5 billion in income payments, while an increase of one billion dollars in individual net saving was associated with an increase of somewhat less than $3 billion in income payments. 1/

c. Components of Individual Saving

It is one of the chief advantages of the method of statistical analysis employed in this study that it shows separately not only the saving of the three major groups of economic units (i.e., individuals, business and government) but also the forms of saving within these groups, namely, the type of assets in which the net saving of the various groups is embodied. 2/

1. Currency and bank deposits

One of the striking characteristics of the period 1933-1940 is the high level of individuals' saving in its most liquid form, i.e., in currency and bank deposits, which amounted to $14 billion for the period (Chart V).* This type of saving averaged nearly $2 billion per year and in two years, 1936 and 1940, almost reached $4 billion. Saving in this form rose from -$1.2 billion

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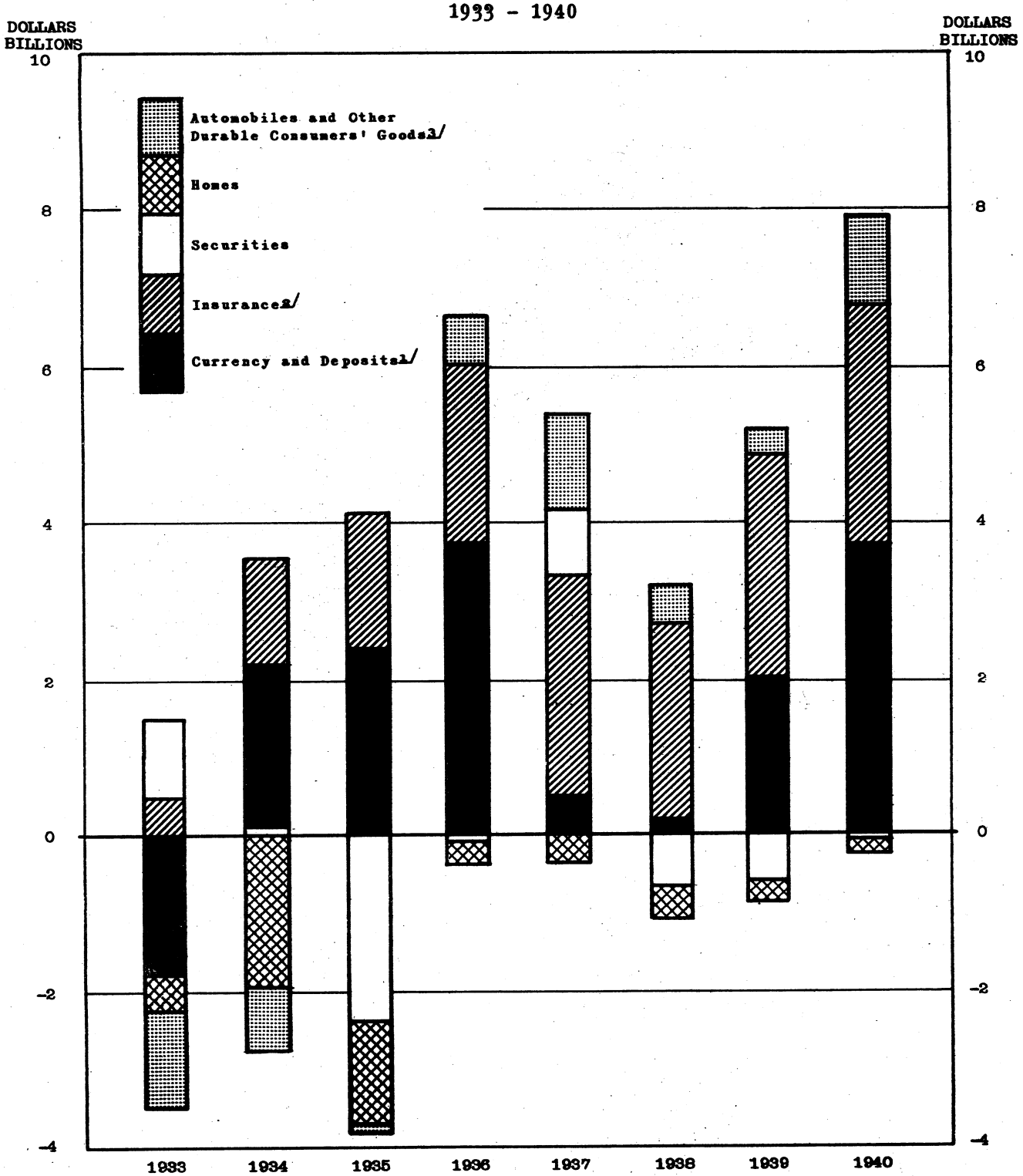
1/ The relationships on which these statements are based, as well as a summary of other important results of the statistical analysis, are shown in the Appendix Table.

2/ This has been done in a systematic manner solely for individuals. Only preliminary estimates of changes in several important types of assets are available for the other two major groups, whose saving is generally measured, as previously mentioned, not by the balance sheet but by the income account method.

* foreign funds excluded?

CHART V

MAIN FORMS OF INDIVIDUAL NET SAVING
1933 - 1940



1/ Includes saving in savings and loan associations.

2/ Includes change in individuals' equity in government insurance funds.

3/ Adjusted for "liquidation of debt not elsewhere classified".

DS-1867

in 1933 to a high of $3.9 billion in 1936 and after a sharp decline in 1937 and 1938 reached a second high of $3.6 billion in 1940. The annual fluctuations in the volume of saving in this form bore a slight positive correlation with income payments (Chart VI) but the correspondence was far from close. 1/2/ It may be noted that in spite of the higher level of income, the average annual amount of individuals' saving in currency and deposits in the late 20's was much smaller than for the period 1933-1940.

2. Savings and loan associations

Saving in the form of deposits with (or holdings of shares of) savings and loan associations was negative for the period 1933-1940 as a whole to the extent of about $1 billion. This was due mainly to net dissaving in this form in the early years of the period, reflecting a trend which started in 1930. Even towards the end of the period, however, saving in this form was still relatively small compared to the 20's.

