"ECONOMIC AND MONETARY ASPECTS OF NATIONAL DEBT RETIREMENT"

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CONTENTS

LIST OF TABLES

LIST OF CHARTS

Preface

The present study concerns itself with an aspect of public finance which is as old as the existence of national governments. But the approach differs somewhat from the treatment found elsewhere, inasmuch as it is not concerned with the desirability of debt retirement per se, but with the monetary effects which such retirement will tend to produce. The conclusions drawn from the analysis will, however, inevitably suggest certain attitudes towards the question of debt management policy.

This thesis grew out of a vague sense of dissatisfaction on the part of the writer and his colleagues in the Graduate School with the monetary theory of debt retirement as it is found subsumed in the body of Keynesian doctrine relating to countercyclical fiscal policy. It is frequently suggested that debt retirement during inflationary periods will serve as a potent weapon in the reduction of purchasing power. Proper debt management is thought to serve the twin objectives of raising spending capacity in depressed periods and limiting it in more prosperous times, while at the same time the total national debt may be stabilized over the long run.

It will be the object of this study to bring into question this view on the efficacy of deflationary monetary operations through debt redemption. It is not denied that government hoarding of tax revenues, or some such scheme could achieve

deflationary results, but this sort of fiscal operation is set aside on the grounds of political inexpediency at the present stage of development in the practice of public finance.

I wish to acknowledge my very considerable debt to Dr. F. Cyril James for his patient assistance throughout the preparation of this thesis. Though extremely busy, he has given generously of his time toward the crystallization of the writer's ideas on the monetary problems involved. In addition to his corrections and clarifications of the monetary analysis, he has provided the writer with a better understanding of the techniques of economic research. For both these contributions I am most grateful.

ECONOMIC AND MONETARY ASPECTS OF NATIONAL DEBT RETIREMENT

CHAPTER 1 : INTRODUCTION AND DEFINITIONS

A. Introductory

The object of this paper will be to study the economic and monetary aspects of debt retirement, with special reference to the economic environment existing in Canada, the United States and Great Britain. For the most part, the emphasis will be placed on the monetary features of debt reduction, since the economic consequences will be largely determined by the net inflationary or deflationary effects of debt repayment. While it is perhaps incorrect to make a sharp distinction between "economic" consequences and "monetary" consequences, the latter being an integral part of the larger notion, it nevertheless seems desirable to place a special significance on the side of money-stocks and money-flows.

This is all the more necessary in view of the neglect which the purely mechanical monetary operations involved in debt retirement has received. Contemporary Keynesians, concerned with public policies designed to mitigate the harmful effects of the business cycle, have too readily assumed that debt retirement during periods when an "inflationary gap" exists will tend to lower the volume of money and lessen the pressure of large money-income on the necessarily limited flow of real goods and services. Even the anti-Keynesians have automatically accepted the validity of deflationary operations through debt retirement, without examining the effects of changes in total debt on the volume of bank

credit and cash balances available to the public.

The goal sought will be either a vindication or denial of the proposition that debt retirement tends to have a deflationary effect on an economy. This does not, however, exclude us from considering the ramifying effects of debt repayment on the distribution of income, on the flows of savings and investment, on the rate of interest and on the longer term aspects of choosing the appropriate time for debt reduction. But it is felt that an analysis of the monetary aspect is prerequisite to a consideration of the overall economic problem of debt retirement.

B. CONCEPTS OF THE NATIONAL DEBT

What is the national debt? Since many concepts are in use, it will be worth our while to clarify the various meanings attached to it and, if possible, confine ourselves to one definition throughout. Generally speaking, the national debt signifies all those obligations which a government has undertaken in return for the acquisition of immediate claims to wealth. Governments acquire debts in periods when receipts in the form of tax and other revenues fail to balance expenditures. This may occur by deliberate choice, as in most periods of national emergency such as war, and more recently, in periods of economic depression. Occasionally, debts are created through the failure of tax rates to produce expected yields, so that temporary deficits must be covered by borrowing.

Some writers[1] have included in the debt imputed charges arising from future commitments of governments, such as those involved in the steady growth of social legislation. This is justifiable so long as it is

1. Cf. D.B.Woodward: "Public Debts and Institutions", Am.Ec.Review, Supp., May 1947, p.158

clearly understood as applying to the potential debt burden, and is therefore relevant to the problem of determining the optimum speed of retirement in the present. A case in point is the American old-age pension program, which as it stands will incur large deficits before it is placed on a self-sustaining basis. Such additions to the debt can be foreseen, and should be reckoned in any estimate of the debt retirement policy which should be currently pursued.

However this form of foresight must be used with caution. It should not be applied to mere conjectures about future growth of government obligations, without at the same time making similar conjectures as to the growth of income and future ability to carry these larger undertakings.

One of the commonest arguments in favor of debt retirement has been the fear of future war, which might bring with it national bankruptcy, even if the war were won.[2] This Damocles' sword, hanging by the slender thread of present capacity to pay, has repeatedly served the cause of those who favored early and rapid debt retirement. When war did come, the weight of the sword usually grew much more rapidly than the most pessimistic observers had predicted, yet the sword did not fall. This was because war usually increased the strength of the thread by as much, if not more, than it increased the weight of the sword. An illustration can be readily taken from British experience, where the debt burden of 7%[3] resulting from the Napoleonic wars was not equalled again until 1924, when the absolute size of the debt was ten times as great as in 1815.[4]

Thus the use of forecasts of probable debt growth resulting

2. The Secretary of the U.S.Treasury, in his annual report for 1865, advocated the funding and steady retirement of the civil war-created debt, and delivered this admonishment:"We need not be anxious that future generations shall share the debt with us. Wars are not at an end, and posterity will have enough to do to take care of the debts of their own creation."
3. Ratio of annual debt charges to national income; see Part D below.
4. Cf.W.H.Beveridge:Full Employment in a Free Society, London,1944, appendix by N.Kaldor.

from the increased intervention of governments in the economic life of nations is acceptable only in conjunction with similar forecasts of tax capacity, income distribution, security markets, the rate of interest and so forth.

The "national debt" means many things to many people, and it will be necessary to definte in rigorous terms what use will be made of the phrase for our purposes. Government debt includes not only the more obvious types of interest bearing paper such as long and medium term bonds and short term "treasury bills", but also liabilities guaranteed by national governments on behalf of various institutions and satellites, together with the volume of currency issued by the central bank.[5]

The national currency, which includes bank notes, coin and other liabilities is clearly a direct obligation of the central government. In the event of the central bank going bankrupt, these obligations would have to be met from current revenue, though it is obvious that the fiduciary issue is redeemable only in itself. One significant distinction for our purposes between the national currency and ordinary government debt is that the former bears no interest, and therefore does not involve the transfer of wealth from taxpayers to debt owners. A second contrast which is of fundamental importance to a consideration of the monetary aspects of debt retirement is that currency is a generalized form of purchasing power, while government bonds are not; the latter can only be turned into a liquid medium of exchange through being sold to those with surplus cash, which produces an

5. It has been the practice in some European countries (eg.Italy) to include the volume of government guaranteed bank notes and even the total volume of bank deposits as part of the national debt. Since the significant burden of debt is that imposed by the annual interest charge plus the sinking fund, non-interest bearing debt in the form of money will be excluded from our argument. It will be recognized, however, that for the purposes of price policy, non-interest bearing debt is also significant. In the latter case, the absolute size of the debt has an important relationship with the volume of money and hence with the level of national income. This phase of the study will be dealt with in a subsequent chapter.

equal and opposite change in the bond buyers' cash holdings. The net effect on the volume of money will depend on the nature of the institutions which buy or sell the bonds.

Less clear than the case of the volume of money are those cases where the government has guaranteed obligations of its satellites, such as local governments, federal agencies, or nationally owned utilities. These are usually listed as "contingent" or "indirect" liabilities. They must be included in total debt, but since they do not require servicing or repayment in the normal course of events, they may be excluded from the concept of the interest-bearing debt. Here again the size of the total debt is important in the realm of monetary policy. Were the government called upon to meet principal or service charges, on obligations issued by government corporations, in the event of default, this too would significantly affect the volume of money and price levels.

In the past, a distinction was commonly made between "funded" and "floating" debt, the former referring to long term obligations, the latter to short term loans which required continual refinancing and were therefore "afloat". Since both forms of debt are interest-bearing on the one hand, and are also part of the total debt which, when repaid, produces monetary ramifications on the other hand, this distinction has lost meaning and will not be pursued.

In the countries under consideration national accounting practices differ, but generally the interest bearing debt will exclude "matured funded debt outstanding", "interest due and outstanding", plus deposit and trust accounts and pension funds so long as these are self-sustaining. It will be noted that sufficient assets are normally held to meet outstanding obligations of this sort.

A final distinction may be made between the gross and net debt. The former, when qualified by the words "unmatured and funded" means the total interest bearing debt. The TOTAL debt would be the gross unmatured funded debt plus floating debt and the miscellaneous liabilities listed above. The net debt, therefore, will comprise the total debt less total assets held by that department of Government which handles the national debt. Such assets would include cash balances and loans outstanding to federal agencies, subsidiary governments and national utilities. But the "net debt" will not be used in this study.[6]

A comparison of more fundamental importance can be made between an internally held debt and one which is owed abroad. In the case of the former, claims to wealth are transferred from capital owners to the government when the debt is created, and retransferred from taxpayers to debt holders when the debt is retired. There is no change in the aggregate wealth of the country, at least insofar as the debt is measured in money values and not in terms of personal utilities. Lenders, who in the past have given up present for future income, acquire liquid claims when a national debt is repaid, and are once again free to make a decision as between spending and saving.

In the case of an externally held debt, however, service charges and principal repayments must be met by the acquisition of foreign currencies. The purchase of foreign money will only be possible insofar as the foreign banking system is willing to add the domestic (debt-payer's) currency to its portfolio. This it will do only if there is a reciprocal demand on the part

6. For an excellent summary of the different concepts of debt see S.E.Laland: "The National Debt", Encyclopedia Britannica, 1947 Ed., Vol.16, pp.131-143H.

of the citizens of the foreign country for the debt-payer's currency; that is, so long as the debt-payer has exported goods or services which have created a demand for its currency abroad. In other words, a foreign-held debt must be paid for in the last analysis by the export of goods and services or gold. Assuming all other items in the foreign trade accounts to be equal, the borrowing of money abroad will require, eventually, the net export of real wealth. This distinction between a foreign and a domestic debt, though understood by most writers for many decades, is so frequently ignored in popularized essays on the national debt that it seems worthwhile to repeat it here.

For most developed Western economies, the burden of externally held debt is not great at the present time. This was certainly not true of the smaller agricultural economies, such as those of Canada, Australia and Argentina which, until the first World War, imported vast amounts of capital for railway building and harbour expansion. Yet not much of this debt involved the national government, since most of the large construction works were privately financed with the government playing a secondary role as the supplier of subsidies. One of the chief monetary effects of two world wars has been the repatriation of foreign held securities by those countries which were removed from the war area, and which had relied heavily on British capital in their periods of rapid expansion and settlement. At the present time, less than 1% of the Canadian debt is payable in New York, and less than one tenth of 1% is due in London. The American debt is almost wholly internal, while the United Kingdom, once the world's creditor, is now faced with a balance of payments problem which bulks larger than any financial difficulty ever faced by the British people. The distinction between an internal and an external debt is nowhere more forcefully indicated

than in the contrasting conditions of the United Kingdom and the United States: the former has not only a relatively larger internal debt, but a far larger proportion due abroad. It is interesting to note that, with respect to the latter point, this is an exact reversal of the situation as it existed one hundred years ago.

It will be clear from the above paragraphs that the present paper is concerned with an internally held debt, since the foreign debt problem is best considered as part of the problem of the international transfer burden. Specifically, weare interested in the total debt less those parts of it which can be met with certainty by non-tax revenues, so far as the monetary aspects are concerned, and in the total interest-bearing debt so far as debt burden is concerned.

C. THE MEANING OF DEBT RETIREMENT

The present paper is chiefly concerned with the effects of debt retirement, rather than with the motivations leading towards it. Consequently no stress will be laid on the economic or political advantages sought in debt discharge. Rather, given the fact of debt redemption, an attempt will be made to test the validity of some accepted hypotheses concerning its monetary effects.

A number of techniques for national debt retirement exist, but there is essentially only one process by which it can be achieved: through an excess of government revenues over expenditures. (Since we shall exclude the alternative methods of direct repudiation or repudiation by deliberate inflation, as well as default through death of the creditor or debtor, there is the underlying assumption that orthodox financial methods are to be pursued. This is almost a corollary of the earlier assumption that we shall deal only

with the economic environment in countries having responsible government.) Whether the money be appropriated by sinking fund legislation or by accidental budget surplus, by capital levy or as a result of inflation, it must always derive from tax revenues. This fact provides us with a definition of debt retirement: it is the process of achieving a net reduction in the government's obligations as to principal by means of the Treasury's buying its outstanding bonds from its creditors for cash obtained from tax revenue. By this standard, the conversion of debt into new obligations of equal or greater par value at lower rates of interest does not constitute debt retirement. As has already been indicated, the national debt consists of all government bonds, notes and bills, interest-bearing or otherwise, apart from such contingent liabilities as are met out of non-tax revenues or are backed by cash assets.

Given the existence of surplus revenue over and above ordinary expenditures, an analysis of the process of debt retirement will depend on the nature of the government's tax sources, its creditors, and the banking mechanism through which it operates. So far as the tax source is concerned, we shall be interested in the effects of the burden imposed by debt retirement on savings, investment and consumption. As to the nature of the government's creditors, the contrasts between them resulting from differences in their financial function will be brought out.

The banking and credit structure through which debt retirement takes place occupies such an important part in the analysis that a brief outline of its nature may be inserted at this point. The process of debt retirement can be most readily summarized by a review of the process of debt creation. If a government borrows money from lenders who supply their savings voluntarily, no important monetary effects ensue; the government merely acquires purchasing power which the lenders forego. But if a government is unable or unwilling to obtain funds through this simple

transfer of purchasing power, it may do so by borrowing from the commercial banks. So long as the latter are in a position to increase their liabilities, by reason of the existence of excess reserves, an inflationary process is set in motion: in return for the acquisition of government bonds, the banks provide credit to the Treasury. This credit, having been spent by the government, becomes part of the bank-credit purchasing power of the public, who have thus obtained larger incomes without having surrendered an equal and opposite amount of purchasing power to the government.

As a last resort, the Treasury may also print bonds and sell them to the central bank, which also has the power of deposit creation. This process is potentially even more inflationary than the second, for it eventually provides the commercial banks with augmented reserves when the Treasury's newly created deposits at the central bank are spent. The monetary effects will depend on the ability or willingness of the commercial banks to extend still more credit to the government or to private citizens and institutions. In summary, then, the monetary effects of debt expansion will depend on the financial institution through which expansion takes place, and on the elasticity of demand for bank credit.

Similarly, debt retirement has neutral, deflationary or inflationary effects. If it represents nothing more than a transfer of purchasing power from private citizens to the government through taxation, followed by a repayment to the same persons, its effects are neutral so far as the bank credit structure is concerned. If it constitutes a repayment of the commercial banks, who thereupon extend private bank credit to an equal amount because of enhanced cash reserves, the effect is also neutral; and the effect will be inflationary or deflationary if the reduction of bankheld debt leads to a proportionately greater or less extension of private bank credit. Finally,

the repayment of debt held by the central bank will be deflationary if it leads to a multiple reduction of commercial bank reserves at a time when those reserves are at a legal minimum. All these results will be qualified by certain details of the banking system, such as the institution through which the Treasury performs its banking operations, the degree of adherence to legal cash-deposit ratios, and above all to the degree of elasticity of the demand for credit and currency.

D. THE BURDEN OF DEBT

Many methods have been employed to measure the burden of a national debt. Most frequently the debt is considered only in absolute terms, which of course gives no indication of its burden, since a "burden" must be related to some measurement of ability to support the weight.

Another concept of burden sometimes employed is that of debt per capita. This, however, is not a particularly useful measurement, since it makes no reference to the income capacity of the community. It tells us little about the comparable burden of debt between two countries at the same time, and hardly more as regards different points of time in the same country.

A third concept which is sometimes heard is in terms of "national wealth". This form of measurement is usually mentioned by those who confuse the "stock" of wealth with the "flow" of income. No very practicable method has been devised for measuring a country's wealth, since it involves not only the assessing of material goods, but also the valuation of a people's skill, training, social and political maturity and the even less measureable quantities of natural resources, scenery and so forth. We can only make the roughest calculation of national wealth and even then it is likely to be meaningless.

There is, however, a fourth concept which is in common use,[7] and which serves as the basis of valid comparisons. This measurement of the debt is in terms of national income. Sometimes the debt-income ratio is employed, but this method lacks precision for the purpose of measuring debt burden, since it fails to take into account the fact that the debt is rarely repaid in one lump sum, and does not constitute a burden in the sense of being a charge against income. It is useful, however, when the monetary aspects of the debt are under consideration. The volume of debt is closely related to the volume of money in the economy, since a very large part of bank deposits came into being through debt expansion. Much of the current debt in Canada and the United States, for example, is the result of inflationary borrowing during the war, and its growth has been closely parallelled by a growth in bank deposits. Moreover, much of the remaining debt outstanding could be readily converted from interest-bearing bonds and notes into money. This fact is not in itself a sufficient basis for the anticipation of increasing inflationary pressure through bond liquidation. Apart from any redistribution of income which might result, the sale of bonds between different members of the public who do not have the power of deposit-creation has no monetary effect. But the purchase of government obligations by the banks, (insofar as they are in a position to make larger purchases through the existence of excess cash reserves) provides the necessary condition, given the desire for bond liquidation, for a very great expansion of bank deposits and consequent pressure on prices. With governments committed to the support of their own security markets (as they still are to a greater or less degree), ordinary market pressures (ie. capital losses) are not available to dissuade heavy cumulative liquidation of bond holdings.