3. Insurance and pension reserves

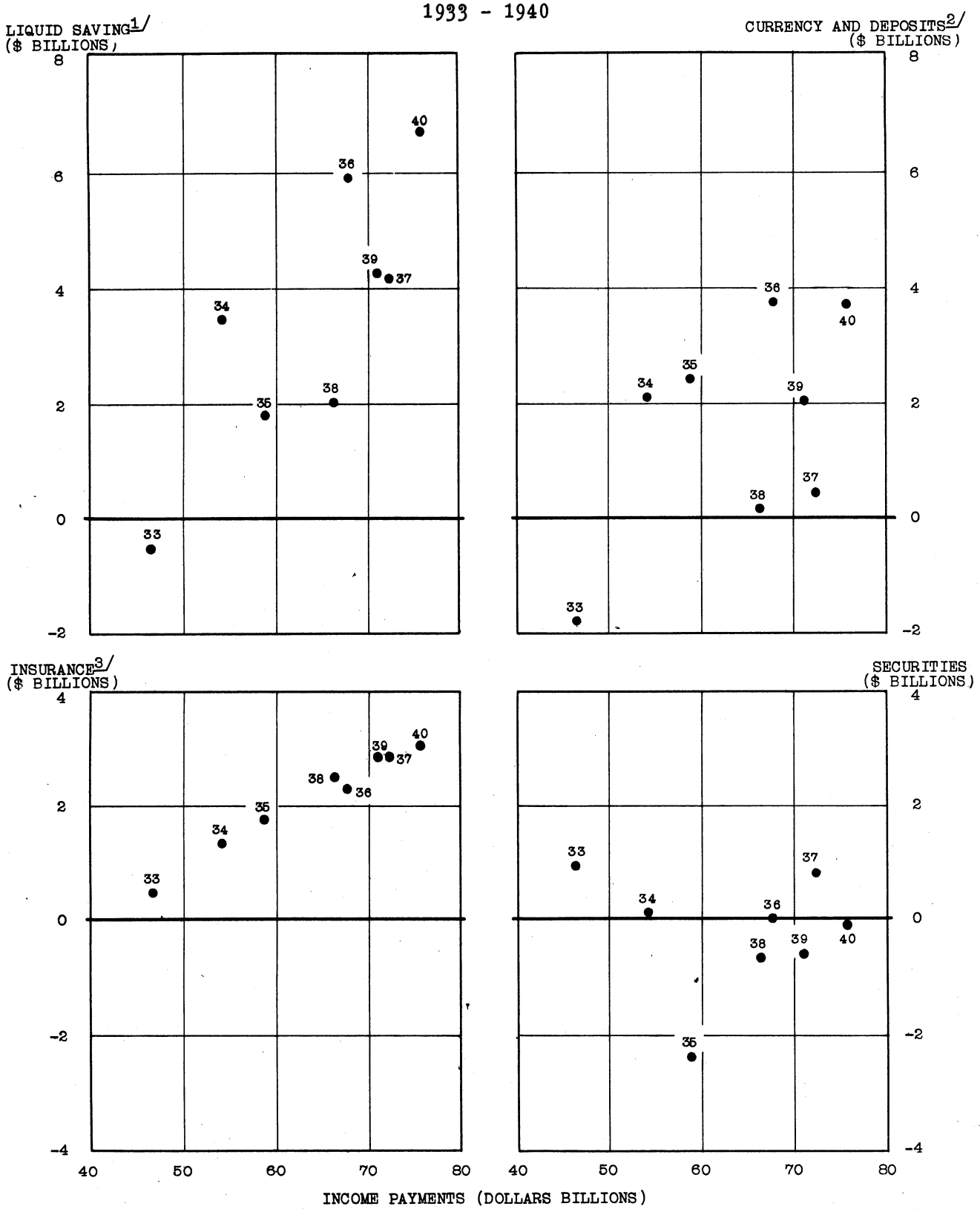
Over the period as a whole, the largest contribution to net individual saving was made by the growth in individuals' equity in insurance and pension reserves. Net saving in this form aggregated more than $17 billion for the eight years 1933-1940; $11 billion represented individuals' saving with life insurance companies, while $4 billion was accounted for by individuals'

1/ The year 1937 particularly departs from the average pattern, the increase in individuals' holdings of currency and deposits being considerably lower than would be expected from the behavior of the entire series.

2/ This result, which does not seem to be attributable to errors of estimation, appeared quite strange, and an effort was made to determine whether this same relationship, or rather absence of relationship, characterized the years prior to 1933. Using very rough estimates of individuals' saving in currency and deposits for the years 1925-1932, no definite correlation between individuals' saving in cash and deposits and the level of income was found for the period 1925-1940, confirming the result for the shorter period.

CHART VI

RELATIONSHIP BETWEEN MAIN FORMS OF INDIVIDUAL LIQUID SAVING AND INCOME PAYMENTS
1933 - 1940



1/ Saving in currency and deposits, savings and loan associations, insurance, and securities.

2/ Includes saving in savings and loan associations.

3/ Includes change in individuals' equity in government insurance funds.

DS-1868

equity in social security funds, which began operation in the second half of the period. Saving in insurance and pension reserves showed a marked upward trend during the period, reaching a high of slightly over $3 billion in 1940. Segregating saving in the form of private insurance (which consists almost entirely of equity in contracts with life insurance companies), an upward trend is again evident but is not nearly so pronounced and appears to tail off after 1935.

Individual saving in insurance, both including and excluding government funds, though particularly the former, is highly correlated with income. It is obvious, however, that though the amount of saving through insurance is affected by the level of income, it is dependent to as great an extent on the contractual aspect of this type of saving which is kept up to a certain extent irrespective of changes in income and on such factors as the long-term attitude of society regarding the necessity of providing for the future.

The pattern of individuals' saving in the form of life insurance (the predominant part of private insurance) was also examined for the period prior to 1933. 1/ It was found that there existed a fairly close (linear) correlation between saving in the form of life insurance and national income in the 20's as well as in the 30's. However, the relationships in the two periods were quite different with a considerably higher amount of saving in insurance associated with a given level of income in the 30's than in the 20's. 2/

1/ These figures, obtained in the same manner as the later estimates, are believed to be quite reliable.

2/ The reason for this difference probably lies in the contractual relationship characteristic of insurance, which provided an incentive to continue paying premiums on insurance contracted in the late 20's even with the onset of the depression; in the psychological concomitants of the depression with its closed banks and the deterioration in value of securities and other alternative forms of saving; and in the growing emphasis placed on the necessity of providing for the future.

In spite of the relatively higher level of saving in life insurance over the past ten years as compared with the preceding decade, there is some indication that a point of saturation is being reached in this form of saving. Thus, there was little change after 1935 in the amount of annual individual saving through life insurance, 1/ while the total amount of life insurance outstanding increased relatively little after 1929.

4. Securities

The net dissaving in the form of securities during the period is probably the outstanding change in the form of individual saving compared to the preceding decade. For the eight years 1933-1940 as a whole, individuals are estimated to have reduced their holdings of securities by about $2 billion. This is in marked contrast to the very substantial absorption of securities by individuals in the 20's. The annual movements of individual saving in securities show little apparent relationship to the level of income, security prices or similar factors, either over the period 1933-1940, or over the longer period 1925-1940. 2/ Because of the special interest of this series to the Commission, it will be discussed in a little more detail in Section IVd.

5. Liquid saving

The four components of individual saving discussed above (i.e., saving in the form of currency and deposits, building and loan associations, insurance and securities) may be combined into a series for total individual liquid saving. Saving in this form aggregated $28 billion for the period including individuals' equity in government insurance funds, and $22 billion

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1/ This reflects the increasing age and more frequent maturity of insurance policies in force; it may also be due in part to the social security program which went into effect at that time.

2/ Estimates of the absorption of securities by individuals for 1925-1932 are extremely crude. For the period 1925-1940 as a whole there is evidence of a slight positive correlation with income, but this is of little significance.

excluding it. Including government insurance funds, individual liquid saving varied from a low of close to -$0.5 billion in 1933, the only year in which such saving was negative, to a high of over +$6.5 billion in 1940; excluding government insurance funds, individual liquid saving fluctuated between approximately -$0.5 billion in 1933 and nearly +$5.5 billion in 1940. The annual amount of liquid saving is significantly correlated with income payments, but the correlation is not too high, particularly when government insurance funds are excluded.

6. Liquidation of debt

A component of individual saving which has not been shown separately in Table 1 is the net liquidation of individuals' debt to non-individuals. In this analysis, it has generally been attempted to allocate individual indebtedness to the particular type of asset to which it pertains (viz. saving in building and loan associations, insurance, securities, houses and automobiles), and the resulting net figure taken to represent saving in this type of asset. 1/ However, there is some point to considering liquidation of debt separately.

Net liquidation of debt in the aggregate appears to vary inversely with the level of income but the relationship is only moderately close. This result reflects a diversity of types of debt and a variety of reasons for incurring and paying off debt.

1/ It was possible to allocate the most important part of individual debt in this manner though there remained a residual amount of debt ("debt not elsewhere classified") which is due in part to individuals' purchases of "other durable consumers' goods"; in part to individuals' purchases of consumption goods; and in part to direct loans by banks and other financing agencies for the purchase of automobiles, the net saving in automobiles having been estimated by subtracting from net purchases only the change in outstanding instalment credit originating with car dealers.