7. Cf. H. Seligman: "Patterns of wartime borrowing in the U.S., U.K. and Canada", Fed.Reserve Bulletin, Nov.1944, pp.1056-69; E.Domar: "The Burden of the Debt", Am.Ec.Review, Dec.1944, pp.798-827; S.E.Leland: loc.cit.

It is therefore important that we should examine the relationship between the size of the debt and the size of national income. In order to do this it will first be necessary to consider the methods by which debt expansion or contraction is achieved. Not only does the size of the national income influence the rate of debt retirement, for example, but the national debt influences the level of national income through the effect on bank deposits of debt expansion or contraction. If debt expansion is achieved by means of voluntary saving no inflation will result; if it is made possible by large scale borrowing from the banks, inflation is more likely to result, though this need not necessarily follow. During the depressed 1930's in the U.S., a large proportion of newly created debt went to the banks, but the second necessary condition for inflation - a demand for bank credit by the public - was lacking.

For the economic aspect of the problem, the ratio of interest charges to national income is the relevant concept. This form of measuring the debt burden serves to indicate the proportion of income which must be raised in taxation and shifted to bond holders. It is particularly valuable for comparisons of the debt burden at different points of time, and to some extent of the burden in different countries at the same time. There remains the difficulty that the aggregate of interest charges is still not a one-sided burden on the economy as a whole, since the tax losses of one group of citizens represent income from investments for another group of citizens. The interest receipts of the debt owners form part of the national income which is taxed to service the debt. It will be part of our problem to examine the extent to which these two groups of people are one and the same.

Interpreting the above concept of debt burden in exact quantitative terms, that is, as the ratio of debt service charges to national income, it will be necessary to define "national income" more precisely. This is taken

to be "net national income at factor cost", plus the sum of transfer payments by governments and business to individuals. That is, it includes the aggregate of incomes paid out to factors in the form of wages, salaries, farm incomes, profits, rents and investment incomes, together with social security payments not represented by any production of real goods and services by those who receive them. This sum represents total incomes before taxation is imposed, and excludes that part of gross national income which is set aside for depreciation allowances and for the payment of indirect taxes.

It is also possible to measure the burden of debt, or the debt-service tax rate, as a proportion of national tax revenues and/or expenditures. This form of measurement merely serves to indicate the proportion of the budget which is occupied by a first mortgage, so to speak, on the taxable capacity of the country. There are, of course, many other items in the national budget which are irreduceable, such as veterans' and old age pensions, the bulk of civil service salaries and so forth.

Chapter 2

GROWTH AND RETIREMENT OF PUBLIC DEBTS

That public debts in most countries are chiefly the result of expensive and destructive wars can be readily shown from a cursory examination of the financial history of the two nations which will be our special interest. In the case of the United Kingdom, major increases in the debt occurred in the Napoleonic war and in the First and Second World Wars. In fact 95% of the British debt is directly attributable to the two chief catastrophes of this century. The bulk of the American debt is also the product of two World Wars, but one tenth of it is the result of the depression in the 1930's. A summary of the evidence is contained in Tables 1 and 2.

A. THE NATIONAL DEBT OF THE UNITED KINGDOM

In column 4 of Table 1, the approximate percentage of the total debt existing at the end of each war which was repaid in the subsequent peacetime era is given. It will be noted that in no modern period has a proportion greater than 21% been removed from the debt, and that even this performance took place over nearly half a century of unprecedented industrial expansion. One would normally expect unchanged tax rates to yield increased revenues under such conditions. It can be said with some justification that no serious effort has ever been made to pay off the British debt, although there have been Parliaments and Ministries which committed themselves hopefully

to complete retirement.

British debt retirement policy has been characterised by a wide range of techniques designed to eliminate the debt over a planned period without undue discomfort to the taxpayers. These methods ranged from Dr.Price's unfortunate sinking fund after Waterloo, to "terminable annuities" and conversions in the late nineteenth century, and finally to accidental budget surpluses. One of the most intensive efforts at repayment took place in the late nineteenth century under the leadership of Viscount Goschen, Chancellor of the Exchequer. Although this was not necessarily the most active period of debt reduction (a more successful campaign took place after the turn of the century), it was notable for the general stability of the nation's affairs, and presents fewer extraneous developments to cloud our analysis. Consequently the conversion and debt reduction policy under Viscount Goschen will be an object of special study.

B. THE NATIONAL DEBT OF THE UNITED STATES

The American debt experience is summarized in Table 2, and shows evidence of repeated efforts to pay off the debts which the young nation incurred in its wars. Not till the advent of the recent depression did the United States fail to enter its newest war with a situation much improved over the time of its emergence from the previous war.

A number of factors favored the contrasting success of American debt retirement over that of the United Kingdom. Firstly, the vast resources and rapidly growing wealth of the American continent provided ample opportunity for government tax gatherers in an era when the function of government was essentially supervisory rather than interventionist. Not until the advent of the 1930's did the State interfere to a considerable degree in the pattern of economic life of the American nation. Only then did it come

TABLE 1 [x]

NATIONAL DEBT OF THE UNITED KINGDOM 1688-1944

(nearest £ million)

	1 Period	2 Borrowed	3 Repaid	4 % Repaid	5 Total Debt	6 Average Annual Repayment
War	1688-97	21	-	-	21	
Peace	1697-01	-	5	24%	16	1.25
War	1702-14	39	-	-	55	
Peace	1714-39	-	8	15%	47	.32
War	1739-48	31	-	-	78	
Peace	1748-55	-	3	4%	75	.42
War	1755-63	72	-	-	147	
Peace	1763-75	-	11	8%	136	.91
War	1775-86	121	-	-	257	
Peace	1786-93	-	13	5%	244	1.9
War	1793-15	604	-	-	848	
Peace	1815-53	-	79	9%	769	2.1
War	1853-55	39	-	-	807	
Peace	1855-99	-	172	21%	635	4.0
War	1899-02	159	-	-	794	
Peace	1902-14	-	144	18%	650	12.0
War	1914-18	7,180	-	-	7830	
Peace	1919-30	-	361	5%	7469	32.8
Depression	1930-39	328	-	-	7797	
War	1939-45	11,796	-	-	19,593	
Peace	1945-					

x Adapted from N.Kaldor: Appendix to Sir.W.Beveridge's Full Employment in a Free Society, London, 1944; figure for total debt in 1930 from S.E.Leland; loc.cit. p.140

forward with a large scale relief appropriation, with agricultural subsidies and, generally, with the complex of financial-aid programs which comprised the national recovery legislation. In the century and a half which followed the creation of the new nation and which preceded the era of government intervention, population in the United States increased fortyfold. Income per capita rose greatly, and the productive capacity of the economy expanded beyond computation. Yet total federal expenditures, which were about $5 millions in the first years of the Republic, climbed to only $63 millions at the start of the Civil War and to ten times that amount at the outbreak of the first Great War. It is readily understandable that the relatively youthful population which filled the empty continent and applied itself to wholly unused resources should provide an ample tax source for meeting ordinary expenditures and for contributing excess revenue towards debt redemption. Even by 1929, total federal expenditures in the U.S. amounted to no more than what one tenth as many people, with relatively lower incomes, were raising in Canada in 1944.

By way of contrast, the national debt of the United Kingdom had to be carried by an economy which had achieved relative stability at the turn of the century. Although the British national income increased enormously between 1815 and 1900, the expansion was hardly comparable to American growth. By mid-nineteenth century Britain had introduced the income tax, and was tapping a great number of more specialized sources for revenue while the U.S. was still relying almost entirely on customs and excise revenue.

The discrepancy in the rate of growth of productive capacity in the United Kingdom and the United States provides the underlying explanation of the contrasting vigour of debt retirement in the two nations, and is in

fact a basic explanation of the difference in attitude towards this phase of public finance in both countries.

Perhaps more important than these reasons, however, is the simple fact that the United States was involved in fewer and less destructi wars. Her major efforts, though enormously expensive, did not entail the serious depreciation of the nation's capital, either human or material. Each war left the American people with a productive capacity equal to the task of providing greatly expanded government requirements. While this may also have been true of Britain in the days of Queen Victoria, it ceased to be the case after the outbreak of war in 1914.

In spite of these advantages, there is a strong suggestion of a more conscious and deliberate effort at debt retirement in the United States than in Great Britain. Commencing with Alexander Hamilton and Albert Gallatin and extending even to Henry Morgenthau, Secretaries of the Treasury have been devoted to the principle of debt retirement, and always with a considerable measure of public support.

Table 2 profides a somewhat oversimplified picture of American debt history. There were inter war periods when the debt climbed to higher levels than it had reached before. Such was true of the first ten years of the Republic's life, when the government spent large sums for defense in the face of expected retaliation. On the other hand, there were other periods when the debt was much reduced. Between the years 1830 and 1835, it fell from $49 millions to a few thousands, and left the Administration in the unprecedented position of being embarrassed by repeated surpluses.[8]

8. This situation was the immediate cause of the establishment of the ill-fated Independent Treasury System.

TABLE 2

NATIONAL DEBT OF THE UNITED STATES 1776-1945

(nearest $ million)

	1 x Period	2 Borrowed	3 Repaid	4 % Repaid	5 Gross Debt	6 Av. Annual Repayment
War	1775-90	75	-	-	75	
Peace	1790-12	-	19	25%	56	.9
War	1812-15	71	-	-	127	
Peace	1815-60	-	62	49%	65	1.4
War	1861-65	2,613	-	-	2,678	
Peace	1865-97	-	1,451	54%	1,227	45.3
War	1898-99	210	-	-	1,437	
Peace	1899-16	-	212	15%	1,225	12.5
War	1917-19	24,623	-	-	25,482	
Peace	1920-30	-	9,821	38%	16,185	893.0
Depression	1931-40	26,783	-	-	42,968	
War	1941-45	215,714	-	-	258,682	

x Note: In some cases an extra year has been added to the length of war periods, thus allowing for postwar deficits which had their origin in war commitments and costs of reconversion.

The taxpayers' holiday was short-lived however, since the advent of a depression brought continual deficits. In fact a considerable peacetime expansion of the American debt took place in the years preceding the Civil War. Its burden, however, was hardly a hindrance to an economy which was undergoing a steady expansion.

Conspicuous in American debt history was the achievement of a 38% retirement in the decade following the first World War. This represented a very great effort in comparison with contemporary British policy, but also exceeded in speed anything which had previously been accomplished in the United States. The retirement program was instituted shortly after the war under the Secretaryships of Carter Glass and David Houston, but was given its real impetus at the hands of Andrew Mellon, who vigorously pursued it throughout the decade. It is the history of this period which we shall consult for significant indicators of the effects of debt retirement.

CHAPTER 3

DEBT RETIREMENT IN THE U.S., 1919-30

A. History of the Mellon Retirement

The interest-bearing debt of the United States commenced to grow before the entry of that country into the first World War. As early as 1914, the American export trade was disrupted, the mechanism for international payments was seriously impaired, (at that time the U.S. was a debtor nation and owed considerable amounts on account of foreign-owned U.S. securities), and "the entire business and economic structure in this country was shaken to its foundations."[9]

But a rapid recovery took place, fostered by the demand for American goods on the part of belligerents. With a much stronger banking structure provided by the introduction of the Federal Reserve System, confidence returned to the money markets. Consequently the Treasury was able to place its war loans at a then very modest rate of interest, (about 3.1% on the average) and also to spread its sales over a greatly enlarged proportion of the population. (See Table 3).

Deficits grew rapidly, both on account of domestic loans and through the extension of credits to foreign governments. Between 1917 and 1922, a total of $9,598 millions was provided to the Allies;[10] this represented nearly half of the total additions to the American debt over the five year "war" period. By August of 1919, the American debt reached its highest level in history, $26,349 millions of interest bearing secu-

9. Cf. Annual Report of U.S. Secretary of the Treasury, 1914. p 1.

10. Cf. Fed.Res.Board: Banking and Monetary Statistics, Washing, 1941, p.514, footnote 5.

rities. This was the magnitude of the problem to which the American Treasury applied itself throughout the course of the 1920's.

The first step towards debt reduction was the passage of a law on March 3, 1919, setting up a 2½% cumulative sinking fund. This wasdesigned to replace the old 5% Bond-Purchase Fund which was due to expire a year after the war's end, and which had proved ineffectual. The new sinking fund was designed to retire the total U.S. debt less an amount equal to American holdings of foreign government bonds on July 1, 1920, in 25 years. This involved a sum of about $10 billions, which to be refunded in a quarter-century, would require annual appropriations of about $260 millions; since the fund was cumulative, in that savings in interest charges on discharged debt would be devoted to reduction of the principal, the sinking fund grew to about $400 millions in ten years.[11]

Refunding operations were immediately hampered by the suspension of activities of the Capital Issues Committee, which had supervised new corporate and local government issues during the war. This released a flood of new private issues which quickly competed successfully with government securities, thus lowering the price of old issues in the market and making it more difficult to float new issues at favorable rates. This fall in the price of Liberty Bonds aggravated a general movement towards concentration of government bond ownership in institutional hands, as can be seen in Table 3.

11. Cf. Annual Report of U.S. Secretary of the Treasury for 1937, p. 237.

TABLE 3 [x]

OWNERSHIP OF DIRECT AND GUARANTEED SECURITIES, JUNE 30 OF SELECTED YEARS
(nearest $ million and nearest %)

Year	1 Total Debt[a]	2 F. R. Bks.		3 Federal Agencies		4 Comm. Banks		5 Insur. Cos.[b]		6 Private[c]	
	$	$	%	$	%	$	%	$	%	$	%
1916	972	57	5.9	2	.2	763	78.5	-	-	200	20.6
1919	25,234	292	1.2	158	.6	5813	23.0	-	-	19,000[d]	75.3
1925	20,211	353	1.7	530	2.6	5760	28.5	702	3.5	12,898	63.8
1930	15,922	591	3.7	1001	6.3	5501	34.5	337	2.1	8,463	53.2

x From F.R.B.: Banking and Monetary Statistics, p.512, Table 144.
a. Interest bearing.
b. From "Proceedings of Life Insurance Ass'n. of America, 1947, p. 48 The 49 companies represented held approximately 90% of the assets of all legal reserve companies. The estimates of Col.5 have been adjusted upwards to allow for non-member companies.
c. Includes corporations.
d. Includes insurance companies.

Other factors which appeared later in the decade contributed to this process. Perhaps the most important of these was the tax legislation which exempted income derived from most forms of short term securities from corporate income tax, while leaving new long term bonds which were privately held subject to taxation. One writer[12] has suggested that the expiration of the tax examption feature on government bonds fostered the concentration of debt in institutional hands. But although Mellon frequently spoke and wrote against the tax exemption feature,[13] hoping to compensate wealthy income groups for this proposed loss by lowering the surtax, no reduction of consequence was achieved. In fact, the amount of wholly tax exempt debt only fell from $2.8 billions in 1919 to $2.2 billions in 1924, after which it remained constant until 1930.[14] This indicates that a much increased proportion of the outstanding

12. Cf. C.F.Childs: Concerning U.S.Government Securities, Chicago, 1947, p.173
13. Cf. Annual Reports of the U.S.Secretary of the Treasury for 1923, pp.376 ff., and 1925, p.354.
14. Cf. Annual Report of U.S. Secretary of the Treasury for 1937, p.469

debt was tax-exempt, and must have provided a continued inducement towards the maintenance of large private holdings of government bonds.

One further reason for the shift of bond ownership appears to have been the recovery from the depression of 1920-21. While private holdings of federal securities remained nearly constant from 1919 to 1921, they fell by $2.1 billions in the twelve months following June 1921, or by three times the amount of net debt retirements in that period. The most probable reason for this was the shift to more lucrative forms of investment. The visualization of profits through capital gains in the stock market and in real estate, which was possibly the most characteristic monetary phenomenon of the decade, thus exerted its influence as early as 1922.

The first major postwar task of the Treasury, so far as the debt was concerned, was the rearrangement of maturities to suit the periodicity of tax revenues. This was quickly and successfully carried out during 1920 in the case of the "floating" (ie. short term) debt. With renewed budget surpluses and the refunding of the prewar debt in a way that would avoid having a large proportion of loans maturing at once, the Treasury considered that it had the debt problem under control. The current low price of bonds enabled the government to apply its sinking fund to debt reduction at lower than par prices. The growing popularity of Treasury certificates, which of course carried a lower rate of interest, also assisted in the conversion of the debt at more satisfactory prices.[15] Furthermore, the fall in bond values which took place during the short but sharp break in the economy was accentuated by a new

15. This shift in short term paper was the result of the declining use of commercial paper, which in turn had its origin in widespread changes in the techniques of financing industry, chiefly in the growing financial self-sufficiency of the larger corporations. Cf. American Acceptance Council: Facts and Figures relating to the American Money Market, N.Y., 1931, pp.29 and 76-77.

provision that government securities would no longer be acceptable at par as collateral for loans, but only at their prevailing market prices. This naturally made them less desirable to corporations and other private holders.

In spite of the economic difficulties through which the country had passed, $1 billion of the debt was retired in 1922, one third of this being attributable to a budget surplus. Henceforth for eight years the Treasury achieved a debt reduction which averaged just short of a billion dollars annually.

The continuing low price of government securities at a time when recovery was setting in, impeded the successful refunding of that part of the debt which could not be retired as it matured. In 1922, refunding operations were carried out at an interest rate of 4¼%, the highest since the war.