For the period 1933-1940 as a whole, individuals' indebtedness increased by about $2 billion. Over the period, there was a fairly considerable net liquidation of individual debt in the form of insurance policy loans and for the purpose of purchasing and carrying securities, while there was a much more substantial increase in individual indebtedness as a result of increased mortgages on homes, the purchase of automobiles, and increased installment and open book credit arising from the purchase of "other durable consumers' goods" and consumption goods. The decrease in policy loans is probably attributable to the paying off of debt of this type incurred during the depression, while the decline in security loans reflects the lessened activity in the security markets and, in particular, the smaller degree of speculation prevalent. The much more sizable increase in debt attributable to new construction, the purchase of automobiles, and both consumers' durable and consumption goods is readily explainable as the combined result of increased national income, the liberalized installment credit terms offered by business and the activities of the Federal government in the home mortgage field.

7. Net claims of individuals

Combining individuals' net liquidation of debt with their saving in liquid form, 1/ a series is obtained which reflects changes in individuals' net claims against non-individuals. 2/ This series is important in that it indicates the extent to which the investment or dissaving of non-individuals (corporations and governments 3/) is financed by individual saving. Including

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1/ This is done by adding to individuals' saving in liquid form only that part of net liquidation of debt not already reflected in liquid saving.

2/ Theoretically, changes in the tax arrears of individuals and in the debt of unincorporated business to corporations should be reflected in this series. While satisfactory data for this purpose are lacking, it is fairly certain that inclusion of these figures would not greatly change the broad results.

3/ Also the business saving of farmers.

government insurance funds among net claims of individuals, the eight year aggregate is $24 billion; excluding such funds it is $18 billion. The series including government insurance funds fluctuates from less than $1 billion in 1933 to around $5 billion in 1936 and 1940; excluding government insurance funds, the range is from somewhat over $0.5 billion in 1933 to about $4.5 billion in 1936 and $3.5 billion in 1940. When government insurance funds are included, there is a significant positive correlation between change in individuals' net claims and income payments, but when government insurance funds are excluded, the relationship is no longer statistically significant. 1/

8. Durable consumers' goods

The remaining component of individual saving, which is quite distinct from saving in liquid form, covers saving in durable consumers' goods, i.e., houses, automobiles, and "other durable consumers' goods". 2/ There was a small amount of net dissaving in durable consumers' goods over the period 1933-1940, positive saving in the years 1936-1940 not being quite large enough to offset the dissaving in 1933-1935 (Chart V).

For the period as a whole, individuals' equity in non-farm dwellings declined considerably as new construction was insufficient to make up

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1/ Using the customary level of significance; (.05)? see Appendix Table.

2/ "Other durable consumers' goods" include furniture, stoves, refrigerators, carpets, curtains, mattresses and bed springs, china and household utensils, portable household electric appliances, radios, musical instruments, jewelry, books, luggage, auto parts and accessories, motorcycles, bicycles, pleasure boats, ophthalmic products and surgical and orthopedic appliances, and monuments and tombstones. Net construction of non-profit institutions is also included though differing from the other items in this category; it is a small negative quantity in each year of the period 1933-1940, averaging about -$100 million annually. — i.e. colleges + churches using up their property

for accruing depreciation and increase in debt. 1/ Net dissaving in this form was heaviest in the early years of the period, but even near its end individuals' equity in homes was still slightly decreasing. Individuals' equity in automobiles changed relatively little over the period, decreases in 1933, 1934, 1938, and 1939 being more than offset by increases in the other years. 2/ Individuals' equity in other durable goods showed a considerable amount of net saving as new purchases in every year after 1936 exceeded estimated depreciation accruals and increases in consumers' debt. 3/

Individual net saving in durable goods was generally much more closely related to the level of income than saving in liquid form or in the form

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1/ This conclusion, of course, is based on the rather arbitrary estimates of depreciation which were made. However, any reasonable figures taken for depreciation would give similar results. The amount ascribed to depreciation averaged almost $1.5 billion a year, amounting to more than $11 billion over the period. The two other items which had to be deducted from gross construction of one to four family non-farm dwellings to obtain individual saving in this form were the increase in institutional holdings, largely as a result of foreclosures, amounting to $700 million over the period and the increase in net mortgage debt amounting to $900 million.

2/ Depreciation over the period was estimated at close to $15 billion, ranging from $1.4 billion in 1933 to $2.3 billion in 1940. Installment debt originating with car dealers increased in every year with the exception of 1938, the net increase over the period amounting to about $1.4 billion. (Direct loans by banks and other financing agencies for the purchase of automobiles are included in debt "not elsewhere classified.")

3/ Depreciation over the period was estimated at close to $31 billion, ranging from $3.5 billion in 1933 to $4.1 billion in 1940; estimates are even rougher than for depreciation on homes or automobiles. It is not possible to estimate adecuately the change in indebtedness relating to "other durable consumers' goods" since such debt cannot be segregated from debt arising from the purchase of non-durable goods. However, it does not appear that changes in such indebtedness, which are included in Table 1 in "liquidation of debt not elsewhere classified", are sufficiently large to necessitate material modification of the statement made in the text.

of financial claims (Charts VI and VII). 1/ Not only aggregate individual net saving in durable goods but also net saving in each of the three main components of durable goods -- houses, automobiles, and "other durable consumers' goods" -- bore a fairly high correlation with income payments. Gross expenditures on durable goods and net expenditures (gross expenditures less depreciation) were even more highly correlated with income payments than net saving in durable goods (net expenditures adjusted for change in indebtedness) and can be explained quite satisfactorily over this period in terms of the level of income alone.

9. Interrelationships of components

As might be expected from the relationships of the various main components of individual saving to the level of income, only saving in insurance and in all durable consumers' goods bore any close correlation with total individual saving.

Two interrelationships of the components of individual saving are of some interest. First, there is a fairly high positive correlation between change in net claims of individuals (i.e., individual liquid saving plus debt liquidation) and gross and net individual expenditures on all durable goods. These two forms of saving, of course, are complementary in nature and together make up the whole of individual saving. The rather high positive correlation between these two forms reflects the fact that when income is high individuals not only increase their direct purchases of durable goods but also increase their saving in liquid form and finance, either directly or indirectly, 2/ the expenditures of non-individuals to a greater extent than usual; the reverse

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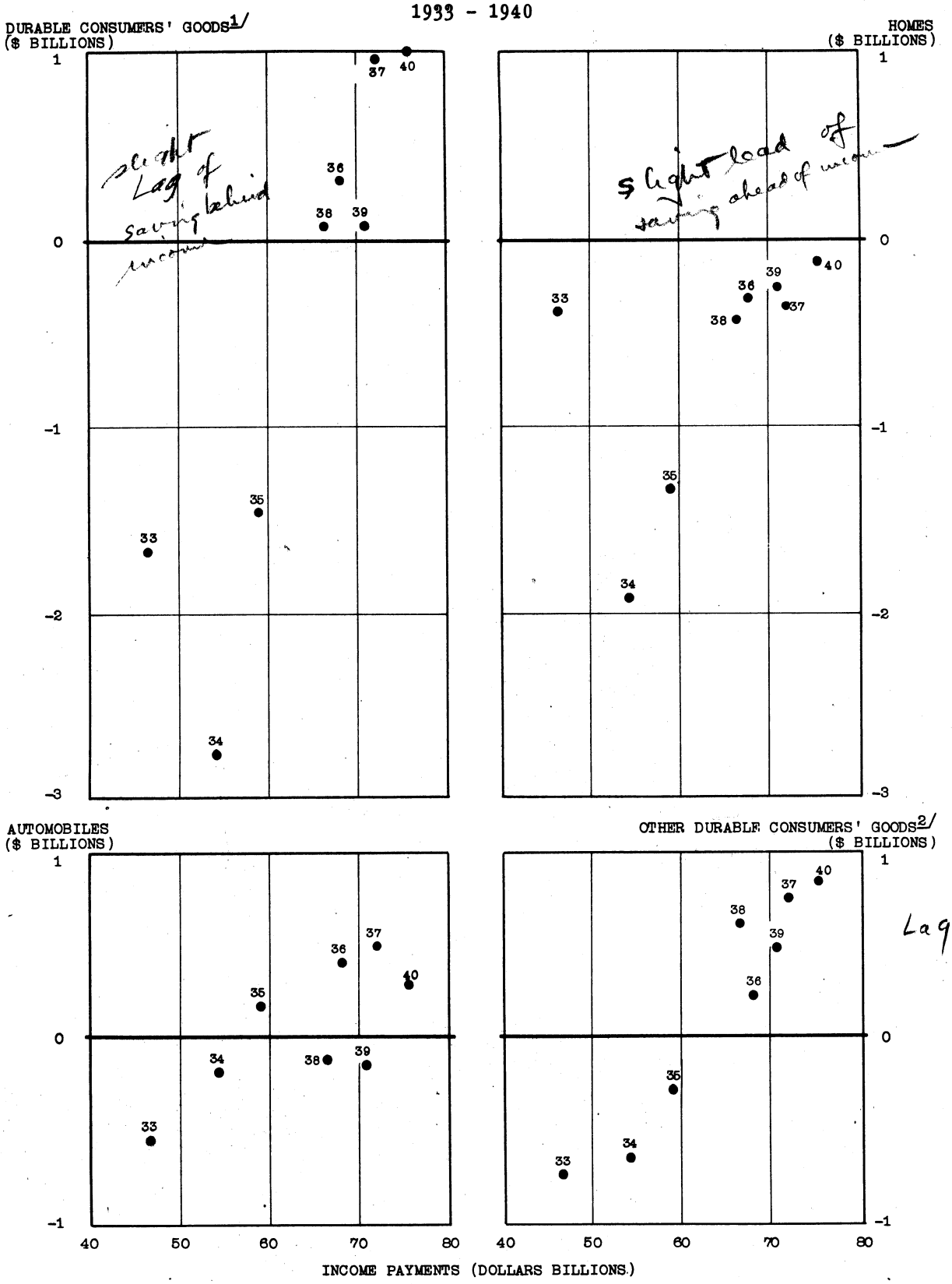
1/ This may be due in part to deficiencies in the estimates of changes in financial claims as compared to estimates of changes in investment in durable goods.

2/ Mostly indirectly over the period 1933-1940.

CHART VII

RELATIONSHIP BETWEEN MAIN FORMS OF INDIVIDUAL SAVING IN DURABLE CONSUMERS' GOODS AND INCOME PAYMENTS 1933 - 1940



1/ Saving in homes, automobiles, and other durable consumers' goods.

2/ Adjusted for "liquidation of debt not elsewhere classified".

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is true when income is low. Secondly, there is a slight negative correlation between saving in currency and deposits and saving in securities, both for the period 1933-1940 and for the longer period 1925-1940. This is not an entirely surprising result since they represent alternative forms of liquid saving, either of which may readily be substituted for the other. 1/

10. Summary

Among individuals, the outstanding characteristic of the structure of saving during the 30's is the predominant position of saving in currency, deposits with financial institutions, and in insurance contracts, all of which are liquid assets of fixed and relatively assured redemption value. For the period 1933-1940 as a whole, the positive net saving of individuals was almost exclusively in such form, as individuals reduced slightly their holdings of securities and decreased slightly their equity in durable consumers' goods (including houses). In the later years of the period, which are more nearly characteristic of a normal situation, however, there was some net saving in the form of durable consumers' goods, though even in that period individual net saving in the form of securities was apparently absent.

While no strictly comparable figures are yet available for the 20's, there is no doubt that saving in monetary form and insurance was much less prominent then, and that the absorption of securities was the outstanding form of individual liquid saving and one of the most important components of total individual saving.

1/ On the other hand, it might be expected on a priori grounds that while for a given level of income saving in currency and deposits and saving in securities would be inversely correlated, they would both tend in practice, due to the large fluctuations in income, to be governed by the level of income, being high for high income and low for low income. In view of these considerations, it was attempted through partial correlation analysis to relate saving in securities both to saving in currency and deposits and to income payments holding each of these factors constant in turn, but no definitive results were obtained. The partial regression coefficients were in the expected direction but were not statistically significant.

d. Absorption of Securities

Because of its special interest to the Commission, some additional details on individuals' saving in the form of securities are shown in Tables 2 - 4.

Net issues of securities in the United States (i.e., the excess of gross proceeds of new issues over the cost of securities repurchased or retired by their issuers) during the period from 1933 through 1940 are estimated to have amounted to about $29 billion. Securities of the United States Government and its agencies accounted for practically the entire amount. Net issues of domestic corporations were considerable only in one year (1936), amounting even then to less than $1 billion, while net issues of foreign securities and of State and municipal securities were small throughout the period.

The average yearly increase in securities outstanding of about $3.5 billion a year over the eight-year period was lower than the average yearly increase in the 20's. However, a more striking difference between the two periods lies in the identity of the issuers, particularly in the proportion of government to corporate issues. Thus, whereas from 1933 through 1940 government securities accounted for the entirety of net issues, they represented only a small proportion of the net issues in the 20's. 1/ Conversely, corporate issues which were virtually absent in the 30's accounted for nearly all net issues in the 20's.

A significant development of recent years is the extraordinarily large increase in the holdings of securities by domestic non-individuals, mainly commercial banks, life insurance companies, and government trust funds. These holdings increased by about $31 billion for the entire period 1933-1940 or about $4 billion annually, thus more than offsetting the $29 billion increase in total securities outstanding. Foreigners also increased their holdings somewhat; their net purchases amounting to slightly over $1 billion, however, were

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1/ Security issues of the Federal government were exceeded by retirements in every year in the 20's. This decrease was more than offset by net issues of the State and local governments.

Table 2

CHANGE IN TOTAL SECURITIES OUTSTANDING

(millions of dollars)

	1933	1934	1935	1936	1937	1938	1939	1940	1933-1940
1. U. S. Govt. direct obligations	+2,290	+4,030	+1,370	+4,230	+3,230	+2,830	+2,400	+3,180	+23,570
2. U. S. Govt. guaranteed obligations	+110	+3,280	+1,130	+150	-20	+350	+720	+210	+5,930
3. Non-guaranteed Federal agency obligations	+90	+490	+40	+10	-90	-30	+20	-20	+520
4. State and local	-350	-460	+40	-20	-90	+270	+180	+200	-230
5. Corporate and others	-100	-130	-370	+840	-50	+140	-390	-160	-220
6. Foreign	-110	-110	-140	-130	-170	-30	-30	-80	-790
7. Total	+1,930	+7,100	+2,070	+5,090	+2,820	+3,530	+2,900	+3,330	+28,770

TABLE 3

SECURITY HOLDINGS OF DOMESTIC NON-INDIVIDUALS

(MILLIONS OF DOLLARS)