In March 1923 the Sinking Fund Act was amended to make it applicable to bonds issued after July 1, 1920. (Up till then, the sinking fund had been applied only to the first four Liberty Loans.) In the fiscal year 1923, the sinking fund amounted to $284 millions; its size was a considerable contribution to the maintenance of Liberty Bond prices in the open market, since the Treasury had the option of retiring bonds before maturity. In that same year, the United Kingdom bought $69 millions in Liberty Bonds in payment of interest on its debt. Throughout the decade, British and foreign debt settlement payments were a significant factor in the American debt reduction program. (See Table 4). In fact, the hopes of many U.S. legislators were rather sanguine on this point, since they expected foreign payments to parallel domestic retirements. In view of the tariff barrier and subsequent economic developments, this was not to be the case.

By 1924, one third of total government expenses were devoted to interest

TABLE 4

SOURCES OF U.S.DEBT RETIREMENT, 1916-1936[x]
(nearest $millions and nearest %)

Year	1 Total Change in debt[a]	2 Sinking Fund		3 Surplus[b]		4 Change in Gen.Fund[c]		5 Foreign Repay.		6 Other[d]	
	$	$	%	$	%	$	%	$	%	$	%
1916	+ 34	-	-	+ 48	-	+ 82	-	-	-	-	-
1917	+ 1751	-	-	-853	-	+ 897	-	-	-	-	-
1918	+ 9268	-	-	-9033	-	+ 447	-	-	-	1	-
1919	+13238	-	-	-13371	-	-333	-	8	-	e	e
1920	- 1184	-	-	+ 212	17.9	-894	75.4	73	6.2	6	.5
1921	- 514	261	50.8	+ 87	16.9	+192	-	74	14.4	92	17.9
1922	- 1012	276	27.3	+ 314	31.0	-278	27.5	65	6.4	82	8.1
1923	- 712	284	39.9	+ 310	43.5	+ 98	-	101	14.2	18	2.5
1924	- 1099	296	26.9	+ 505	46.0	-136	12.4	149	13.6	13	1.2
1925	- 735	306	41.6	+ 251	34.1	- 18	2.4	159	21.6	1	.1
1926	- 873	317	36.3	+ 378	43.3	- 8	.9	170	19.5	1	.1
1927	- 1155	334	28.9	+ 636	55.1	+ 24	-	179	15.5	7	.6
1928	- 939	355	37.8	+ 399	42.5	+ 31	-	182	19.4	4	.4
1929	- 734	370	50.4	+ 185	25.2	+ 61	-	176	24.0	3	.4
1930	- 746	388	52.0	+ 184	24.7	- 8	1.1	161	21.6	5	.7
1931	+ 616	392	-	- 903	-	+153	-	48	-	e	e
1932	+ 2686	413	-	-3153	-	- 55	-	-	-	e	e
1933	+ 3052	426	-	-3068	-	+ 445	-	34	-	-	-
1934	+ 4514	359	-	-3155	-	+1720	-	-	-	-	-
1935	+ 1648	573	-	-2962	-	-741	-	-	-	-	-
1936	+ 5078	403	-	-4641	-	+ 840	-	-	-	-	-
1920-30	- 9703	3187	32.8	+3461	35.7	-1342	13.8	1489	15.3	232	2.4

x Fiscal Years (July 1st to June 30th) Above data derived from following sources: Annual Reports of U.S. Secretary of the Treasury, 1932 and 1937, pp.423 and 442 respectively; also Banking and Monetary Statistics, pp. 509-13.

a. Gross debt. In some years the General Fund was increased in size, and this reduced the gross amount of retirement of the Gross debt. The net reduction of the gross debt in such years was as follows: $322 millions in 1921; $614 m. in 1923; $1131 m. in 1927; $908 m. in 1928; $673 m. in 1929.
b. Surplus +, Deficit -.
c. Increase +, Decrease (which is in effect a debt retirement), -.
d. Includes (1) Bonds and notes received for estate taxes; (2) Franchise Tax Receipts, F.R.Banks; (3) Net earnings, Fed. intermediate credit banks; (4) Miscellaneous gifts, etc.
e. Less than $500,000.

on the debt andsinking fund payments. Secretary Mellon advocated further paring of other government expenditures so that greater efforts could be exerted towards debt reduction. Almost half of the total retirement of debt of $1,100 millions in 1924 was due to a budget surplus. Continued reductions in the Treasury's general fund (cash balance) also played a role in retirement.

This massive and prolonged debt reduction schedule was not carried out without opposition from some sections of the population. The banks, for instance, complained that private loans and advances failed to replace the earning assets which they had held in the form of government securities. Since the volume of debt held by the banks remained nearly constant throughout the decade, this claim is of doubtful validity. Moreover criticism was becoming more vocal from income and corporate taxpayers, who favored tax reduction at least as much as debt reduction. By 1927, President Coolidge was compelled to say: "I believe in debt reduction along the program settled after the war; I do not believe in the payment of a public debt to the undue burdening of productive industry. A balance should be maintained for the debt reduction and tax reduction which is fair to all interests of our country." Nevertheless, debt reduction continued on much the same scale for the succeeding four years.

The passage of Veterans' Insurance legislation in 1925, which was a compromise formof soldiers' bonus, transferred still more bonds from private hands into a federal agency. Annual appropriations under the Adjusted Compensation Act were applied to the purchase of outstanding bonds, thus bringing the government into the buyers' market for its

own bonds on a considerable scale.[16]

In 1926, the debt was lowered by $873 millions, of which $160 millions was contributed by British interest payments. (See Table 4). Throughout this period, only minor contributions were made to debt reduction by conversion at lower rates of interest. One notable saving was made in March of 1926, when $737 millions of short term debt were converted into $500 millions of long term obligations.

In 1927 another billion was removed from the American debt, $636 millions being attributable to a budget surplus. Debt reduction continued at a rapid rate, and now represented a removal of considerably more than the 2½% called for in the sinking fund act. This of course, was due to the fact that interest savings were applied to reduction of the principal, but moreso because of the large part played by budget surpluses.

1928 and 1929 were characterised by heavy speculation in the security markets and this was reflected in falling bond values as the public liquidated its holdings in favor of more ephemeral profits. During these latter years of the Mellon retirement, debt operations were overshadowed by the events which were taking place in the money market at large. Urged on by the buoyant optimism of virtually all sections of the population, which foresaw an uninterrupted future of easy profit-making without reference to the slowing rate of productive expansion, the banks extended brokers' loans, mortgage and other forms of credit on an unprecedented scale. Total brokers' loans rose from $943 millions in June 1920 to $3115 millions in June 1927 and climbed to an apex of $6540 millions in September 1929.[17]

16. Cf. Annual Report of U.S. Secretary of the Treasury for 1925, p.118.

17. Cf. American Acceptance Council: op.cit. pp.80-81.

This growth was reflected in the parallel movement of bank deposits and stock prices (see Charts 2 and 4) which attained common peaks in mid-1920, late 1922 and more obviously in the fall of 1929.

1930 brings to a close the period with which we are mainly concerned, for it was the last prewar year in which the debt reduction program was carried on. A budget surplus of $184 millions was achieved, and $746 millions were removed from the national debt. By 1931 economic activity had fallen to such low levels that it was no longer possible to balance the budget. In spite of this the sinking fund, which was not geared in any way to the state of the economy, continued to absorb large appropriations. Nearly half the fiscal deficit of $900 millions was accounted for by the legal requirements for debt reduction. Thus, somewhat contradictorily, the national debt was once again on the increase while the legislation of 1919 called for sizable tax revenues to whittle away the debt incurred in the Great War.

B. THE SPEED OF RETIREMENT.

Over a period of slightly more than eleven years, (September 1919 to December 1930) roughly 37% of the American debt, at its highest level in history, was paid off. The determined and consistent policy of the Treasury wasconsiderably aided by the rising level of industrial production which provided an ever growing tax base. This is verified by the fact that of the total debt retirement in the decade, amounting to $9,703 millions, $3,461 millions or 36% was contributed by budget surpluses. This occurred despite four successive tax reductions over the same period, and despite the fact that most price indexes remained remarkably steady. The healthy condition of the economy after the 1921 depression yielded much greater tax receipts than expected. By the end of 1930, the U.S. had repaid virtually all of her war debt rising out of domestic loans, and

had therefore accomplished in eleven years what the 2½% Sinking Fund was designed to achieve in twenty five years.

But the sinking fund contributed barely a third of this debt reduction. In addition to statutory requirements and budget surpluses, 14% of total retirements were due to reductions in the general fund. Another 15% wassupplied by foreign interest payments - mainly British - on account of war debt. Other receipts arising out of the functioning of the Federal Reserve System added a minor amount to the total. In summary, only 49% of the debt reduction program of the 1920's was attributable to deliberate government policy, which included, of course, the large decrease in cash balances from the wartime level.

The speed of retirement also appears to have been conditioned by larger forces at work in the economy.[18] This is indicated by the fluctuations in the percentage of outstanding debt retired annually, as shown in Table 5.

TABLE 5

SPEED OF U.S. DEBT RETIREMENT 1920-30
($millions)

Year	1 Total Debt[a]	2 Retired[b]	3 % Retired
1920	$25,595	$1,850	7.2%
1921	23,745	557	2.3
1922	23,188	705	3.0
1923	22,483	840	3.7
1924	21,643	931	4.3
1925	20,712	729	3.5
1926	19,983	1,160	5.8
1927	18,823	1,137	6.0
1928	17,686	695	3.9
1929	16,991	962	5.7
1930	16,029	255	1.6
1931	15,774		

a. Interest bearing debt outstanding Jan.1 of each year.
b. Interest bearing debt retired Jan.1 to Dec.31 each year.

In 1920, the very large reduction in the Treasury cash balance contributed 75% of that year's debt retirement.[19] But a substantial portion

18. This assertion will be tested in greater detail in the following chapter.
19. It is interesting to note that a very similar course of events followed the second World War. The considerable debt reduction of 1947 was mainly due to a decrease in the cash balance.

was also due to the budget surplus. (The sinking fund was not put into operation until the fiscal year 1921.) In the following year, a 20% decline in national income undoubtedly influenced the reduced size of the budget surplus, which was the lowest of any post war year until 1931.

After the recovery, an increasing proportion of the outstanding debt was removed each year, except for decreases in 1925 and 1927. The decline in these two years can be accounted for by sizeable tax reductions, which contracted the budget surplus by 50% and 35% respectively. Since the sinking fund continued to grow each year as more and more was saved in interest charges, the great bulk of fluctuations in debt retirement can be traced either to changes in the level of national income or to the willingness of the Federal government to tap that income for revenue.

A substantial decline in debt retirement took place in calendar 1930, although the pace of debt reduction appears to have been maintained up till midyear. Once again, the shrinking base of government revenue was responsible for the adverse effect on Secretary Mellon's program. By 1931 it was no longer possible to achieve a balanced budget, and within three years, the monumental struggle of the Treasury to reduce its obligations was wiped out. In spite of this, the sinking fund continued in operation, and by 1936 it had contributed 15% of the additional deficits incurred over the depression years. It had also played its part in necessitating high taxes at a time when every additional financial burden was more onerous to the economy than it would have been under other circumstances. The cumulatively depressing effects of higher tax rates served once again to demonstrate the harmful results of a rigid sinking fund agenda.

C. The declining burden of debt.

The course which the burden of the debt followed throughout the decade is perhaps of greater interest and importance than the material presented in the above section. In addition to increasing appropriations through the sinking fund, budget surpluses and foreign repayments, two factors tended to reduce the burden of debt. The first of these was the falling rate of interest. As has been indicated previously, the shift of emphasis from government securities to private finance which was the natural sequence of the war lowered the price of government bonds and compelled refunding at higher rates of interest. In 1921 a high point of 4.3% was reached in the average computed rate of interest on all forms of government debt. From this level, rates declined by about .1% per year for the rest of the decade, and continued to fall at an increasing speed throughout the depression. In 1930, the average rate of 3.8% meant a saving of about $80 millions a year in interest charges, compared to 1921 rates. This meant a 15% drop in the interest burden, quite apart from the debt reduction program itself.

Secondly, the almost uninterrupted expansion of national income provided a broader back on which to carry the load of debt. The 1929 income was 35% larger than that of 1920, which was a year of high prices. Thus, between these three factors: debt reduction, falling rates of interest and rising national income, the burden of debt (or in other words the percentage of national income taxed away to service the debt) fell steeply. The extent of the decline is indicated in Table 6 under three different categories.

First, the ratio of debt to income,[20] which is primarily of

20. National income is here defined as on p.14 above. The addition of interest payments and pensions (which together averaged about $1 billion annually) is necessary since both items constitute taxable income, though neither

interest on the monetary side of the problem, fell by 50% between 1919 and 1929. It reached its lowest point in 1929, when the national debt was less than a fifth of national income. This may be compared to the 1947 U.S. debt income ratio of 1.5,[21] and to the Canadian ratio of .5 in 1920, .77 in 1938 and 1.57 in 1946.[22]

In Column 7 of Table 6, the percentage of interest charges to national income is given, and here also a low point was reached in 1929. Comparable figures for the current situation in the United States, Canada and Great Britain show how greatly the burden of debt could increase without absorbing a burdensome proportion of the national income. In 1947 the American tax rate for servicing the debt was just under 3%;[21] in 1939 the British rate was 4.5% and had climbed by only another .3% in five years of war. In Canada the burden was 2.7% of national income in 1938, and about 4% in 1946.[22]

A second possible method of measuring the debt burden would include sinking fund appropriations and all other ordinary revenues which could have been devoted to other purposes. These may be considered as part of the tax rate under conditions when the debt is being reduced by a specific policy. With reference to Column 8 of Table 6, it will be noted that the inclusion of statutory debt retirement funds adds a substantial proportion to the tax rate. In this particular instance, funds obtained through budget surpluses for debt reduction have not been included, since these funds need not have been raised through taxation had more accurate

20. -- represents the production of goods and services. The former would contribute substantially to rentier income and would probably be subject to income tax, while the latter would be reached mainly through sales and excise taxes
21. Cf. A.J.Wickens: "The Public Debt and National Income", Am.Ec.Review, May 1947 Supp., p.185.
22. From an unpublished memorandum by the present writer.

x

TABLE 6

BURDEN OF U.S. INTEREST-BEARING DEBT, 1916-36
(nearest $million and nearest .1%)

Year	1 Total[a] Debt	2 Av.Rate of Int.	3 Interest Charges	4 Sinking[b] Fund	5 National[c] Income	6 Debt-Inc.Ratio	7[d] Tax Rate A	8[e] Tax Rate B
1916	972	2.4%	23	-				
1917	2713	3.1	84	-				
1918	11,986	3.9	469	1				
1919	25,234	4.2	1054	-	65,500	.39	1.6%	1.6%
1920	24,061	4.2	1017	6	75,500	.32	1.3	1.4
1921	23,737	4.3	1030	353	60,700	.39	1.7	2.3
1922	22,711	4.2	963	358	61,900	.37	1.6	2.1
1923	22,008	4.2	927	302	72,800	.30	1.3	1.7
1924	20,982	4.2	877	309	73,200	.29	1.2	1.6
1925	20,211	4.1	830	307	77,000	.26	1.1	1.5
1926	19,384	4.1	793	318	82,600	.23	1.0	1.3
1927	18,251	4.0	723	341	81,100	.23	.9	1.3
1928	17,318	3.9	671	359	82,600	.21	.8	1.2
1929	16,639	3.9	657	373	88,100	.19	.7	1.2
1930	15,922	3.8	606	393	78,100	.20	.8	1.3
1931	16,520	3.6	589	392	61,100	.27	1.0	1.6
1932	19,161	3.5	672	413	43,800	.44	1.5	2.5
1933	22,158	3.4	742	426				
1934	26,480	3.2	842	359				
1935	27,645	2.7	751	573				
1936	32,989	2.6	838	403				

x Sources: F.R.B.: Banking and Monetary Statistics, p.509, and various Annual Reports of U.S.Sec. of Treasury, esp. 1937, p. 442

a. - Interest bearing debt in June of each year.
b. - Sinking fund shown here includes "other" minor items, which were part of ordinary revenues applied to the debt by law. See Table 4, Col.6. Foreign repayments, which were not a charge on the domestic economy, are excluded.
c. - National Income shown is "Net national income" as defined by Simon Kuznets in his National Income and Its Composition, 1919-38, N.Y.1941, P.269 But the totals shown in Col.5 are expanded by the main components of transfer income paid out by the Federal government annually: (1) Interest on the debt, as in Col.3: (2) Pensions, as in U.S.Stat.Ab.1932, p.163. The total figure of national income, rounded to the nearest $100 millions, is at best an approximation.
d. - Tax Rate A is percentage of Col.3 to Col.5.
e. - Tax Rate B is percentage of Col.3 plus Col. 4 to Col.5.

forecasts of budget requirements been possible. Similarly foreign repayments have been excluded, being a burden on taxpayers abroad. This classification is of course somewhat arbitrary, since foreign interest payments could have been allocated to, say, "rivers and harbours", and thus excused the American tax payers to the amount of the net payment from abroad.

In summary then, Secretary Mellon's debt reduction scheme eliminated 37% of the debt, enabled conversion at steadily falling rates of interest, and resulted in the burden of debt being more than halved. Thus on the purely "economic" side of the problem, the results were almost entirely favorable: savings were released for private investment to the sum of nearly $10 billions; the tax rate for servicing the debt was halved. But the distribution of debt ownership showed tendencies to return to its prewar structure, when the great bulk of it was held by the banks, institutions and high income groups.

It remains to consider the more important effects of the Mellon policies which are to be found in the monetary structure of the economy.

CHAPTER 4

MONETARY ASPECTS OF THE MELLON RETIREMENT

A. THEORETICAL CONSIDERATIONS

The problem to be considered in this chapter might be framed in the form of a general question: given the fact of debt retirement in the U.S. during the 1920's, what were the monetary consequences of this policy?

In order to deal with this question, it will be necessary to examine the relationships which existed between the shrinking volume of interest bearing debt, and the contemporary movement of the volume of money, of bank deposits, private domestic investment by non-Federal organizations, the prices of goods and of securities and of industrial production itself.