	1932	1933	1934	1935	1936	1937	1938	1939	1940
1. U.S. TREASURY INVESTMENT ACCOUNTS	660	810	1,240	1,640	1,800	3,570	4,530	5,700	6,840
2. U.S. GOVT. CORPORATIONS & CREDIT AGENCIES	130	360	1,300	1,450	1,490	1,580	1,650	1,690	1,610
3. STATE & MUNICIPAL TRUST & INVESTMENT FUNDS	1,920	2,070	2,250	2,340	2,440	2,540	2,670	2,770	2,830
4. FEDERAL RESERVE BANKS	1,440	1,690	1,900	1,860	1,830	1,910	2,000	2,480	2,180
5. OPERATING COMMERCIAL BANKS 1/	13,610	13,090	16,940	18,740	21,070	19,630	21,030	21,720	23,520
6. CLOSED NATIONAL BANKS	140	120	80	20	10	—	—	—	—
7. MUTUAL SAVINGS BANKS	4,050	4,160	4,380	4,680	5,020	5,130	5,220	5,230	5,210
8. PRIVATE BANKS	310	330	350	440	450	360	450	540	530 2/
9. SAVINGS & LOAN ASSOCIATIONS	90	90	290	240	220	190	170	150	130
10. FRATERNAL ORDERS	640	600	680	720	750	770	810	840	840
11. LEGAL RESERVE LIFE INSURANCE COMPANIES	7,290	7,440	8,630	10,300	12,060	13,550	14,840	16,020	17,280
12. OTHER INSURANCE COMPANIES									
i) BONDS	1,730	1,690	1,750	1,840	1,980	2,070	2,170	2,150	2,150
ii) STOCKS	0 3/	0	0	50	100	100	100	100	100
13. INVESTMENT COMPANIES	0 3/	150	150	200	160	40	180	180	130
14. OTHER CORPORATIONS 4/	2,730	2,840	2,540	2,130	2,040	1,850	1,750	1,750	1,750
15. TOTAL	34,730	35,420	42,490	46,640	51,420	53,280	57,550	61,320	65,100
16. UNADJUSTED CHANGE IN HOLDINGS		+690	+7,070	+4,150	+4,780	+1,860	+4,270	+3,770	+3,780
17. NET PROFIT 5/		-520	-300	+80	+420	-260	—	—	—
18. ADJUSTED CHANGE IN HOLDINGS (16 - 17)		+1,220	+7,380	+4,060	+4,360	+2,110	+4,270	+3,770	+3,780

1/ FOR THE YEARS PRIOR TO 1938, AN ESTIMATED $50,000,000 HAS BEEN DEDUCTED ANNUALLY TO ADJUST FOR AMOUNTS PREVIOUSLY CARRIED AS SECURITIES THOUGH ACTUALLY REPRESENTING REAL ESTATE.

2/ INCLUDES, FOR PURPOSES OF COMPARABILITY WITH PRIOR YEARS, THE SECURITY HOLDINGS OF J. P. MORGAN & CO., NOW DESIGNATED AS A COMMERCIAL BANK.

3/ ARBITRARY BASE FIGURE.

4/ TAX-EXEMPT SECURITIES ONLY.

5/ PROFITS LESS LOSSES. REPRESENTS REVALUATION ITEMS NOT CONSIDERED AS SAVING.

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Table 4

CHANGE IN INDIVIDUALS' EQUITY IN SECURITIES

(millions of dollars)

		1933	1934	1935	1936	1937	1938	1939	1940	1933-1940
1.	Change in securities outstanding	+1,930	+7,100	+2,070	+5,090	+2,820	+3,530	+2,900	+3,330	+28,770
2.	Change in foreign holdings	+10	+80	+270	+660	+310	+40	-50	-80	+1,240
3.	Change in holdings of domestic non-individuals	+1,220	+7,380	+4,060	+4,360	+2,110	+4,270	+3,770	+3,780	+30,950
4.	Change in holdings of domestic individuals (1-2-3)	+700	-360	-2,260	+70	+400	-780	-820	-370	-3,420
5.	Change in borrowings of domestic individuals on securities	-210	-470	+30	+100	-470	-90	-220	-180	-1,510
6.	Change in individuals' equity (4-5)	+910	+110	-2,290	-30	+870	-690	-600	-190	-1,910

concentrated in the middle part of the period, i.e., the years 1935-1937.

The holdings of domestic individuals, on the other hand, declined by almost $3.5 billion over the period. The decrease was concentrated in domestic corporate securities. Individuals' holdings in United States government securities actually increased somewhat over the period. This decrease in individuals' holdings was offset to some extent by the reduction in individuals' borrowings on securities, aggregating about $1.5 billion, so that net dissaving of individuals in securities actually amounted to close to $2 billion. 1/

As previously noted, it was not possible to discern any significant relationships between individual saving in the form of securities and the level of income, security prices, yields of different forms of investment and similar factors over the period 1933-1940. This is true not only of the aggregate of all securities but also for corporate securities alone; not only for net saving in securities on the part of individuals but also for the total net absorption of securities by individuals, corporations and government funds; and not only of the total net absorption of securities but also for the issuance and retirement of securities. 2/

V. Business Saving 3/

a. Level of Business Saving

The net saving of business was negative over most of the period 1933-1940, fluctuating between a dissaving of about $3.5 billion annually in 1933

1/ Brokers and dealers in securities, being mostly unincorporated, are treated as individuals.

2/ These results are not believed to be due to errors of estimation (which are sizable) though they do, of course, reflect such deficiencies. They may be due, however, at least in part, to the shortness of the period covered, as it has not proved possible yet to carry the more detailed analysis back to the 20's on any satisfactory basis.

3/ Corporate saving and the business saving of farmers. (Business saving of farmers includes net expenditure on farm machinery and permanent farm construction, change in crop and livestock inventories, and net liquidation of debt.) However, much of the following discussion will be confined to corporate saving alone since this is, in many respects, more interesting than the total of business saving as defined.

and 1934 and a saving of about $0.5 billion in 1939 and 1940. The gross saving of business was about $4.5 billion higher on the average, ranging from roughly $.5 billion and $1.0 billion annually in 1933 and 1934 to over $5 billion annually in 1939 and 1940. For the entire eight years, net business dissaving totalled $12 billion while gross business saving amounted to $24 billion.

The picture is little changed when by far the most important part of business saving, viz., corporate saving, is considered separately. For the period 1933-1940 as a whole, net corporate dissaving aggregated $11 billion while gross corporate saving amounted to $19 billion. Net corporate saving was smallest in 1933, amounting to about -$3.0 billion, and largest in 1940, when it amounted to about $0.5 billion; the comparable figures for gross saving ranged from $0.5 billion to $4.5 billion. 1/ This situation is quite different from the 20's when net corporate saving was positive in every year, ranging from a few hundred million dollars to somewhat over $2 billion, while gross corporate saving varied from approximately $4 billion to $6 billion. 2/

These estimates of corporate net saving have been obtained by taking the difference between compiled net profits on the one hand and the total of taxes, net capital gains, and cash dividends paid, on the other, 3/ the

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1/ Corporate saving for 1933-1938 based on Statistics of Income, published by the Bureau of Internal Revenue; corporate saving for 1939 and 1940 are estimates of the Department of Commerce based on sample data.

2/ Data from Statistics of Income with rough adjustments for net capital gains comparable to those published for later years.

3/ Debts written off or written down have been considered as elements of cost for which no adjustment need be made.

basic figures being taken from income tax returns submitted by corporations to the Bureau of Internal Revenue. In view of the shortcomings of such data, corporate saving as used here may deviate considerably from "true" corporate saving. There is some evidence of underreporting of net income on income tax returns which would result in an understatement of corporate saving, but it is not possible to correct for it. A second deficiency in the use of income tax data for purposes of measuring corporate saving lies in the fact that such data reflect changes in the value of inventories and depreciation from an accounting viewpoint rather than from an economic viewpoint consonant with the definition of saving; in the latter, inventory revaluations should be excluded, while depreciation should be measured in current prices rather than in book values. It is possible to make very crude adjustments for this deficiency using methods similar to those developed by the National Bureau of Economic Research. 1/ On this basis, net corporate saving varied from over -$4.0 billion in 1933 to zero in 1940, totalling -$16 billion over the period, while gross corporate saving varied from -$1.0 billion to more than $4.0 billion, aggregating $15 billion. The correlation between the unadjusted and adjusted series is quite high. 2/

1/ Such adjustments are far from satisfactory which explains why they have not been incorporated into the estimates given in Table 1. The adjusted figures for corporate saving which have been computed are somewhat different from the comparable estimates of the National Bureau of Economic Research since the latter uses data from sources other than the Bureau of Internal Revenue for certain groups of companies.

2/ Only the year 1938 is much out of line. For the period 1933-1940 as a whole, adjusted corporate net saving was $5 billion lower than unadjusted net saving while adjusted corporate gross saving was $4 billion lower than unadjusted gross saving.

b. Relationships of Business Saving to National Income 1/

The size of corporate saving is closely associated with the level of national income over the period 1933-1940 though the relationship is not as close for corporate saving as it is for total saving. 2/ For each increase of $1 billion in national income, there was an average increase of nearly $100 million in net corporate saving.

Though it is intended to give a detailed treatment of the whole subject of corporate saving over the past 20 years in a special study to be completed in the near future, 3/ it seems justified to indicate at this time a few of the tentative results pertaining to the relationships of corporate saving to national income. While there is a high correlation between corporate saving and national income for the period 1919-1940 as a whole, it appears that a given level of national income is associated with a somewhat smaller amount of corporate saving in the 30's than in the 20's. However, there does not seem to be much difference between the two periods in the amount of compiled net profits (before income tax) corresponding to a given level of national income. The higher level of corporate income taxes in the years after 1935, relative to compiled net profits (before income tax), does explain a small part of this change in relationships. More important, however, in explaining the relatively lower corporate saving in the 30's compared to the 20's is

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1/ Only the business saving of corporations is considered in this section. The business saving of farmers is positively correlated with national income but the relationship is not a very close one.

2/ The saving of corporations also bears a fairly high positive correlation to both total saving and individual saving.

3/ Profits, taxes, depreciation, dividends and similar items in the income account will be analyzed separately. An analysis of changes in assets and liabilities will also be presented.

the increase in the ratio of dividend distributions to profits. 1/

VI. Government Saving 2/

a. Level of Government Saving

Net government saving varied from close to zero in years like 1933, 1934, 1937 and 1938, when dissaving by the Federal government was approximately counterbalanced by State and local government saving, to dissaving which was quite sizable in the other years, reaching a maximum of over $2 billion in 1936. State and local governments had positive net saving in every year of the period 1933-1940 ranging from $0.5 billion to almost $1.5 billion, while the Federal government showed net dissaving in every year, amounting at its peak in 1936 to nearly $3.0 billion. Gross government saving averaged somewhat over $0.5 billion more than net saving annually, with well over half the difference between gross and net saving (i.e., depreciation) 3/ attributable to State and local governments. For the period as a whole, net dissaving of the Federal government aggregating close to $12 billion was counterbalanced only in part by the positive net saving of State and local governments of $6 billion.

1/ See p. 8, footnote 1. Interestingly enough, though there is not much difference between the two periods in compiled net profits (even after income tax) corresponding to a given level of national income, a somewhat smaller level of compiled net profits relative to gross receipts is indicated for the 30's as compared with the 20's, whereas corporate gross receipts associated with a given level of national income are higher for the 30's.

2/ The following qualifications should be noted: (a) current tax revenues rather than current tax liabilities are used in estimating government saving; (b) social security funds are not included as government saving but treated as part of individual saving in the form of insurance; (c) capital outlays of State and local governments financed by Federal funds are considered as saving of the Federal government; (d) investment in public works constructed by work relief (excluding maintenance) is evaluated at two-thirds of work relief expenditures (including maintenance) for construction; (e) two-thirds of the expenditures of the Civilian Conservation Corps is considered as capital outlay; and (f) expenditures on office equipment and armaments are treated as current rather than capital expenditures and thus are not included in the estimates of government saving.

3/ The estimates of depreciation are subject to a very substantial margin of error.

Though strictly comparable figures are not available for the 20's, it appears that there was substantial positive net government saving in every year of that period, averaging close to $2 billion annually for the late 20's. 1/ The Federal government accounted for over half of this amount.

b. Relationships of Government Saving to National Income

During the period 1933-1940, there was no close relationship between total government saving and national income, nor between Federal, or State and local, government saving and national income. 2/ This is not surprising since the amount of government saving or dissaving would be expected to be more dependent on fiscal policy than on the level of national income. 3/

c. Components of Government Saving

For the Federal government, the main component of saving, or rather of dissaving, during 1933-1940 was the extremely large increase in debt, amounting to about $25 billion over the period. This was compensated only in part by the net value of Federal construction (i.e. new construction less depreciation) estimated at over $13 billion and the increase in repayable loans and in proprietary interest in Federal corporations and credit agencies (less write-offs) of over $2 billion.

For State and local governments, the main item of saving was the net capital outlay, i.e., net construction, amounting to $4.5 billion over these

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1/ Gross saving was not much larger, depreciation being smaller than in the 30's.

2/ This does not imply that government saving or dissaving does not affect the national income.

3/ Fiscal policy, of course, is not independent of the level of national income.

eight years. Saving in the form of cash holdings totalled a little over $2 billion while indebtedness increased by about $0.5 billion.

VII. Estimates of Saving in 1941

On the basis of the relationships between saving and income, discussed in the preceding sections, it is possible to make very rough estimates of the volume of saving in 1941. All such estimation is, of course, open to the very serious limitation of projecting a known past into an unknown future and is particularly questionable in a period such as 1941 when it is obvious that many fundamental changes will occur in the economic structure under the impact of the defense effort, changes which may well affect the relationship between saving and income. Consequently, the following estimates are presented simply to give some indication of the amount of saving to be expected under certain specified assumptions.

The process of estimating saving from national income obviously requires, first of all, the estimation or assumption of the level of income. It has been assumed for this purpose that the national income in 1941 will amount to about $85 billion in 1940 prices. Although this is simply an estimated value, it does not seem likely that it will prove to be much in error, particularly inasmuch as there is a fairly good basis for estimating the figure for the first half year.

Of the three main groups of economic units, viz., individuals, business and government, it is possible only in the case of individuals to give a reasonably satisfactory estimate of saving -- and then only under the assumption that the same underlying conditions which prevailed in the past will also characterize the future. From the past relationships between individual saving and income, it appears that a national income of $85 billion (in 1940 dollars)

would be associated in 1941 with individual gross saving of between $18 and $20 billion and with net saving of between $10 and $12 billion. 1/ In view of the considerably higher level of individual taxes in 1941, 2/ it is probably true that part of individual income which ordinarily would go into saving will be spent on taxes instead. Individual saving, therefore, might be expected to be somewhat lower than the above values would indicate. However, the magnitude of such diversion of income from saving to taxes should not be much over $1 billion and may well be less. The saving of individuals may also be considerably affected by such factors as a widespread public campaign to encourage individual saving, particularly in such forms as defense and saving bonds and tax anticipation certificates; by increased purchases of durable goods as a result of anticipated price rises; by decreased purchases of durable goods as a result of restriction of supply; and by changes in the income and price structure.