It is commonly assumed that the retirement of a national debt is deflationary. The efficacy of debt reduction in periods of inflation is part and parcel of the Keynesian conception of counter-cyclical fiscal policy. Given the existence of an adequate central banking system, it is often vaguely supposed that the raising of taxes for debt reduction will somehow exercise a downward pressure on the

volume of purchasing power available to the public. But this supposition has rarely been tested by an analysis of the banking and credit mechanism which functions during debt retirement.

The necessary tools required for a central banking system as here understood are threefold: (1) the requirement that commercial banks maintain at the central bank certain minimum deposits which constitute their cash reserves against their liabilities; (2) the convention that the national treasury will normally perform its banking operations through the central bank, and only to an insignificant extent, if at all, through the usual commercial concerns; (3) the assumption that the commercial banks will, in their day to day operations, conform to the general policy of the central bank. Principally this means that they will reduce deposits when their reserves fall, and will expand them so as to maximize their portfolio of earning assets when reserves rise.

These are the three fundamental characteristics of central bank control, and with the introduction of the Federal Reserve System in 1913, two of them existed in the United States. The second, however, did not. The American Treasury, in contrast to its British and Canadian counterparts, maintained the bulk of its deposits in the commercial banks. For example on December 31, 1923, U.S. government deposits in all commercial banks were $254 millions, but only $38 millions at the Federal Reserve Banks. In December 1929, the figures were $158 millions and $29 millions respectively.[23] But far from altering the results of the theoretical process which is outlined below, this difference of American procedure simplifies the mechanism of debt expansion or retirement.

23. Cf. F.R.B.: op. cit., pp.34, 330.

TOTAL U.S. INTEREST-BEARING DEBT, MONTHLY 1918-1934
AND SHARE HELD BY ALL BANKS, ANNUALLY

TOTAL ($ BILLIONS)

BANK-HELD ($ BILLIONS)

27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12

12 11 10 9 8 7 6 5 4 3 2

THE HUGHES OWENS CO. LIMITED

— TOTAL DEBT, MONTHLY

--- BANK-HELD, JUNE OF EACH YEAR

There are of course, many other important clauses in the Federal Reserve System: the central bank constitutes a reserve of last resort, since the commercial banks may rediscount bills or borrow from it when forced to do so; the central bank maintains a minimum reserve of its own in the form of gold or legal money; the central bank is enabled to make its policies effective by going into the open market at will, as buyer or seller of assets. These secondary provisions existed in the banking structure of the United States after 1917, although they may be considered for our purposes as corollary to the main essentials as set out above.

Given this banking structure, what would be the effects of debt retirement on the volume of money and deposits, and hence on the level of prices? The answer will depend primarily on the ownership of the debt at the time when issues are called for redemption. It will be necessary, therefore, to consider the list of possible owners, and the contrasting reactions of the monetary system to the repayment of each.

(1) Private Owners Of Debt

For our purposes, private owners will include all individuals, incorporated and unincorporated businesses, insurance companies, mutual savings banks, federal agencies, local governments and in short all institutions which do not have the power of deposit creation. This group therefore comprises all owners of the national debt who are unable, by themselves, to monetize credit. The mutual savings banks, for example, cannot be classed with commercial banks on this criterion. Though the deposits of the mutual savings banks could, until the legislation of the 1930's, be withdrawn as readily as commercial bank demand deposits, they

did not effect the total volume of money and deposits in the economy. The savings banks were restricted to the acceptance of deposits initiated by a bone fide depositer of currency, and did not have the power to create deposits through the extension of loans. In their purchases of government bonds during the war they transferred purchasing power from private organizations who would otherwise have absorbed their capital, to the government.

This was also the case with other financial institutions such as insurance companies and Building and Loan societies. The wartime shift from private investment outlets to the government did nothing to alter the total volume of potential spending power in the United States. It is true, of course, that the borrowing of money from private sources for military purposes could be inflationary to the extent that it activated idle capital or cash balances.

Similarly, in the case of private individuals and businesses, loans to the government had the same short-run effect on their consuming power as would have been achieved by outright taxation, though the long-run results would be quite different when the borrowed money was returned to the lenders. Basically, then, the borrowing of money by the government from all classes of private investors, excepting banks, was noninflationary; claims to wealth were transferred, at a price of 3-4%, to the government for more urgent purposes.

When we examine the reverse process - the retirement of the national debt - we discover a similarly neutral effect. The repayment of debt involved as a first step the raising of taxes for the sinking fund or alternatively the achievement of a budget surplus. As in the case of lending to the government, taxation transferred claims to wealth

from private to federal hands. It has already been pointed out that the Treasury normally maintained at least 80% of its deposits in the commercial banks. Therefore in most cases, a tax payment would merely shift the ownership of commercial bank deposits, without in any way affecting the total volume of those deposits.

However if the tax receipts were deposited in the Treasury's account at one of the twelve Federal Reserve Banks, a more complicated adjustment followed. In that event, a tax payment would cause a drain on commercial bank reserves, since the loss of deposits in favour of the central bank was the equivalent of a cash loss. (The Federal Reserve Banks, acting as agents for the government, became creditors of the private banks who acted as agents for the taxpayers.) In the course of time, the commercial banks would regain the reserves as the Treasury paid off its creditors. Meanwhile, unless they held cash reserves in excess of the legal minimum, the commercial banks would have been forced to make a multiple contraction of their liabilities, followed by a multiple expansion when the cash reserves were recovered. It may be noted that the expansion of loans and investments which one would expect to follow an increase in cash reserves would depend on the elasticity of demand for bank credit on the part of the public. In point of fact, American demand for loans in the 1920's was sufficiently great to reduce cash-deposit ratios towards their legal minimum.[24]

The repayment of debt during a period of inactivity could easily aggravate a deflationary tendency, since the initial contraction

24. At the introduction of the Federal Reserve System, reserve ratios were 7% in "country" banks, 10% in "reserve city banks" and 13% in "central reserve city banks."

of bank credit caused by a loss of reserves would not be compensated for by an equivalent expansion when the reserves were regained. Retiring debt by means of Treasury deposit of tax receipts at the central bank during inflationary periods would have no ultimate effect in curbing the inflation. But these results all depend on the assumption that the commercial banks do not hold excess reserves beyond the legal minimum, (or, as in Canada and Great Britain, the conventional minimum), at any time. In other words, the monetary effects of repaying private investors in government debt depend on the elasticity of credit and currency. Historically, American banks did hold excess reserves throughout a good part of the period 1920-30. Detailed information on the volume of excess reserves is lacking [25], but the information available indicates that during the decade in question, excess reserves existed on 26 out of 37 call dates.[26] However, they averaged only $23 millions for all member banks of the Federal Reserve System from June 1918 to June 1932, or less than 1% of deposits.

To the extent that excess reserves existed, the demand for bank credit was clearly independent of the Mellon debt retirement: the commercial banks could extend loans without having to pay much attention to the Treasury's debt repayment plans. When it is recalled that most of the Treasury's deposits were maintained at the commercial banks in any event, (thus disposing of the threat of a loss of reserves to the central bank), it may be said that the volume of bank credit in the economy was largely independent of debt retirement. Finally, even if the Treasury

25. Cf. F.R.B.: op.cit., p. 372, footnote 1, p. 377, footnote 2, p.384, footnote 1.
26. Cf. F.R.B.: op. cit., p. 395.

had performed all its operations through the Federal Reserve Banks, and had excess reserves never existed, the retirement of debt could not have curbed the autonomous demand for bank credit more than temporarily, whilst the cash reserves lost through tax payments were passing through the hands of the Treasury.

In summary, the retirement of debt owned by private citizens or institutions did not produce any automatic effects on the volume of money. Some banks would have withstood net losses of deposits and possibly of reserves, and others would have gained correspondingly; and some taxpayers would have paid out more than they regained through debt retirement. But the total volume of deposits and currency would not necessarily have changed. The demand for bank credit was determined by other factors. Such being the case, once the debt had expanded during the war by partially inflationary methods, it became mechanically impossible for the government to influence the volume of purchasing power thus created by paying off the national debt.

But important indirect effects on various factors in the economy could occur if taxpayers and bondholders were different groups of people. Unfortunately little information is available on the distribution of private ownership as between corporations and individuals or between different income classes of individuals. Such information is now becoming available in small amounts on the contemporary ownership of securities,[27] but is not necessarily relevant to the distribution of bond ownership between the wars. Recent studies[27] indicate that bond sales

27. Cf. Treasury Bulletin, various issues 1947-48; Prof. S.E. Harris, in a recent book: The National Debt and the New Economics, N.Y. and London, 1947, offers a few scattered suggestions. See especially pp.128-33, 226-28; see also Federal Reserve Bulletin, June 1946.

reached a more widespread group than ever before during the second World War, and it is commonly agreed that low income groups participated to a greater extent than ever before in the purchase of securities. The same was also true of the Liberty Loans in the first World War, though to a lesser extent. Prof. Seymour Harris suggests[28] that of the 60 billions of government debt held by individuals on August 31, 1945, perhaps half, (or 12% of the total debt) was owned by those with incomes of less than $5000. Had the U.S. debt of 1925 been distributed as broadly, which is improbable, only one quarter of the debt which was privately held would have been owned by those with incomes lower than $5000. This would have comprised about 90% of the working population.

A further breakdown would have to be made of the ownership of corporations, commercial banks, mutual savings banks and federal agency assets. An increasing proportion was probably owned by low income groups in the above order of institutions. It is highly probable, however, that the bulk of the debt was owned by high income groups, or in other words by large savers.

In order to determine the shift of income caused by debt repayment, it would also be necessary to determine the incidence of taxation, which is a full study in itself. In the absence of definite information, it is only possible to make a surmise that a higher proportion of income was paid out in taxes by low income groups than by high income groups in the 1920's,[29] particularly in the latter years of the decade.

28. Cf. S.E.Harris; op. cit., p. 181.
29. Cf. Harris: op. cit., pp. 213-214.

In 1919, income and profits taxes accounted for about 58% of total receipts, but in 1923 the proportion had fallen to 42%; it climbed to about half by 1929, but fell again at the close of the Mellon retirement period. This does not, of course, indicate the incidence of taxes, many of which may have been passed on. Apart from this tax source the great bulk of the remaining receipts were derived from customs and excise duties, and from miscellaneous taxes which, broadly speaking, fell on the consumer.

There is reason to believe that high income groups were the gainers by the debt retirement program. To the extent that this wastrue, income was shifted from spenders to savers, from consumption to investment. Such a shift amounted to a "forced loan", since it increased the accumulation of savings available for capital formation without the consent of the savers, who in this case were coerced into saving by taxation. Such forced lending may have played a significant role in the 1920's, although it is not possible to determine its extent quantitatively without knowing the incidence of taxation. If it be true that deadweight debt was retired by taxes which reduced consumption, then the released funds contributed to the driving up of stock prices and to the optimism which led to new security flotations. "It is believed that owners of government bonds are more likely to reinvest than to consume the interest and capital payments received by them."[30] Thus, although directly the retirement of debt had no necessary effect on the volume of bank credit, the shift of income which may have resulted could have had monetary consequences. The recovered funds could have been employed for speculative buying of stocks on margin; debt repayments, constituting about $1 billion per year of investable funds, could therefore have added a very considerable impetus to the issue of

30. Cf. S.E.Leland: loc. cit., p.143C.

dubious stocks and bonds. As will be seen in Part B of this chapter, this is very probably what occurred in the years leading up to the stock market boom of 1929.

(2) The Commercial Banks As Debt Owners

Turning now to the second major group of government bond-holders, the commercial banks, we find a neutral monetary effect of debt retirement similar to that described above. The payment of taxes which necessarily preceded debt reduction resulted in either a shift of ownership of the banks' deposits, or, if the taxes were deposited in the Federal Reserve Banks, a temporary loss of cash reserves untilthe debt was actually retired. In the former case, the government, having acquired surplus deposits at the commercial banks, would repay the banks by wiping out its deposit in return for the cancellation of an equal amount of bank holdings of government bonds. The banks, with a higher cash-deposit ratio, would seek private outlets for loans and investments. Assuming that these were found and deposits created, the ultimate effect of retiring bank owned debt would be nil.

In the second case, the Treasury could force a reduction in bank credit by transferring its tax receipts to the Federal Reserve Banks. But once again the commercial banks might be holding excess reserves. In any event they would ultimately recover their cash reserves when the Treasury paid them with a cheque drawn on its account with the central bank in exchange for the retired bonds. As in the case of discharging privately owned debt, the monetary consequences of repaying bank held debt would depend on the degree of flexibility of the credit and currency supply.

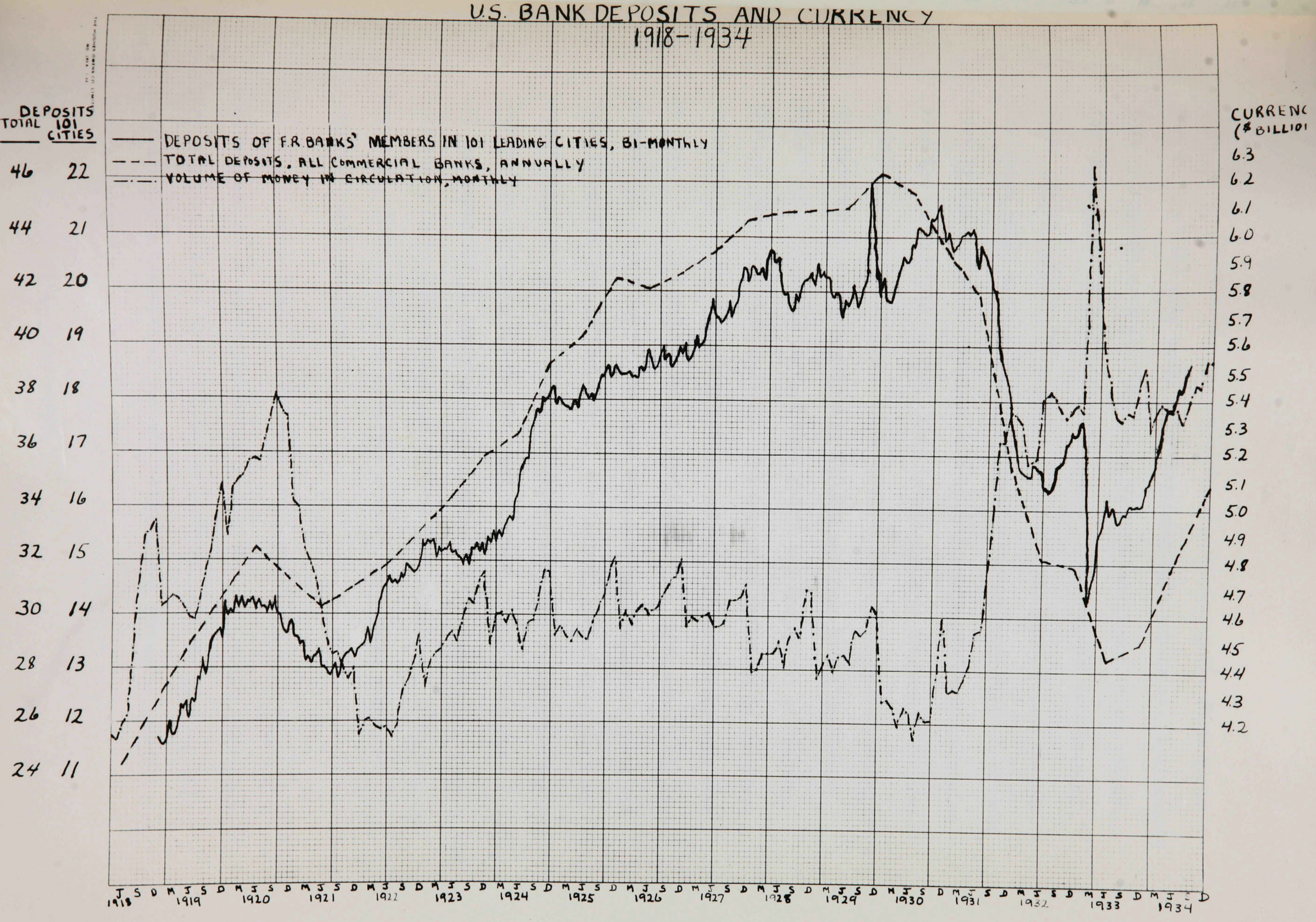
U.S. BANK DEPOSITS AND CURRENCY
1918-1934
DEPOSITS
TOTAL
101 CITIES
46 22
44 21
42 20
40 19
38 18
36 17
34 16
32 15
30 14
28 13
26 12
24 11
DEPOSITS OF F.R. BANKS' MEMBERS IN 101 LEADING CITIES, BI-MONTHLY
TOTAL DEPOSITS, ALL COMMERCIAL BANKS, ANNUALLY
VOLUME OF MONEY IN CIRCULATION, MONTHLY
CURRENC
($ BILLIO
6.3
6.2
6.1
6.0
5.9
5.8
5.7
5.6
5.5
5.4
5.3
5.2
5.1
5.0
4.9
4.8
4.7
4.6
4.5
4.4
4.3
4.2
1918
1919
1920
1921
1922
1923
1924
1925
1926
1927
1928
1929
1930
1931
1932
1933
1934

CHART 2

Commercial bank purchases of debt during the first World War were not the only means of inflationary debt expansion. A disguised form of deposit creation took place through bank loans to the public for the purpose of buying Liberty Loans. Moreover, the extension of other credit against federal bond collateral was another road towards inflation which did not go untravelled. Although bank holdings of debt rose by $4390 millions between June 1916 and June 1919, and quadrupled over the period 1916 to 1921, this is not the true measure of the banks' contribution to inflation. Total deposits (less interbank deposits) of all commercial banks increased by $10,221 millions in the three year war period, and a good part of this growth was the effect of lending against Liberty Bond collateral. The degree of inflation in the first World War is therefore not so paradoxical as Prof.Harris suggests when he says: "It is ironical that in World War 1, an inflationary war, the purchase of securities by the banks was on a much smaller absolute and relative scale than in World War 2, a relatively noninflationary war."[31] Direct bank purchases of securities represented 18% of the total wartime increase in debt, and 43% of the total increase in deposits. But virtually all the expansion in deposits was the effect of these direct purchases, the indirect effects of loans against federal bond collateral, and not least important, Federal Reserve Bank purchases of bonds which augmented commercial bank reserves.

After 1919 and the start of the debt retirement program, the absolute amount of government bonds held by the banks fell sporadically at first, but rose again till it stood at $4981 millions on June 30, 1930. Meanwhile the proportion of the debt held by them increased steadily from

31. Cf. S.E.Harris: op.Cit., p.179.

a low of 14.3% in 1921 to 31.39% in 1930 and 38% in 1934. (See Table 7). This relative expansion of bank ownership was at the expense of private bondholders, who, as indicated above, liquidated their holdings for a number of reasons, chiefly because they sought higher yields in stocks, and perhaps also in anticipation of a decline in the volume of outstanding tax-exempt securities together with the expectation of a reduced surtax, which did not come. At the end of the retirement era in 1930, private holdings of bonds (apart from financial institutions) had fallen by $10,537 millions, or by more than the fall in total interest bearing debt of $9312 millions. Holdings of insurance companies and mutual savings banks also fell, while the Federal Reserve Banks and federal agencies increased their holdings. It was therefore private, nonfinancial investors who accounted for the whole of the Mellon debt reduction. It does not seem fair to say, as does Prof.Harris[32] that "Banks, in a sense, also deserted the federal bond market". While it is true that U.S. securities represented only 10% of total loans and investments of all banks in 1930, compared to 16% in 1919, this could hardly be found strange at a time when the total debt had fallen by $10 billions. Had the banks sought to maintain a proportion of U.S. securities to total assets equal to that of 1919, they would have had to increase their holdings by $2672 millions in the decade. Since the yield on long term governments was consistently about ½% below that on the 60 highest-grade corporate bonds, and of course even lower than the yields being obtained on brokers' and real estate loans, this would have been an improbable procedure on the part of the banks.

32. Cf. Harris: op.cit., p.179

(3) The Federal Reserve Banks

The third classification of bondholders by financial function is the Federal Reserve Banks. The mechanism which operates when a central bank increases or decreases its holdings of government securities is fundamentally different from that applying to commercial banks and private institutions. The Federal Reserve Banks were one of the chief instruments of debt expansion during the war. The commercial banks, unable to absorb government bonds so long as their reserves were fully, or almost fully, taken up, depended on the Federal Reserve Banks to enhance their cash-deposit ratio. The Treasury sold bonds to the Federal Reserve Banks, thus initiating a purely printing-press form of debt expansion: the Federal Reserve Banks credited the government with a deposit equal to the volume of assets which they "purchased", When these deposits were spent by the government, they passed to private accounts in commercial banks and represented cash reserves of the latter in the Federal Reserve System. This was necessarily the case because of the two fundamental reasons given above: (1) the Federal Reserve Banks in this instance acted as government agents, and (2) deposits of commercial banks at their respective central banks were the equivalent of cash.

Once the artificially created government deposits had passed into circulation, they provided a base on which the banks could expand their purchases of either government bonds or of private loans. As already indicated, 43% of their subsequent deposit expansion in the period 1916-1919 was due to purchases of U.S. bonds, and the remainder was the result of the expansion of private business which accompanied prosperous times.

The absolute volume of Federal Reserve Bank holdings of U.S. bonds rose by $245 millions between June 30, 1916 and June 30, 1919.

TABLE 7 x

PERCENTAGE OWNERSHIP OF TOTAL U. S. INTEREST-BEARING DEBT
June 30, 1916-34
(nearest .1%)

Year	1 F.R. Banks	2 Commercial Banks	3 Fed. Agencies	4 Total Private	5 M.S. Banks	6 Insur.[a] Co's.	7 OTher[b]
1916	5.9%	77.5%	.2%	21.6%	1.0%	c	20.6%
17	2.4%	56.9	.1	40.5	3.7	c	36.8
18	2.1	26.8	.5	70.9	2.5	c	68.4
19	1.2	20.4	.6	78.0	2.7	c	75.3
1920	1.4	15.6	.9	82.1	3.5	3.7	74.9
21	1.1	14.3	1.5	83.2	4.0	3.7	75.5
22	2.4	17.5	1.9	77.9	4.4	4.1	69.4
23	.5	21.4	1.9	76.4	5.1	4.0	67.3
24	2.1	21.1	1.9	74.7	5.5	3.6	65.9
25	1.7	22.9	2.6	72.9	5.6	3.5	63.8
26	2.0	23.5	3.4	71.0	5.0	2.8	63.2
27	2.0	25.1	4.2	68.7	4.4	2.7	61.4
28	1.4	29.8	4.9	63.7	4.2	2.5	57.0
29	1.3	29.7	6.1	63.5	3.4	2.1	58.0
1930	3.7	31.3	6.3	58.6	3.3	2.1	53.2
31	4.0	36.4	2.8	56.6	3.9	2.4	50.3
32	9.3	32.5	3.1	52.9	3.5	2.4	45.0
33	9.0	33.7	3.1	49.7	3.2	c	46.5
1934	9.0	38.0	5.3	42.3	3.6	c	38.7

x Adapted from F.R.B.: Banking and Monetary Statistics, p. 512

a. From "Proceedings of Life Insurance Ass'n of America, 1947, p.48. The 49 companies represented held approximately 90% of the assets of all legal reserve companies. The estimates of Col.6 have been adjusted upwards to allow for non-member companies.
b. Includes non-financial corporations.
c. Insurance Companies included in "Other" for these years.

Supposing that the average legal reserve ratio of all banks were 10%, this would have made possible a commercial bank expansion of $2,450 millions in deposits. But, as already noted, the commercial banks in this period added $4390 millions to their government-security portfolio alone, and $10,221 to total deposits exclusive of interbank holdings. Where did the remaining reserves come from which provided the capacity for this enormous expansion? Excess reserves, which varied from $27 millions to $215 millions in this period could have provided some of the increase. But the main impetus almost unquestionably came from the increased membership in the Federal Reserve System. In the three year period under consideration, 1216 commercial banks joined the System, and helped to increase deposits of member banks by $10,787 millions. One of the chief advantages of joining the Federal Reserve System had been the possibility of reducing legal reserve ratios. Under the old national banking system, reserves were necessarily maintained at uneconomic levels, since each bank depended on its own resources (and perhaps to some extent on its city correspondent), to weather any financial crisis which might come along. But in joining the Federal Reserve System, state banks could benefit from the decrease in idle assets. The 1216 new members of this period must have been banks which were substantial in average size, because the total deposits of nonmember banks fell by $566 millions in three years, although the number of nonmember banks rose by 426. In the absence of complete data on the reserve ratios of member banks, it is only possible to guess that a large part of the increase in total deposits over the war period was caused by the increased membership in the Federal Reserve System.

After 1919, Federal Reserve Bank holdings of government debt fluctuated not in terms of the debt retirement program, but rather in relation to the open market policies of the Federal Reserve Board. Whatever

decreases took place were directly deflationary, in contrast to the neutral monetary effects of repayments to private debt owners. The use of tax receipts to pay off debt held by the Federal Reserve Banks lowered private deposits at commercial banks, then commercial bank cash reserves, and finally government deposits at the Federal Reserve Banks. The commercial banks did not regain the reserves which they had lost through taxation. Instead, they were forced to contract their deposits by from 8 to 14 times their cash losses, depending on the classification of the member bank and, of course, on the absence of excess reserves. But the net effect of the Federal Reserve System's operations was not deflationary over the eleven years of debt retirement, since by June 1930 they had increased their holdings of U.S. securities by $299 millions, or almost exactly 100%. Their relative stake in the debt stayed very much the same (see Table 7), the minimum and maximum percentage ownership being .5% in 1923 and 3.7% in 1930, and the average less than 2%.

In summary, the debt retirement program was nowhere directly deflationary. The effect of repaying private owners and commercial banks was to leave the volume of deposits, which constituted the great bulk of means of payment, unchanged. The only possible method of influencing the volume of money was to wipe out that part of the debt owned by the Federal Reserve Banks. This was not done because the Federal Reserve Board was guided by other considerations, which were mainly to mitigate the influence of the business cycle in 1920-21, and again in 1928-30.

The indirect effects of debt retirement resulting from a redistribution of income produce rather contradictory conclusions. On the one hand, the forced-loan aspects of the Mellon program suggest that consumption was reduced, thereby lowering the pressure on commodity prices. On the other hand, debt retirement added to the volume of funds

seeking investment and served to heighten the uneconomic levels of investment which were well underway by mid-decade. On the whole, the latter point seems to have been of greater significance. In view of the major role played by the unbalance between the aggregate volume of investment and consumption in bringing about the depression, an unbalance which was reflected in the violent upsurge of stock prices, we must conclude that debt retirement, while not exactly inflationary, contributed to the illusion of everlasting prosperity; and it was that illusion which lay at the heart of the inter-war cycle.

B. Changes in Monetary Time Series', 1918-34

In order to satisfy ourselves that the Mellon debt retirement was not directly deflationary, it will be necessary to examine the historical case as well as to reveal the theoretical reasons as described above. To this end, a series of charts are appended which bring out the relationships between the relevant variables.

Chart 1 depicts the movement of the total interest-bearing debt from April 1918 to December 1934.[33] Thus only half of the enormous debt increase brought on by the war is illustrated. After the peak had been passed in August of 1919, the debt was steadily reduced until December 1930. The sharp drop in early 1920 was due to heavy reductions in the General Fund, and was therefore not an integral part of Secretary Mellon's policy through the decade.

Throughout this period of steady decline in total debt, that

33. Cf. Annual Reports of Secretary of Treasury for 1929, p.346, and 1936, pp. 442-43.

part of it held by the Commercial banks remained relatively constant, (see Chart 1)[34] and eventually tended to increase. In relative terms this meant a doubling of the proportion of debt owned by the banks, which bears out the claim that the banks did not "desert the federal bond market".

In chart 2, changes in the volume of bank deposits[35] and in the total volume of money[36] are set out. The movement of circulating cash of all types over the period April 1918 to December 1934 is also depicted. It is fairly clear that the volume of money, which was rather steady from 1923 to 1929, but which fluctuated violently during the postwar depression and in the post-1929 crisis, bore no particular relationship to the decrease in interest-bearing debt. The primary factor influencing the volume of money was almost unquestionably the desire for liquidity at critical stages of the business cycle. Throughout 1920, when the debt was dropping in large amounts, the volume of money increased violently, as the public rushed to acquire cash assets in the face of uncertain economic conditions. This is nowhere more clearly illustrated than in January and February of 1932, when a considerable run on the banks occurred between the first and second drains of U.S. gold to Europe. The volume of money moved almost inversely to the volume of deposits in the leading cities, as people reduced their bank balances in the interests of caution. The trend of the volume of money was perhaps more accurately down than up during the decade, at least during its more settled years, although the net effect of the 1929 crash was to leave a greater amount of cash in circulation than in any period except that of October 1920.

34. Cf. F.R.B.: Op, cit., p. 512
35. Net demand deposits and time deposits, excluding interbank deposits. Cf. F.R.B.: op.cit., pp.19, 132ff.
36. Cf. F.R.B.: op.cit., pp.409-412.

Data on bank deposits for all commercial banks is somewhat sketchy for the period under consideration. Therefore to the curve which shows the total volume of deposits semi-annually has been appended a second curve which indicates the volume of deposits, both demand and time, of weekly reporting Federal Reserve member banks in 101 leading cities semi-monthly. In both instances deposits moved inversely to the trend in the national debt. This is of course not conclusive, since it does not account for the possible level which deposits might have reached in the absence of debt reduction. But as has been shown, the volume of deposits was not affected by the retirement or debt, since the only matter involved was the shift of deposits from one owner to another. In fact debt retirement may have contributed to the growth of deposits by releasing old investments and by accumulating new savings out of taxes, and hence supplying funds for marginal speculative buying of securities.

The obvious cause of the increase in deposits was the extension of loans and advances to business to finance the growing prosperity of the decade.

From June 1918 to December 1929, loans and investments of all commercial banks increased by $22 billions, while total deposits increased $21.9 billions. Commercial bank investments in federal securities represented $1.6 billions of this increase in bank assets over the same period, and therefore the debt retirement program was not instrumental in reducing the total volume of money. Had the Treasury applied its debt reduction to issues specifically held by the banks, and had the banks been unable to find alternative outlets for savings, the course of bank deposits would have been quite different. But the high degree of specialization in bond sales achieved in the second World War, which would have made possible the selective reduction of bank-held debt, did not exist in the

first World War. In any event, a dearth of funds for investment purposes would have dampened the upswing of the economy after the 1921 depression. It is certainly arguable that a continued reduction of the debt after 1929 would not have achieved the primary aim of releasing funds for private investment, since investment had already proceeded at such a rapid rate that few good investment opportunities remained to be exploited by that time. After the break in 1929, the banks held vast excess reserves throughout the depression period. Not funds, but the desire to put them to use, was lacking.

The events of the 1920's give substance to Keynes' argument[37] that there are only two reasons for debt repayment: (1) to provide funds for public (or private) bodies wanting to borrow for productive investment and (2) to increase national savings by drafting funds through taxation to repay bondholders who will reinvest. Redemption, in Keynes' view, is only valid at times when investment is high, (and voluntary savings low), and therefore when a deadweight debt can be converted into a productive debt.

Total capital formation from 1919 to 1929 inclusive is said to have been $88.1 billions;[38] of which exactly half was due to private savings, and the remainder to corporations, state and local governments and entrepreneurs. If $10 billions of the national debt had not been removed, it seems legitimate to suppose that capital formation would have been lower by part of that amount. (The funds tied up in a deadweight debt could not be released except through debt retirement, though one individual

37. Cf. H. Dalton et al: "The National Debt", Economic Journal, Sept.1925,p.359.
38. Cf. S.Kuznets: National Income and Its Composition 1919-38, N.Y.1941, p.276.

DEBT RETIREMENTS AND NEW SECURITY ISSUES IN THE U.S.
1918-1934

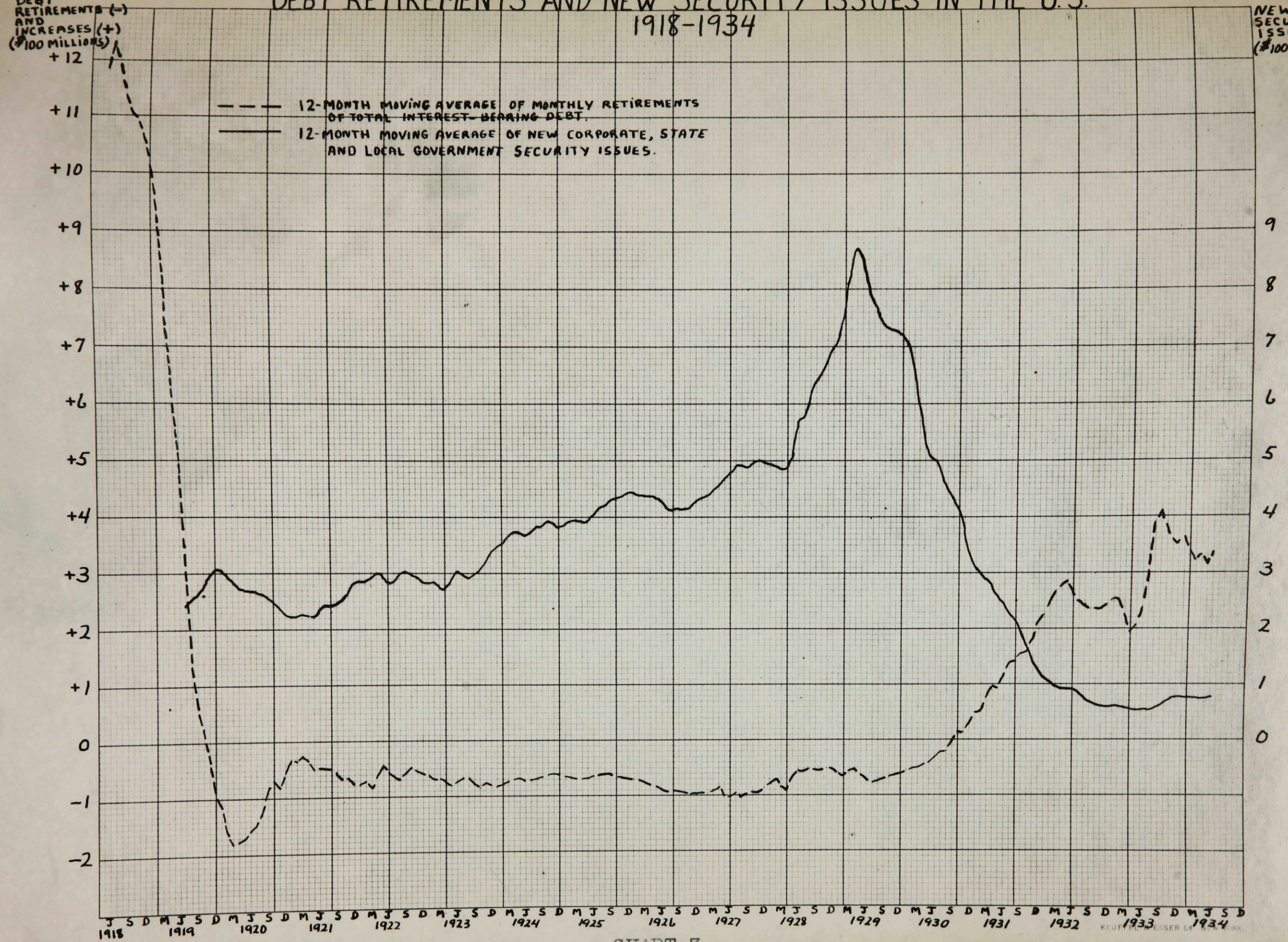

CHART 3

might sell his bonds to another and thus obtain funds for private investment; in doing so, he would effect an equal decrease in the funds available for private investment elsewhere.) The retirement of $10 billions of old securities did not represent an equal amount of new capital formation. If the taxes were paid out of savings, other investment would have been lowered by an equal amount. But if the taxes constituted a forced loan from consumption-taxpayers, net new capital formation would have taken place. It may be that 50% of the total Mellon debt retirement was paid for by income groups owning few if any bonds, and if this was the case $5 billions would have been placed in the security markets from this source in eleven years.