The estimation of corporation saving is subject to even greater error than individual saving since it is dependent to a large extent on government action with respect to prices, wages, and taxes. 3/ In addition, the problem of

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1/ See Appendix Table for the regression equations and the statistical reliability of the results.

2/ In addition to the normal increase in taxes resulting from the higher level of income, it is at present (as of July 2, 1941) planned to raise somewhat over $1 billion by the new surtaxes on individual incomes; another $1 billion by increased excise, and estate and gift taxes; and somewhat more than $1 billion by increased corporate income and excess profits taxes. The new surtaxes on individual income will, of course, be the most important factor in diverting individual income from saving to taxes. However, individual income taxes applicable to 1941 income will not be collected until 1942. Furthermore the increased excise and estate and gift taxes will have only a small effect on collections in 1941.

3/ The business saving of farmers is omitted from these estimates. Farmers might be expected on the basis of the data available to account for a slight positive net saving and over $1 billion in gross saving, but these figures are quite tenuous.

amortizing the very substantial plant expansion of corporations in estimating their saving in 1941 is a very troublesome one. In view of the virtual impossibility of making suitable adjustments for the above factors, the estimates of corporate saving are not much better than guesses. From the past relationships between corporate saving and national income, it appears that a national income of $85 billion would be associated in 1941 with gross corporate saving of between $5 and $6 billion and net corporate saving of between $1 and $2 billion. However, when an adjustment is made for the considerably higher level of corporation taxes in 1941, it appears that net corporate saving will be between zero and $1 billion while gross saving will be reduced correspondingly to between $4 and $5 billion. 1/ 2/ The upper range of this estimate, i.e., $1 billion for net saving, seems to be the more likely value and may be compared with the Department of Commerce estimate of $.6 billion for 1940.

Finally, the amount of government saving can only be crudely conjectured. It depends to a great extent on the treatment of armaments expenditures which in this study have been regarded as current expenditures rather than as saving. If this treatment were continued, assuming defense expenditures of $12 billion, 3/ non-defense expenditures of somewhat over $6 billion (of which $1.5 billion

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1/ This is also the result which is obtained when corporate saving before dividends is estimated from the assumed national income, dividends estimated from corporate income and deducted, and finally estimated taxes are subtracted.

2/ It should be noted that, in accordance with the treatment on the corporations' books, tax liabilities rather than tax payments are considered as current expense in estimating corporate saving. However, such tax liabilities in large part are not paid off until the following year.

3/ The estimate of defense expenditures in 1941 is subject to a much larger margin of error than the estimates of non-defense expenditures, capital outlay and current revenue. The estimate of defense expenditures, though regarded entirely as a current outlay, includes not only airplanes, ships, ordnance, other durable military equipment and supplies, posts, fortifications, and housing but also a considerable amount of repayable expenditures under the Lend-Lease program and fairly large expenditures for defense plant facilities.

would probably represent capital outlay) and current revenue of $9 billion, 1/ the gross dissaving of the Federal government in 1941 would amount to between $7 and $8 billion, and the net dissaving to about $8 billion. 2/

1/ Though current revenue of the Federal government for calendar 1941 is estimated at $9 billion, the tax liabilities of individuals and corporations to the Federal government for the year will probably be well over $12 billion if the revenue revisions proposed by the House Ways and Means Committee (as of July 2, 1941) are enacted into law. Theoretically, the difference between tax liabilities for 1941 and current revenue in that year (which reflects liabilities incurred but not paid during 1940) should be considered as saving of the Federal government in 1941 and as dissaving of individuals and corporations. This procedure, however, has not been followed in this study (except in so far as tax liabilities rather than tax payments are reflected in the corporate income tax returns upon which the estimates of corporate saving are based, but even here no corresponding adjustments have been made in the estimates of saving of the Federal government). For prior years, of course, the differences between tax liabilities and collections are very much smaller.

2/ State and local governments, it may be roughly estimated, will probably account for about $1.5 in gross saving and $1.0 in net saving in 1941.

APPENDIX TABLE

CORRELATION ANALYSIS OF SAVING, 1933 - 1940

Dependent Variable (Y)	Independent Variable (X)	Relationship 1/ (Y = A + BX)	Coefficient of Correlation 2/ (R)	Standard Error of Estimate 3/ (S_Y)	Standard Error of Constant 4/ (σ_A)	Standard Error of Slope 4/ (σ_B)	Mean of Independent Variable 5/ ($\bar{x}$)
1. Total gross saving	National income 6/	Y = -13.9203 + .4357X	.983	1.006	2.091	.033	62.0
2. Total gross saving	National income	Y = -2.8302 + 2.1921X 7/	.996	.019	.149	.084	1.7855
3. Total net saving	National income	Y = -21.6520 + .3627X 8/	.975	1.039	2.145	.034	62.0

1/ Variables are expressed in billions of dollars except where otherwise noted.

2/ Not adjusted for number of observations. The minimum values of R required for different levels of significance, in a correlation between two variables with 8 observations, are as follows:

For P = .05, R = .7067
For P = .02, R = .7887
For P = .01, R = .8343,

where P is the probability that an R as large as the one observed would arise, by random sampling, from an uncorrelated population. Ordinarily, of course, if P is low, R is regarded as significant. Unfortunately, it is not feasible in this analysis to adjust P quantitatively for the serial correlation characterizing the series used, so that the level of significance apparently indicated must be interpreted with caution.

3/ Adjusted for number of observations. This is the standard error of estimate of the whole regression line. The standard error of estimate for any particular value of the independent variable can be obtained from the formula:

$$\sigma_{Y'} = \sqrt{\frac{S_Y^2}{N} + \sigma_B^2 (x' - \bar{x})^2}$$

where x' is the particular value of the independent variable and N the number of observations.

4/ Adjusted for number of observations.

5/ Presented to facilitate computation of standard error of estimate for a specific value of the independent variable. See Footnote 3.

6/ U. S. Department of Commerce.

7/ Logarithmic equation. Y is used to designate log Y, and X to designate log x. The statistics given for these equations relate to the logarithms of the original variables.

8/ Introducing change in national income as an additional independent variable does not significantly improve the fit or perceptibly affect the regression coefficients. Introducing time (T) as an additional independent variable gives the following results: Y = -25.2300 + .4538x - .4600T; the coefficient of multiple correlation is .979; the coefficient of partial correlation (time held constant) is .909; the partial correlation between saving and time is not significant.

Dependent Variable (Y)	Independent Variable (x)	Relationship 1/ (Y = A + Bx)	Coefficient of Correlation 2/ (R)	Standard Error of Estimate 3/ (S_Y)	Standard Error of Constant 4/ (σ_A)	Standard Error of Slope 4/ (σ_B)	Mean of Independent Variable 5/ ($\bar{x}$)
4. Total gross saving excl. saving in automobiles and "other durable consumers' goods" 9/	National income	Y = -11.3770 + .2955x	.971	.909	1.876	.030	62.0
5. Total gross saving excl. saving in automobiles and "other durable consumers' goods"	National income	Y = -4.4546 + 2.9333x 7/	.991	.037	.288	.161	1.7855
6. Total net saving excl. saving in automobiles and "other durable consumers' goods"	National income	Y = -16.7740 + .2724x	.973	.801	1.653	.026	62.0
7. Total gross saving in 1929 prices 10/	National income in 1929 prices 10/	Y = -16.5423 + .4042x	.981	1.047	2.511	.033	75.5
8. Total net saving in 1929 prices	National income in 1929 prices	Y = -27.4614 + .3737x	.966	1.294	3.103	.041	75.5
9. Individual gross saving	Total gross saving	Y = .7664 + .7225x	.964	1.097	1.131	.081	13.11
10. Individual net saving	Total net saving	Y = 2.4972 + .7326x	.953	1.083	.391	.095	0.85
11. Individual gross saving	Corporate gross saving	Y = 4.2363 + 2.4982x	.866	2.071	1.594	.590	2.40
12. Individual net saving	Corporate net saving	Y = 6.1738 + 2.2606x	.846	1.902	1.035	.582	-1.35
13. Individual gross saving	Income payments	Y = -13.3382 + .3675x	.960	1.156	2.832	.044	64.1
14. Individual gross saving	Income payments	Y = -3.6385 + 2.5615X 7/	.973	.047	.444	.246	1.8021

9/ Includes houses. Since saving is frequently defined in such a manner as to exclude automobiles and "other durable consumers' goods", this variant of total and individual saving is considered separately.