Another comparison of interest might be made between the volume of new domestic security issues and monthly retirements of the interest-bearing debt. Chart 3 consists of two curves, showing twelve-month moving averages of changes in interest-bearing debt from month to month,[39] and new security issues at monthly intervals.[40] In the years 1919-29 inclusive $53 billions of new security issues were placed on the market, $38 billions consisting of corporate stocks and bonds. As already noted, about $10 billions of interest-bearing debt was retired over the same period. Supposing that 50% of the net debt discharge was in the nature of a forced loan, then debt retirement represented 6% of total capital formation, and 10% of new domestic loans. The latter is perhaps a more valid comparison than the former, because much of the capital formation of which Kuznets speaks took place outside the security markets. Undivided profits, for example, and privately financed residential building were an important

39. See footnote 32 above.
40. Cf. F.R.B.: op.cit., p.487ff. New issues consist of those by corporations and state and municipal issues. Refunding issues, foreign loans, and the new issues of federal agencies, which are part of the net federal debt, are all excluded.

part of capital formation derived from individual savings. Self-sustaining federal government projects which played no part in the national debt were another form of capital formation which did not appear as net new government loans.

In Chart 3, an inverse relationship exists between the two curves, as would be expected. For, when public debt was retired, some funds were released for private investment; conversely, when the national debt was increasing, private investment fell to low levels. This does not, however, provide us with a causal relationship between the retirement of public debt and the expansion of private debt. In the period January 1931 to December 1934, a clear inverse relationship is apparent on the graph: the national debt, which had been decreasing in almost every month from 1922 on, shifted to the upper "plus" half of the graph. At the same time, private security issues fell from a monthly average of about $500 millions to an average of about $50 millions.

Whether the business cycle was set in motion by a decline in investment, or whether that decline was itself the effect of other initiating factors, we cannot postulate a direct causal relationship between the decline in private debt and the increase in public debt. Indirectly, however, the relationship was clear. Early declines in investment led to unemployment and a reduction in effective demand. The cumulative effect of disappointed business expectations and still further declines in employment produced the sharp downturn of the early 1930's. The resulting fall in tax receipts produced budget deficits and a growth in public debt well before a conscious policy of deficit finance was undertaken. The one positive statement which we can make about the inverse relationship of the two variables during 1931-34, is that the rise in public debt was a result, while the excessive level of private investment

INDEXES OF WHOLESALE PRICES, STOCK PRICES AND INDUSTRIAL PRODUCTION IN THE U.S. 1918-1934

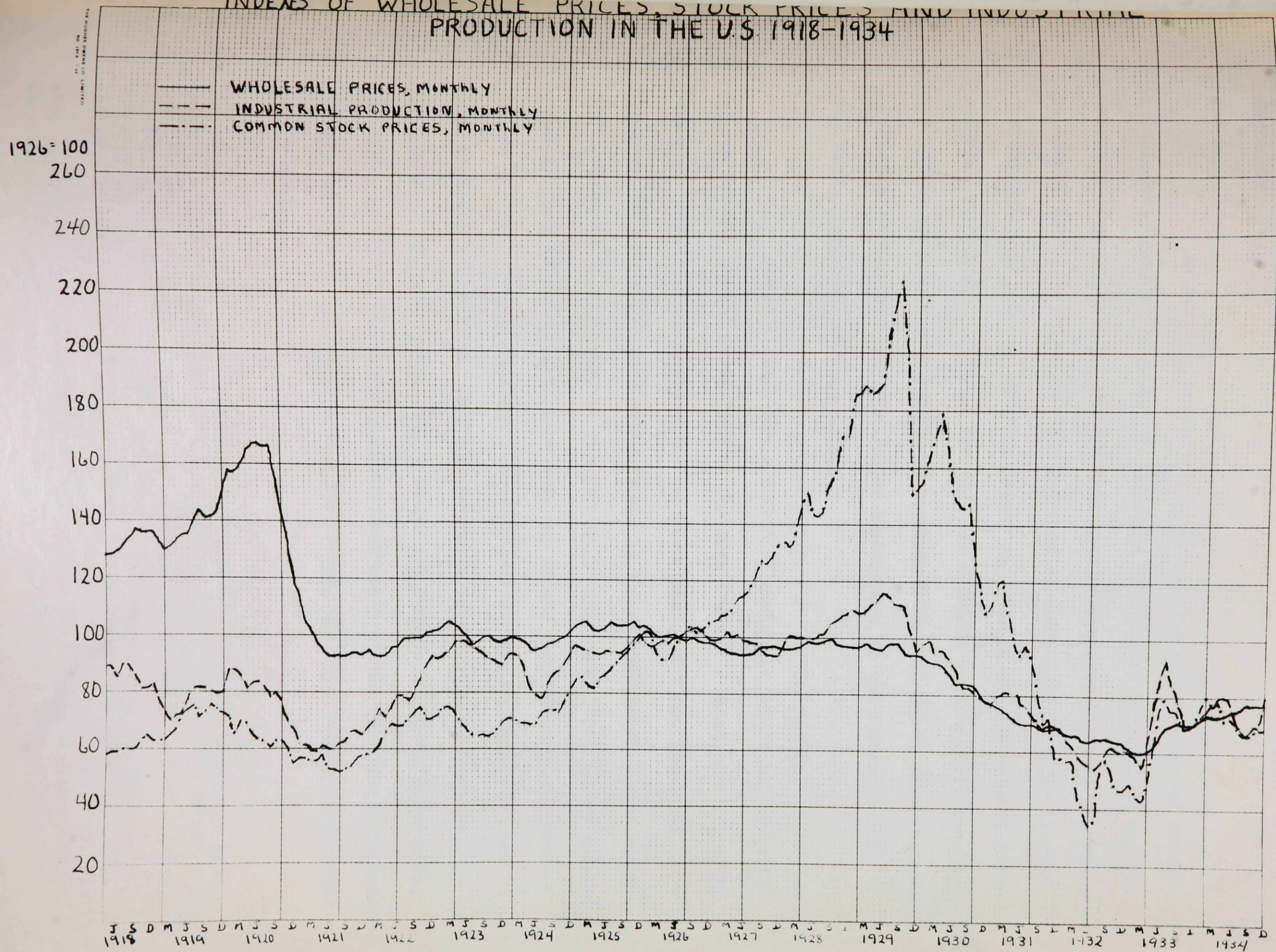

CHART 4

which commenced early in the decade was at least partly a cause of the depression itself.

In summary, there is not much evidence that a direct causal relationship existed between the reduction of Treasury obligations and the increase of private ones. We can only have recourse to the more generalized statement that the release of $10 billions of deadweight debt facilitated the expansion of private security issues in a period when investment could absorb a very large volume of savings. In critical periods, Mellon's retirement program and private investment both lapsed, and it is to business cycle theory that we must turn for an explanation of the factors which combined to produce the depression.

Chart 4 shows the movement of wholesale prices and security prices for the period April 1918 to December 1934.[41] A third curve gives the index of industrial production for the same length of time. The chief features of this graph once again relate to the abnormalities of the speculative boom in 1928-29, and to the subsequent collapse. Stock prices climbed steadily from 1926 on, until they were out of all proportion to wholesale prices or the level of industrial production. It is interesting to note that abnormal stock prices were not a feature of the 1920 crisis, while wholesale prices were; this situation was reversed in the Great Depression. The index of wholesale prices remained remarkably stable throughout the inter-depression period, although, as has been noted, the total volume of deposits nearly doubled.

41. The three indexes of Chart 4 are all based on 1926-100. The wholesale price index is that of the U.S.Bureau of Labor Statistics, which first appeared in the Fed.Res.Bulletin, Oct.1927, p.696. See also Bulletins for April 1930, p.256 and Jan.1931, p.46.
The index of security prices is taken from F.R.B.: Banking and Monetary Statistics, pp.480-82, and was converted to a 1926 base. The index of industrial production was first published in the Fed.Res.Bulletin, Feb.1927. See also Bulletins for 1931, p.508 and 1933, p.584. This index, together with the old one used prior to 1919, have been converted to a base of 1926-100.

The parallel movement of stock prices and bank deposits provides a valuable insight into the nature of the money market during the Mellon retirement. Unrestricted by the banking legislation which was introduced after the crash, the banks extended very large volumes of credit to the stock market, either directly or through city correspondents and affiliates. Debt discharge, as has been emphasized previously, supplied additional funds on which to support further margin buying. The results are clearly brought out in a comparison of Charts 2 and 4.

The relative stability of wholesale prices disguised the degree of inflation which was being engendered by the vast growth in bank deposits. Industrial production, fostered by rapid improvements in technology, proceeded at very high levels, and served to hide the true course of events from the public, and, it may be said, from the Federal Reserve Board.

C. Conclusions

The conclusions derived from our investigation of the theoretical case and the historical example are almost wholly negative. Several points which seem to disprove the common belief in the efficacy of a deflationary policy by means of debt retirement stand out:

(1) There is no theoretical basis for supposing that the repurchase of government securities held by the banks will result in different monetary effects from the repurchase of other privately held securities. Thus the increase in the proportion of debt held by the commercial banks in the 1920's was irrelevant to the issue of deflation or inflation.

(2) The retirement of debt held by the central bank is deflationary, but is never likely to provide a mechanism for effective monetary operations through debt reduction. This is because both the proportion of debt held by the central bank, and the absolute volume of its holdings are relatively small. We should naturally expect this to be the case since the Treasury, during

periods of debt expansion, will seek to place its obligation in hands where they cause the least possible amount of inflation. Furthermore, the central bank's holdings of government securities will be influenced more by considerations of open market policy - which is essentially conducted in terms of the short run situation - than by the longer run effects of its holdings on the trend of prices.

(3) It appears that it is much easier to expand the volume of deposits by selling securities to the banks in wartime, than it is to contract the volume of deposits by repurchasing them during the subsequent peace. Once the securities are floated on the market, giving rise to an equal volume or "created" deposits, it becomes virtually impossible to reverse the situation so long as there is a demand for bank loans by private industry.

(4) As a corollary to the above conclusion, the reduction of debt need not be followed by any effect on the total volume of deposits, legal reserves remaining unchanged. This is apparent from a comparison of Charts 1 and 2, which show a tremendous growth in deposits when the national interest-bearing debt was being halved. We conclude that the important monetary effects will be found in the nature of private investment which gives rise to the demand for overdrafts ie.- to the creation of deposits.

(5) The volume of money in circulation which also influences the level of prices, though to a less degree than bank deposits, fluctuates in terms of the business cycle rather than as a percentage of deposits. In periods of uncertainty, liquidity increases greatly, while in periods of stability it also maintains a remarkable degree of stability.

(6) The volume of new security issues may have been increased by the formation of new capital from regressive taxes. This probably occurred in the years 1926-29, when excess reserves had disappeared and the monetary system had lost the degree of flexibility which it had had in the early half of the decade. Yet even after the close of the period of fairly large excess

reserves, the volume of bank credit continued to increase and displayed a considerable degree of elasticity. While debt retirement exerted very little influence on the monetary system in the early post-war years, it may have been partly instrumental in the inflation of the security market in the later years.

(7) The general level of industrial production and of wholesale prices was not directly determined to any extent by debt retirement. Indirectly the repayment of debt may have inspired private investment, and hence have influenced real production insofar as the business community looked upon debt discharge as a good omen. Regardless of whether the retirement of debt would automatically improve the balance of aggregative economic quantities, the belief that it would do so may well have been responsible for an added incentive to increased industrial effort. It may be suggested, however, that the vague bundle of beliefs which combined to produce the state of mind of the entrepreneurial group were much more directly influenced by current reports on retail sales, by the level of taxation and perhaps most important of all, by the rate of technological improvement.

There is little basis for the belief that the retirement of the U.S. debt was deflationary, but some reason to believe that it was contributory to the inflated rate of capital formation in the 1920's. But the evidence points to the conclusion that the rate of retirement was itself dependent on more important features of the American economy, features which might be termed the initiating impulses of economic life.

Chapter 5

THE GOSCHEN RETIREMENT

A. HISTORY OF THE GOSCHEN RETIREMENT, 1875-1899

The second historical illustration which has been selected for special study presents greater difficulties due to the lack of complete data on some of the variables. The collection of statistics in the 19th century was confined for the most part to the more obvious items, such as the size of the debt itself, and the volume of government receipts and expenditures. However a reliable index of wholesale prices exists, together with time series on consol prices, bank deposits, currency in circulation and the bank rate. In a comparatively recent study, an index of the business cycle has also been developed. But some current economic concepts, such as that of national income and of capital formation, did not exist other than in a vague literary form. Nor have statistical series been pushed back so far as to include such items during this interesting period in British financial history. It would therefore be presumptuous to suggest more than tentative conclusions from the evidence which is available. Nevertheless, it will perhaps repay our efforts to examine the record of debt retirement under very different conditions from those of post-war America.

To title one of the most active periods of British debt reduction after Viscount Goschen is in some degree a misnomer. As Chancellor of the Exchequer from 1887 to 1892, he carried on a policy which had been initiated by his predecessors. Debt repayment had in fact been sporadically pursued

in the United Kingdom since the end of the Crimean War. But it was in the last two decades of the century that debt reduction occupied a major place in the annual British budget. No major wars occurred to upset the schedule of expenditures; except for "troubles" along the perimeters of the far-flung Empire - in Egypt and in Afghanistan - the chief characteristic of the era was an unprecedented reign of peace. This, together with a rapidly expanding industrialism which provided an ever-growing base for taxation, was the foundation of a prosperity which enabled the paying off of debts from wars long past. Yet the end-of-century era was not an unobstructed panorama of contentment: the ever-present business cycle recurred at decennial intervals to deflect men from their complacent pursuit of wealth-accumulation.

The active period of debt retirement may be said to have started with the introduction of the New Sinking Fund by Sir Stafford Northcote in 1875-76. The term "sinking fund" had fallen into bad odor in the United Kingdom since the days of Dr.Price's scheme for retiring the debt of the Napoleonic Wars. It had been supposed that a specific fund, set aside out of annual revenues, would grow at a compound rate of interest and make possible a cumulatively easier task of redeeming the debt. Not only Dr.Price, but a long line of chancellors and their colleagues had been misled by the deceptively obvious effects of a sinking fund. They had failed to see that whether the debt were held by private individuals and institutions, or by a government agency which was charged to purchase annually a portion of the outstanding securities, the debt could only be serviced and eventually redeemed out of taxes. There was no panacea for national indebtedness.

Even after the fallacy of Dr.Price's sinking fund had become

apparent to all, it was defended, or perhaps rationalized on other grounds. It was said, for example, that the influence of a large purchaser of government bonds in the market (the Sinking Fund agency) would serve to maintain the price of securities above par; this would make the task of converting the remainder of the debt easier, and would enable the government to refund its obligations at falling rates of interest. But often there were years in which deficits occurred, when the government was borrowing with one hand many times the amount it was repaying with the other, and at disadvantageous rates.[42]

F.W.Hirst, in his revision of a remarkable compilation of economic data called "The Progress of the Nation", summarized the criticism heaped upon the sinking fund as follows:[43] "The establishment and support of the sinking fund was long considered as a masterstroke of human wisdom. Having since had sufficient opportunities for considering its effects, we have arrived at a different conclusion, and can no longer see any wisdom in the plan of borrowing larger sums than were wanted, and paying in consequence more dearly for the loan of what was actually required, in order to lay out the surplus to accumulate into a fund for buying up the debt at a higher price than that at which it was contracted." The anticipated benefits of carrying on a sinking fund while borrowing were thought to lie in the high level of taxation which could be maintained, and devoted to debt redemption, when borrowing ceased. But, Hirst adds, "There never could have existed any doubt of the fact, that whenever the necessity for borrowing should cease, the market value of the public funds would advance greatly, and would therefore in an equal

42. We have already seen that the Mellon sinking fund repeated this policy in the 1930's, though a major difference existed in that the American government found it possible to borrow at lower rates of interest from those paid on its existing debt.

43. Cf.G.R.Porter: The Progress of the Nation, London, 1912 Ed.by F.W.Hirst, p.621.

degree limit the redeeming power of the surplus income, however arising."[44]

This early attempt at devising an orderly and sure method of debt retirement having fallen into disrepute, it was a full half century before a similar scheme was devised. In the meantime, budget surpluses were applied to debt reduction under what was termed the "Old Sinking Fund."

In 1876, a more deliberate effort at reducing the debt was put into effect. Under this scheme, a fixed sum, which was to become £28 millions annually by 1879, would be devoted to managing and redeeming the debt. "The excess amount not required for the actual service of the Debt was to be applied to the redemption of debt as the "New Sinking Fund".[45]

In its early years, the amount left over after interest and management charges had been met was about £5 millions. (See Table 9). But net reductions in the outstanding amount of interest-bearing debt often fell far short of the specific amount set aside for that purpose. This was due not only to unexpected deficits resulting from the impact of the business cycle, but to offsetting increases in debt which concealed the true state of affairs. This was in fact a repetition of the same policy which had been employed fifty years earlier, and which drew the censure of Porter and Hirst. Of the eleven years from the commencement of the New Sinking Fund, five were years of budget deficits, and surpluses of less than £900,000 were obtained in all others. More significantly, in four of these years, the outstanding volume of debt increased, while it decreased by amounts far smaller than the Sinking Fund in two others. Altogether, the debt was reduced by £29 millions in the years 1876-86 although £54 millions had been voted for the purpose. Nor does

44. Cf. Porter: op.cit., p. 619
45. Cf. U.K. Government: Parliamentary Paper, Return Relating to the National Debt, Command 8227, 1896, p.31.

this take into account the fact that part of the net reduction of £29 millions resulted from the Old Sinking Fund and from other sources amounting to about £7 millions. Thus little more than a third of the New Sinking Fund was actually applied to debt reduction, while the remainder was cancelled by other borrowings. The supposedly inviolable sinking fund could be rendered ineffectual by other methods than open raids upon it.

The period with which we are more intimately concerned begins with the term of office of Viscount Goschen, who was to be for six years arbiter between the opposing camps which favoured debt reduction and tax reduction respectively. As far as debt reductionwas concerned, Goschen's term of office began somewhat inauspiciously. His first act was to reduce the New Sinking Fund from slightly more than £28 millions to £26 millions in order to cut a penny off the income tax. He justified this move on the grounds that the Sinking Fund had been tampered with before, as indeed it had. (In 1886 both the New Sinking Fund and capital repayments of terminable annuities had been suspended on account of extraordinary military expenditures.)[46] It can hardly be claimed that the Chancellor of the Exchequer was the guiding force behind debt repayment in the sense that Andrew Mellon was in the United States thirty-five years later. Furthermore, the anticipated surplus of the succeeding year was to be reduced by further cuts in taxation. In the succeeding decade, each forecast of excess revenue was cancelled by making appropriate tax reductions. This suggests that when a sinking fund exists on the statute books, little effort is made to achieve further debt reductions by maintaining taxes at existing rates, thus bringing benefits to the national Treasury out of increased productivity. The sinking fund tends to become a maximum rather than a minimum appropriation for debt

46. Cf. Command 8227, 1896, p.32.

repayment. It may of course be argued that no Chancellor could expose himself to the criticism that he deliberately permitted revenues to exceed expenditures. But it might also be said that, had Goschen or his successors been more convinced of the efficacy of debt reduction rather than tax reduction, it would have been possible to have obtained the consent of Parliament for a policy of applying increased tax yields to debt repayment. Goschen's six budgets were not without innovations, but they failed to meet the challenge of a serious effort towards discharging the nation's debt in a period when the painful phase of counter-cyclical fiscal policy would have been quite tolerable.

A cursory glance at the outstanding volume of debt would indicate that more than £30 millions were removed in Goschen's first year of office. However more than £26 millions of this was merely achange in accounting practice, having represented the sum transferred to the Local Loans Budget, and henceforth kept separately from the national debt. Only a third of the realized budget surplus was applied to debt reduction, the remainder being devoted to "deficiency advances", and special expenditures under the Imperial Defence Act.

In March 1888, Goschen introduced to the House of Commons his scheme for converting the great bulk of the funded debt for the purpose of reducing service charges. This, the most successful conversion operation since 1844, was carried out during the year 1888-89. Goschen sought to take advantage of the current high level of business activity which had carried the economy out of a slump in the years prior to his coming to the Treasury. The money market reflected the buoyancy of economic conditions, and the average monthly price of consols in 1887-88 was 102 1/6.[47] Goschen,

47. Cf. B. Mallet: British Budgets 1887-1913, London,1913, p.497.

with a tremendous fund of knowledge of the city and its financial men was in a strategic position to realize the practicality of the plan. He therefore proceeded to call in all "Consols", "Reduced Threes" and "New Threes" which together accounted for 85% of the total debt, (roughly £593 millions out of £698 millions in 1889). He offered as an inducement a bonus of 1s6d percent, and this proved sufficient to attract nearly all the outstanding volume of "threes". The new bonds were irredeemable till 1923, bore 2 3/4% till 1903 and 2½% thereafter. By taking advantage of the strong demand for gilt-edged securities, Goschen was able to save ¼% per year on about £600 millions of debt. This amounted to a reduction of £1,500,000 in annual service charges, or about 7% of the annual bill for debt service and management. After 15 years, the saving in interest payments would double. But of course the principal of the debt remained unchanged, and the market value of government obligations, now that income on bond holdings was thus reduced, fell by roughly 2 points. The Goschen conversion was therefore a reduction in the burden of debt, rather than a once-for-all repayment which would have important monetary consequences.

Of the 2.8 million surplus obtained in 1888-89[48], £2 millions were removed from the Old Sinking Fund and applied to conversion costs, and another million was borrowed for the same purpose. Thus two years' savings in interest charges were wiped out by the cost of the refunding scheme; a reduction in tax burden was reserved for the future. In his third budget speech, Goschen replied to criticisms directed at him for reducing the New Sinking Fund by boasting that on only two previous occasions had so much debt (£15 millions) been removed in an equal length of time. Yet his claim was somewhat specious, inasmuch as new borrowings reduced this to £11 millions, of which £4 millions could be accounted for by the Old Sinking Fund - over

48. Fiscal Years April 1 to March 31.

which he had no control - and by other non-tax revenue.

The New Sinking Fund was reduced once more in Goschen's fourth budget, this time by £1 million. Moreover only one third of the saving in interest charges effected by the conversion operation was promised for debt redemption. This would tend to confirm the suggestion made above that Goschen, far from advocating a stern policy of high taxation to repay the nation's obligations, was prepared to reduce the sinking fund whenever the opportunity presented itself. Once again, raids on the sinking fund drew protests: "The Opposition.....took Mr.Goschen severely to task for his fresh infringement of the new sinking fund, and there was much force in the comment that the annual fixed charge for debt stood at £4 millions less than thirty years ago, when the resources of the country were far inferior and the burden of taxation including that of the income-tax, greater than at the present time".[49]

In 1890-91 the sinking fund was virtually suspended when nearly £5 millions in new borrowings were made. The considerable reduction in the debt- which by coincidence equalled the sinking fund - was achieved through a budget surplus and a reduction of the Exchequer Balance. Goschen's claims of having achieved an average annual debt reduction of £7 millions were not borne out by the facts, and the opposition hastened to point out that, if it had not been for new borrowings, the Exchequer would have suffered deficits.

The general effect of Goschen's policies was to recoup his reductions in the New Sinking Fund by accidental budget surpluses. The saving which he achieved by conversion did nothing to lower the principal of the debt. To excuse his reduction of the sinking fund, as Mallet does,[50] on the

49. Cf. Mallet; op.cit., p.28.

grounds that debt-redemption proceeded at a rapid rate in the 1890's, and that a fixed charge would have been intolerable when consols reached very high prices later on, is "second guessing". Goschen could not have reasonably expected - or relied upon - a more serious effort at debt reduction than he was willing to follow himself during prosperous times.

A change of government coincided with a relatively short depression, so that Sir William Harcourt's first Budget revealed a deficit, while his second produced a small surplus. Goschen's successor carried on the debt reduction policy in much the same vein: as revenues increased once again, he removed taxes and appropriated budget surpluses to other purposes than debt redemption. In this phase of British financial experience, reductions in the debt definitely resulted from the Sinking Fund, rather than from adventitious sources. Hicks-Beach, Harcourt's successor, had greater cause than his predecessor to allocate the Old Sinking Fund to current expenditures, since Britain was entering a period of rearmament which involved, chiefly, heavy naval expenditures. This situation continued right up till the outbreak of the Boer War, and on into the 20th century as the United Kingdom faced an increasing threat from the German fleet. Accordingly in 1896-97, a very large surplus of over £4 millions was devoted to dockyard construction, and the same procedure was repeated in the next two years.

Hicks-Beach, following a tendency exhibited by Viscount Goschen, reduced the New Sinking Fund once more as interest charges fell and an excessively large amount was thought to be going to debt repayment. He was severely criticised, the more so becausehe himself had been a staunch advocate of maintaining the sinking fund as a reserve source of expenditure in the event of war. But this time the Chancellor possessed a strong argument for

reducing Exchequer purchases of Consols: their price had gone from below par in 1894 to 113 in 1898. Already it had cost a premium of £2 millions to redeem £18 millions of Consols in four years. The reduction of the New Sinking Fund and the deflection of the Old Sinking Fund were almost mandatory in the face of the huge bonus which would have to be paid to shareholders. No such valid reason for easing up on debt reduction had existed since the inauguration of the New Sinking Fund.

Up to the outbreak of the South African War in 1899, which again produced budget deficits and net increases in the debt, £82.16 millions had been removed from the debt from the time of Goschen's taking office in 1887. (This excludes the £26 millions which were transferred to the Local Loans Budget in Goschen's first year as Chancellor.) It may now be worth while to look back on the accomplishments of Goschen and two of his successors, and note the contrasts to American debt retirement experience.

B. Speed and Sources of the Goschen Retirement

The period of debt retirement which has just been dealt with lacks the homogeneity of economic conditions which characterised the Mellon Retirement. During the latter, the national economy showed a steady climb from the brief postwar depression; it was also marked by a definite change in direction at a fairly precise point of time. The Goschen Retirement carries us from the start of an upswing, through one short Juglar cycle, and on into a second period of prosperity. The chief justification for selecting the period 1888-99 is that it corresponds closely to the Mellon period in duration, and is brought to a close with a definite turn of events precipitated by the South African War.

In the twelve years under consideration, approximately 11% of the

debt outstanding at the start of the period was redeemed. This may be compared to a 37% debt retirement in the Mellon period. Table 8, which may be contrasted to Table 5, indicates the very great difference between the magnitude of the two programs. Even in its best year, the Goschen Retirement did not achieve as much as the Mellon Retirement accomplished, by means of the sinking fund, in the depression year 1931!.

Table 8

SPEED OF U.K. DEBT RETIREMENT 1888-99
(£millions)

Year	Total Debt[a]	Retired[b]	% Retired
1888	736.28	4.14[c]	.6
1889	705.58	7.15	1.0
1890	698.43	8.49	1.2
1891	689.94	5.87	.9
1892	684.07	6.39	.9
1893	677.68	6.64	1.0
1894	671.04	4.89	.7
1895	666.15	9.15	1.4
1896	657.00	8.53	1.3
1897	648.47	7.70	1.2
1898	640.77	6.33	1.0
1899	634.44	6.88	1.0
1888-99		£82.16	11.1

a. Includes funded and unfunded debt, and terminable annuities, but excludes "other capital liabilities" which consisted of foreign loans and other obligations met separately out of current revenue. Outstanding debt at start of fiscal year, March 31.
b. 1888 means fiscal year April 1, 1887 to March 31, 1888.
c. Excludes £26.56 transferred to Local Loans Budget.

The most active period of British debt retirement occurred not at the height of prosperity but when the New Sinking Fund was not raided. Goschen's successors achieved a higher proportion of debt reduction each year than he did himself. On the whole, when it is recalled that this was, with one exception, the most vigorous effort at debt redemption in British history, one must conclude that British concern over the size of the nation's obligations has invariably been somewhat halfhearted.

Nor does the evidence of the sources from which debt was redeemed

indicate that debt reduction took place through deliberate policy to the extent which the public believed. In Table 9, which gives the sources of retirement for the years 1888-99, it is apparent that the two sinking funds were almost invariably raided in the annual budget. Total surpluses for the period amounted to £22.4 millions, but only £9.3 millions of this ever reached the legitimate Old Sinking Fund; the remainder was expended in current capital outlays and to meet supplementary budget requirements. Thus Chancellors of the Exchequer made the best of their case before the electorate: they could point with pride to the size of the budget surplus, which, to everyone but the financially observant appeared to be devoted to debt reduction; they could then appropriate this surplus to current account, and point once more with pride to the avoidance of increased taxation for extra outlays.

The New Sinking Fund was also raided periodically, though to a lesser extent than the budget surplus. Total appropriations for capital repayment, after the greater part of the New Sinking Fund had been allocated to interest and management, were £77.1 millions in the twelve year period. Something less than £65 millions of this were finally devoted to debt retirement once allowance had been made for new borrowings.[51]

Minor amounts of debt retirement were derived from reductions in the Exchequer's cash balance, and from miscellaneous non-tax revenues. Altogether, exactly 80% of debt retirement in the period came from current revenue, which for the most part meant the New Sinking Fund; 11% was derived from budget surpluses. A major reason for the comparatively small magnitude

51. The exact amount is impossible to determine, since the annual "Return relating to the National Debt" did not distinguish between sinking fund and other current revenue applied to debt reduction.

SOURCES OF U.K. DEBT RETIREMENT, 1875-1899
(in £millions)

Year	1 Total[a] Debt	2 Amount Redeemed (-)	3 From[b] Current Revenue	4 Old[c] Sinking Fund	5 Exchequer[d] Balance	6 Other[e]	7 Surplus[f] (+) or Deficit (-)	8 New[g] Sinking Fund
1875	769.0							3.65
1876	770.1	+1.96	-	.3	h	.1	+ .5	4.1
1877	770.0	- .90	.80	-	h	.1	+ .4	4.7
1878	772.2	+2.14	-	-	-	.1	- 2.6	5.1
1879	773.0	+ .82	-	-	-	.1	- 2.3	5.1
1880	771.6	-1.36	.76	-	.5	.1	- 2.8	5.3
1881	766.1	-5.47	4.4	-	1.0	.1	+ .9	6.1
1882	760.7	-5.45	4.9	.4	-	.1	+ .3	6.4
1883	754.5	-6.23	6.1	-	-	.1	+ .1	6.7
1884	746.4	-8.04	5.9	-	1.9	.2	+ .2	6.8
1885	740.3	-6.09	5.8	-	-	.3	- 1.0	7.0
1886	742.3	+1.95	-	-	-	.3	- 2.6	1.3
1887	736.3	-6.00	5.7	-	h	.3	+ .8	5.8
1888	705.6	-4.14	3.1	.8	.1	.3	+ 2.4	5.1
1889	698.4	-7.15	4.9	1.9	h	.4	+ 2.8	5.2
1890	689.9	-8.49	6.5	.8	1.9	.3	+ 3.2	5.3
1891	684.1	-5.87	2.2	2.2	1.1	.3	+ 1.8	6.0
1892	677.7	-6.39	4.3	1.8	-	.3	+ 1.1	6.5
1893	671.0	-6.64	5.3	1.1	h	.3	+ h	6.5
1894	666.2	-4.89	4.6	-	h	.3	- .2	6.8
1895	657.0	-9.15	8.1	-	.8	.3	+ .8	6.6
1896	648.5	-8.53	8.1	.8	-	.3	+ 4.2	7.1
1897	640.8	-7.70	7.4	h	h	.3	+ 2.5	7.2
1898	634.4	-6.33	5.9	-	-	.4	+ 3.7	7.4
1899	627.6	-6.88	5.2	- 1.1	-	.5	+ .2	7.6

a. From Command 768, 1901, pp.8-9.
b. Amounts redeemed out of current tax revenues equal total net redemptions less those attributable to sources in Cols.4-6
c. From Command 768, Appendix 4, pp.28-31.
d. Ibid, pp.28, 30.
e. Ibid, pp. 28,30.
f. From Mallet, op. cit. p.477.
g. From Command 768, p. 13.
h. Less than £50,000.
j. Includes transfer to Local Loans Budget of £26.56 millions.

of the Goschen Retirement as contrasted to that of Mellon is that the latter was derived to a large extent from budget surpluses and other sources. 36% of the U.S. debt reduction came from budget surpluses, and another 29% was the result of wartime conditions; that is, the Treasury's cash balance had been tremendously swollen during the First World War, and was subsequently reduced. Secondly, foreign repayments of war-contracted debts were applied to domestic debt reduction. Goschen had no such extraordinary conditions to aid him. Furthermore, the U.S. retirement program was not hampered by offsetting borrowings: the sinking fund remained unimpaired so long as all federal capital improvements were paid for out of current expenditure. Perhaps the chief difference between the two debt reduction periods was that retirement permeated the whole fiscal policy of the U.S. in the 1920's. American policy was characterised by a withdrawal of Government from economic activities, which it was thought could be adequately handled by private institutions. Under Mellon, increased federal activities were never permitted to interfere with debt retirement. But under Goschen, Harcourt and Hicks-Beach, debt reduction was frequently postponed for what were considered more urgent purposes. Increased naval construction and aid to education were the most important of these offsetting items.

C. BURDEN OF THE BRITISH DEBT, 1880-1900

As already stated, an investigation of the effects of the British debt retirement program in the last century is somewhat limited by the lack of data. Some of the most pertinent time series do not exist, and those which do are as much guesses as observations. A comparison of the burden of debt at different times, for instance, is at best an approx-imation, since the magnitude of national income in Great Britain for the years under consideration is conjectural. Table 10 supplies such figures

of national income as are available. These were derived by Sir Robert Giffen[52] and A.L.Bowley[53] on the basis of income tax returns, together with estimates of the earnings of income groups which paid no direct taxes.