10/ Saving was deflated by a price index of investment goods comparable to the series computed by the National Bureau of Economic Research; the income deflator is the same as that used by the National Bureau, with comparable estimates made for 1939 and 1940. Using other deflators, such as the Bureau of Labor Statistics Cost of Living Index, gives substantially the same regression and correlation coefficients.

Dependent Variable (Y)	Independent Variable (x)	Relationship 1/ (Y = A + Bx)	Coefficient of Correlation 2/ (R)	Standard Error of Estimate 3/ (S_Y)	Standard Error of Constant 4/ (σ_A)	Standard Error of Slope 4/ (σ_B)	Mean of Independent Variable 5/ ($\bar{x}$)
15. Individual net saving	Income payments	Y = -16.5594 + .3068x	.930	1.313	3.214	.050	64.1
16. Individual gross saving excl. saving in automobiles and "other durable consumers' goods"	Income payments	Y = -9.1068 + .2056x	.906	1.037	2.539	.039	64.1
17. Individual gross saving excl. saving in automobiles and "other durable consumers' goods"	Income payments	Y = -7.3251 + 4.3529x 7/	.916	.149	1.405	.779	1.8021
18. Individual net saving excl. saving in automobiles and "other durable consumers' goods"	Income payments	Y = -10.5504 + .2018x	.904	1.034	2.531	.039	64.1
19. Individual net saving excl. saving in government funds 11/	Income payments	Y = -14.2271 + .2589x	.887	1.453	3.558	.055	64.1
20. Individual gross saving in 1929 prices 10/	Income payments in 1929 prices 10/	Y = -16.9674 + .3572x	.945	1.328	3.953	.050	78.1
21. Individual net saving in 1929 prices	Income payments in 1929 prices	Y = -21.8570 + .3215x	.913	1.549	4.609	.059	78.1
22. Individual saving in insurance	Income payments	Y = -3.5175 + .0884x	.989	.144	.353	.005	64.1
23. Individual saving in insurance excl. saving in government funds	Income payments	Y = -1.2031 + .0409x	.870	.251	.614	.009	64.1
24. Individual saving in liquid form 12/	Income payments	Y = -8.2725 + .1840x	.800	1.492	3.654	.056	64.1

11/ This is a variant of individual saving in which there is a considerable amount of interest and it is consequently shown separately.

12/ Saving in the form of currency and bank deposits, equity in savings and loan associations, insurance, and securities.

Dependent Variable (Y)	Independent Variable (x)	Relationship 1/ (Y = A + Bx)	Coefficient of Correlation 2/ (R)	Standard Error of Estimate 3/ (S_Y)	Standard Error of Constant 4/ (σ_A)	Standard Error of Slope 4/ (σ_B)	Mean of Independent Variable 5/ ($\bar{x}$)
25. Individual saving in liquid form excl. saving in government funds	Income payments	Y = -5.9519 + .1363x	.665	1.653	4.047	.062	64.1
26. Net liquidation of individual debt	Income payments	Y = 3.6978 - .0614x	-.702	.674	1.650	.025	64.1
27. Change in individual net claims on non-individuals 13/	Income payments	Y = -4.7990 + .1215x	.770	1.086	2.660	.041	64.1
28. Change in individual net claims on non-individuals excl. saving in government funds	Income payments	Y = -2.4560 + .0734x	.543	1.228	3.008	.046	64.1
29. Gross expenditures of individuals on all durable consumers' goods 14/	Income payments	Y = -8.5380 + .2461x	.987	.427	1.045	.016	64.1
30. Gross expenditures of individuals on all durable consumers' goods	Income payments	Y = -3.4051 + 2.3519x 7/	.996	.017	.160	.089	1.8021
31. Net expenditures of individuals on all durable consumers' goods 15/	Income payments	Y = -11.7580 + .1852x	.972	.488	1.196	.018	64.1
32. Individual net saving in all durable consumers' goods, variant 1 16/	Income payments	Y = -9.2161 + .1410x	.933	.589	1.443	.022	64.1
33. Individual net saving in all durable consumers' goods, variant 2 17/	Income payments	Y = -8.2846 + .1227x	.910	.603	1.478	.023	64.1

13/ Saving in liquid form plus the residual net liquidation of debt not included in liquid saving. Theoretically, changes in the tax arrears of individuals and in the debt of unincorporated business to corporations should be reflected in this series, but satisfactory data are not available.

14/ Less change in institutional holdings of homes. When gross expenditures are not so adjusted, the statistics are as follows: Y = -6.9925 + .2233x; R = .990; S_Y = .348; σ_A = .852; σ_B = .013; $\bar{x}$ = 64.1.

15/ Gross expenditures (line 29) less depreciation. When net expenditures are not adjusted for institutional holdings of homes, the statistics are as follows: Y = -10.2252 + .1627x; R = .961; S_Y = .505; σ_A = 1.237; σ_B = .019; $\bar{x}$ = 64.1.

16/ Net expenditures (line 31) less change in debt on homes and automobiles.

17/ Net saving, variant 1 (line 32) less change in consumers' debt not elsewhere classified.

Dependent Variable (Y)	Independent Variable (x)	Relationship 1/ (Y = A + Bx)	Coefficient of Correlation 2/ (R)	Standard Error of Estimate 3/ (S_Y)	Standard Error of Constant 4/ (σ_A)	Standard Error of Slope 4/ (σ_B)	Mean of Independent Variable 5/ ($\bar{x}$)
34. Change in individual net claims on non-individuals 13/	Gross expenditures of individuals on all durable consumers' goods 18/	Y = -.9658 + .5400x	.773	1.082	1.382	.181	7.33
35. Change in individual net claims on non-individuals excl. saving in government funds	Gross expenditures of individuals on all durable consumers' goods 18/	Y = -.1582 + .3290x	.549	1.222	1.562	.205	7.33
36. Change in individual net claims on non-individuals	Net expenditures of individuals on all durable consumers' goods 18/	Y = 2.8340 + .7502x	.806	1.010	.360	.225	0.21
37. Corporate gross saving	National income	Y = -3.9366 + .1022x	.888	.659	1.359	.022	62.0
38. Corporate gross saving	National income	Y = -5.0834 + 3.0214x 7/	.939	.103	.807	.452	1.7855
39. Corporate net saving	National income	Y = -7.2000 + .0943x	.880	.633	1.305	.021	62.0
40. Corporate gross saving in 1929 prices 10/	National income in 1929 prices 10/	Y = -5.1173 + .1016x	.914	.586	1.404	.018	75.5
41. Corporate net saving in 1929 prices	National income in 1929 prices	Y = -9.6178 + .1075x	.927	.565	1.355	.018	75.5
42. Corporate gross saving	Total gross saving	Y = -.6880 + .2357x	.908	.601	.620	.044	13.11
43. Corporate net saving	Total net saving	Y = -1.5711 + .2587x	.899	.584	.211	.051	0.85

18/ Not adjusted for change in institutional holdings of homes.