Table 10
BURDEN OF THE U.K. DEBT, 1880-1900
(nearest £millions and nearest %)

Year	1 Total Debt[a]	2 Interest[a]	3 Interest & Sinking F.[b]	4 National Income	5 Debt-Income Ratio[c]	6 Tax Rate A[d]	7 Tax Rate B[e]
1880	772	23.7	29.9	1150	.67	2.1%	2.6%
1883	754	23.1	29.8	1270	.59	1.8	2.3
1887	736	22.3	28.1	1300	.57	1.7	2.2
1890	690	20.0	25.3	1350	.51	1.5	1.9
1895	657	18.5	25.2	1600	.41	1.2	1.6
1900	629	17.6	23.7	1650	.38	1.1	1.4

a. From Parliamentary Paper, Command 768, 1901, pp. 10-13
b. Cf. Mallet, op.cit., pp.432-33.
c. Ratio of Col. 1 to Col.4
d. Ratio of Col.2 to Col.4
e. Ratio of Col.3 to Col.4

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Comparing Table 10 to Table 6, it will be noted that the ratio of national debt to national income was as high at the end of the 19th century in England as it was in the U.S. at the close of an unprecedentedly expensive war. Further, the annual rate of reduction in the American debt was approximately equal to the quadrennial rate of reduction in Britain. At the close of the Goschen Retirement, the burden had been nearly halved. But this was not so much due to a decrease in the debt, or even in the cost of servicing it after the 1889 conversion, as it was theresult of the great increase in national income. The same can of course be said of the Mellon retirement. Interest charges fell by about 25% from 1880 to 1900, but only one quarter of this was the effect of the Goschen

52. Cf. Sir R. Giffen: Essays in Finance, London, 1887
53. Cf. A. L. Bowley: "Tests of National Progress", Economic Journal, Sept., 1904; also The Change in the Distribution of the National Income 1880-1913, Oxford, 1920, p.16.

TOTAL DEBT (£ MILLIONS)

750
700
650
600

BANK RATE %

5
4
3
2

GOLD COIN AND NOTES (£ MILLIONS)

+1
0
−1
−2
−3

DEBT RETIREMENTS (£ MILLIONS)

+8
+4
0

BANK DEPOSITS (£ MILLIONS)

550
500
450
400
350
300
250
200

M J S D

1881 1882 1883 1884 1885 1886 1887 1888 1889 1890 1891 1892 1893 1894 1895 1896 1897 1898 1899

TOTAL NATIONAL DEBT, ANNUALLY
DEBT RETIREMENTS (+) AND INCREASES (−) ANNUALLY
BANK RATE, QUARTERLY
FOUR QUARTER MOVING AVERAGES OF NET INTERNAL MOVEMENTS OF GOLD AND BANK OF ENGLAND NOTES
CURRENT AND DEPOSIT ACCOUNTS OF JOINT-STOCK BANKS IN ENGLAND AND WALES

[FOR SOURCES SEE TEXT]

KEUFFEL & ESSER Co. NEW YORK.

CHART 5

conversion. Interest and sinking fund together fell by roughly 20%; but national income rose by almost 44%, thus broadening the base on which the weight of the debt rested. The continuous decline of the British debt burden provides further evidence that the maintenance of the New Sinking Fund at the level intended in 1875 would not have imposed a very great strain on the British taxpayer. In a period of relatively untroubled British economic expansion, it is difficult to discover adequate reasons for repeated raids on the Sinking Fund by Chancellors who gave allegiance to the canons of financial purity.

D. MONETARY ASPECTS OF THE GOSCHEN RETIREMENT

It remains to consider the relationships between the fall in national debt and the movement of other variables in the economy. A number of improvisations have been devised to replace the more informative data which is lacking. Although these form an inadequate base for drawing definitive conclusions, they may provide sufficient grounds for drawing parallels to American experience in debt retirement.

With reference to the mechanism of inflation through debt expansion, the British banking system was very similar to the American. In fact, the main features of central banking which were incorporated into the Federal Reserve System were necessarily patterned after the techniques and experience of the Bank of England. Although the intermediate function of the London discount houses, which absorbed short term loans from the private banks, made the British system more complex, the mechanism of government borrowing was largely the same.

The Exchequer could raise funds from voluntary savers without affecting the volume of bank credit outstanding. It could also borrow

from the joint-stock banks, but only if the latter were provided with increased cash reserves in advance. The British banks, in contrast to their American counterparts after the establishment of a central banking system, did not often depart from their conventional cash-deposit ratio of 10%. Therefore in order to sell bonds to the banks, the Exchequer would normally have had to first borrow from the Bank of England. The deposits thus created, having been spent by the government, would become cash reserves for the commercial banks. On the basis of these reserves the latter could proceed to purchase nine times the amount of the addition to their reserves in government bonds, notes or bills. The multiple expansion of bank deposits which resulted from Treasury borrowing at the Federal Reserve Banks in the United States thus had its counterpart, and indeed its ancestor, in Great Britain.

The mechanism of debt retirement was also largely the same as that which operated in the United States. One chief difference did, however, exist: the Exchequer maintained nearly all its deposits at the Bank of England, and very little at the joint-stock banks. The raising of taxes for debt retirement therefore forced a multiple contraction of commercial bank deposits, since the latter almost invariably lost reserves to the central bank. (Ordinarily, the commercial banks would make provision for the loss of reserves in advance, so that no great shock would be administered to the financial system each time the income tax was collected.)

But, as has been shown in the American case, this difference of British technique had no necessary monetary effects: as soon as the Exchequer retired its consols, reserves flowed back to the joint-stock banks and made possible a multiple expansion of bank credit. Whether

debt retirement was deflationary when private holders were repaid depended on the demand for bank credit by the public. The only effect which might be attributed to the contrasting technique of the Exchequer from the U.S.Treasury is that the former could cause a greater "frictional" deflation while its tax receipts were held on deposit at the Bank of England. Apart from this, the monetary mechanism of the Goschen retirement was identical to that employed in the United States.

Bank deposits in the United Kingdom rose approximately twice as fast as debt was retired in the years 1881-1899. (See Chart 3)[54]. This provides a striking parallel to American experience, where debt retirement and deposit expansion changed in approximately the same proportions. But the expansion of deposits in Britain occurred over the full course of two Juglar cycles, while the American expansion took place entirely in years of recovery and prosperity. There is some reason to suppose that the Goschen retirement contributed to the expansion of bank deposits in the same manner as was suggested for the Mellon period. That is, insofar as the Goschen retirement was a forced loan, savings were increased and funds provided for investment. But there was no stock market boom in the United Kingdom comparable to that in the United States after 1926. Since consumption was reduced while investment was increased without producing over-investment, it is difficult to discover any inflationary consequences of the Goschen retirement.

The volume of gold and Bank of England notes in circulation moved in inverse relation to the business cycle as might be expected.

54. Sources for Chart 5: (1) Total debt and annual retirements, see Table 9. (2) Current and deposit accounts of joint-stock banks in England and Wales, from W.E.Beach: British International Gold Movements and Banking Policy,1881-1913, Cambridge, Mass., 1935, p.92. (3) Internal movements of gold and Bank of England notes from W.E.Beach: op.cit., p.66. (4) Bank rate from R.G. Hawtrey: A Century of Bank Rate, London, 1938, pp.298-99.

(Compare Charts 5 and 6).[55] Liquidity was high in 1885 and in the years 1891-93, while it fell sharply in the good years 1888-90 and after 1898. As in the American case, there is little evidence that debt retirement affected the volume of currency, which depended on fairly short term changes in the business cycle.

Debt retirements clearly moved in sympathy with the business cycle, as can also be seen by comparing Charts 5 and 6. Index of the business cycle for the years 1881-99 has been constructed in recent years, and indicates high points in 1882, 1890, 1899, while 1886 and 1894 were the low years in successive depressions. This index is confirmed by changes in the bank rate (See Chart 5) which was high in periods of heavy borrowing and when the Bank of England was suffering a drain of gold abroad, and low in periods of inactivity. Prof.Beach has also found "a high positive correlation between the condition of business and the volume of Capital exports."[56] An index of the latter, based on the year 1886, has been constructed from his figures, and displays a rough similarity to the business cycle, though there is a lengthy time lag between the two in some cases. It will be noted that the most active periods of debt retirement coincided with the upswing of each business cycle. The correspondence is not precise because, as has been pointed out, debt retirements were highest in years when the Chancellor of the Exchequer simply refrained from raiding the Sinking Fund.

Nor should we find this parallel movement strange: the volume of Exchequer receipts reflected the movement of the business cycle, and the proportion of receipts devoted to debt redemption very naturally varied

55. Sources for Chart 6: Sauerbeck wholesale price index from U.S.Bureau of Labor Statistics: Bulletin 284, Index Numbers of Wholesale prices in the U.S. and Foreign Countries, 1921, p.280; Consol prices, see footnote 47; Capital exports from W.E.Beach: op.cit.,p.176; index of business cycle from W.E.Beach: op.cit., p. 42.

56. Cf.Beach: op.cit., p.176.

directly with fluctuations in the ability of the government to impose taxes. There is little question that the retirement of debt followed, rather than preceded, changes in business conditions; the Goschen program was dependent on the state of economic activity, and this was frequently acknowledged in budget speeches. When business was active, income taxes and stamp duties swelled the budget surplus and provided a larger sinking fund. When depressions occurred, as in 1877-79, 1885-86, and in 1891 to 1894, the Old Sinking Fund disappeared and the New Sinking Fund was appropriated for other purposes (See Table 9). It is worth noting that net additions were made to the debt in 1878-79 and 1886, two of the three low points of successive Juglar cycles.

The trend of wholesale prices over the years 1881-99 was definitely downward. (See Chart 6). Can it be said that this was in any way the result of the Goschen retirement? There is little reason to believe that such was the case. Firstly, the volume of debt repayments was not sufficiently large to impose a strain on the lower income groups. If half the net debt discharge of £82 millions was raised from consumption taxes and turned over to debt owners as increased savings, this would only have reduced consumption by approximately £3 millions per year.

The volume of money was, however, closely related to the size of gold reserves in the Bank of England. During this period a number of foreign countries adopted the gold standard and drew off considerable amounts of newly mined gold. British gold exports remained fairly steady, but gold imports declined from £23 millions in 1875 to £8 millions in 1883, and from that point recovered slowly towards their former level. During the years 1858-70, total net gold imports amounted to £74.5 millions, but were only £4.7 millions in the years 1871-88. It must be concluded that the British economy was relatively starved for cash reserves on which

to base greater bank credit, and that this exercised a serious deflationary force. Hawtrey, indeed, attributes the downward tendency of prices from 1875 to 1900 to this specific monetary cause.[57]

But does it follow from all this that the debt retirement program was entirely a result, and not at least a partial cause of the business cycle? An answer would seem to depend on the relative significance of debt retirement in paving the way for new productive capital formation. Such scanty estimates of the rate of growth of capital from 1875 to 1900 as exist would seem to indicate that debt retirement played a very small role indeed. In 1875, the total volume of capital was estimated to be £8548 millions. In 1886 and 1895 it was £10,037 and £10,664 millions respectively.[58] The average annual rate of capital formation was therefore about £150 millions per year up to Goschen's time, and from then on about half that. By comparison, what was the extent of capital formation attributable to the Goschen retirement? To answer this, we must examine the distribution of debt ownership and tax incidence.

Apart from the Bank of England's holdings of government securities, virtually no material is available on the distribution of the debt. One Chancellor of the Exchequer, however, did provide an estimate which offers a valuable insight into the general pattern of ownership. In the last year with which we are concerned, Sir Michael Hicks-Beach, in defending his proposal to reduce the sinking fund, asserted that not more than £358 millions of the total debt of £627 millions were privately held.[59] The remainder was in the hands of government

57.Cf.Hawtrey: op.cit., pp.155 ff.
58.Cf.Porter: op.cit., pp.700-703 and Mallet: op.cit., p.437.
59. Cf.Mallet: op.cit., p.138.

agencies such as the Post Office Savings Banks and various trust funds; these groups, required by various legal restrictions to invest in safe securities, were not in a position to surrender their gilt-edged assets. Thus the government, in redeeming debt through the New Sinking Fund, was driven to buying from private sources, and thus to forcing up Consol prices to intolerable levels. Of the privately held debt, Hicks-Beach thought that £200 millions were in the chartered banks, leaving only £158 millions, or 25%, in the hands of corporations, insurance companies and individuals. By contrast, the share of debt held outside the banks in the U.S. was never lower than 42%, even in the worst years of the depression, although it had been only 21% before the first Great War. On the other hand, debt holdings of government agencies appear to have been far higher in the United Kingdom than in the United States, which makes it difficult to claim that the ownership of the British debt was more highly concentrated in high income groups than the American debt. The participation of relatively low income groups in the ownership of trust fund and Postal Savings assets was almost unquestionably greater than inthe ownership of the banks and industries.

Although the British debt may not have been more concentrated in wealthy hands than the American, the burden of taxation almost certainly fell more heavily on low income groups than it did after 1918 in the U.S. The Treasury classification of revenues indicates that about 45% was raised by direct taxes in Britain in 1888, and 48% in 1899.[60] But this classification places property taxes in the group of direct taxes, whereas it is the practice nowadays to consider this tax as regressive in its incidence, even though it may be legally classified as a direct tax.[61] Customs and excise duties, together with the property tax are also

60. Cf. Mallet: op.cit., p.493
61. Cf. S.E.Harris: op.cit., p.213.

regressive. Even after the increases in the proportion of revenues raised by income and estate taxes resulting from the Boer War, it is estimated that low income groups paid almost twice as high a proportion of income in taxes than the highest income group.[62] Though the American incidence of taxation was probably maldistributed to a greater extent in the 1920's than in 1939,[63] it fell less heavily on low income groups than it did in Goschen's time in the United Kingdom. From this it might be safely concluded that the Goschen retirement represented a forced loan of at least £41 millions from low income groups. These taxpayers held few consols individually and did not benefit indirectly from debt retirements through their share of ownership in various institutions, since the latter retained their holdings of the national debt.

Therefore if debt retirements represented a 41 million levy on consumption, this would have constituted less than 1% of capital formation up to 1886, and about 4% from then till 1895. It is clear that the contribution of debt reduction towards releasing funds for private investment was very much less important than it was in the Mellon period.

Local debt alone expanded at a rate which was sufficient to wipe out the reduced indebtedness of the central government in the United Kingdom. Hicks-Beach drew attention to this fact in his budget speech of April 1898.[64] He advanced as a reason for pursuing a more determined debt retirement policy the fact that since Goschen's assumption of office, £75 millions had been added to the debt of local authorities while £66 millions were removed from the national debt. Thus, in the view of a

62. Cf. Report of (Colwyn) Committee on National Debt and Taxation, 1927, p.95.
63. Cf. Harris: loc.cit.
64. Cf. Mallet: op. cit., p.126.

contemporary, the retirement of debt was to be dependent on the fact that local indebtedness was increasing. He did not even consider the converse side of the case: that the reduction of national debt released funds for investment in local issues. Over the whole period 1888-99, local debt increased by £104 millions while the national debt fell by £82 millions. Life insurance assets alone rose from £204 millions in 1890 to £301 millions in 1900.[65] This counter-balancing of debt retirement in a period of very active private and subsidiary government investment provides another interesting parallel to American experience. In the 1920's, state and local debt in the U.S. expanded at a rate virtually equal to the speed of Federal debt contraction.[66]

If the discharge of privately owned debt provided no very obvious contribution to deflation in the years 1881-99, what about the retirement of debt held by the Bank of England? As has been observed, a cancellation of government bonds owned by the Bank would initiate a multiple reduction of bank credit. But as in the case of the Federal Reserve Banks in the Mellon period, the Bank of England held only a small portion of the total debt. Total securities listed in the Bank's assets averaged about £37 millions throughout the period 1875-1900. Assuming that the entire amount consisted of British Government obligations, this would have represented about 5% of the debt. But there was no net reduction in central bank-held debt during the Goschen retirement and if anything, the Bank's absolute portion, and its relative share, tended to increase.

The achievement for which Viscount Goschen is chiefly remembered -

65. Cf. Porter: op.cit., p.609
66. Cf. M.H.Villard: Deficit Spending and the National Income, N.Y. 1941, p.272.

the conversion of 1889 - was itself dependent on external factors, external in the sense that the carrying out of the scheme was not an autonomous decision, but was dependent on the state of the money market. During the recovery of 1887-89, the Bank rate fell from 4% to 2%. Conditions of easy money reappeared, and with an excess of funds seeking investment, Goschen was able to carry out his refunding operation. "This was the background of cheap money for Goschen's conversion of the 3 percents into new Consols yielding 2 3/4% and then 2½%".[67] After the conversion had been successfully completed, the price of Consols fell in the face of the new low yields.

The Baring crisis of 1890 did nothing to sustain Consol prices, but the chief reason for the continual sub-par price of government securities was the activity in private investment, which made gilt-edged securities less attractive. Subsequently, the depression of 1891-94 induced a loss of confidence on the part of potential investors. As Hawtrey points out, the expectation that dear money would continue for some time was a sufficient reason for the price of Consols to rise. In the years 1895-96 there was a heavy liquidation of working capital, coupled with large idle cash balances and large repayments of bank loans. Under such conditions, money flowed into the safe haven of Consols, and drove the price of the 2 3/4 per cents to 113. This in turn provided a substantial excuse for the reduction of the New Sinking Fund. Once again the rate of debt retirement appears to have been dependent on external factors.

In summary, the Goschen debt retirement, though one of the most extensive in British financial history, was a minor excursion in the realm

67. Cf. Hawtrey: op.cit., p.104.

of public finance compared to the Mellon retirement. A much smaller portion of the debt was redeemed, although the task was, in both absolute and relative terms, much less imposing than in the post-war United States. The redemption of debt appears to have been conditioned by the trend of the business cycle, without itself contributing in any significant degree to subsequent movements of the cycle. Savings were released for private investment, but in such small amounts compared to the growth of capital which was occurring, that it cannot be said that the Goschen retirement led to prosperity by providing an incentive to private investment. The conversion program contributed about 25% of the net reduction in the burden of interest charges from 1888 to 1899, and was eventually to assist to a small extent in a further debt reduction period after 1903. In short, the Goschen retirement does not appear to have been an important factor in the cyclical movement of the British economy during this period.

Chapter 6

INFERENCES

In the preceding chapters, an attempt has been made to review the theory of debt retirement in the light of two specific historical instances. It has been found that some of the supposed monetary effects of debt redemption do not constitute a valid interpretation of the debt reduction process. In this chapter, the theory of debt retirement under the headings of Objectives, Techniques and Results will be recast in terms of the preceding analysis.

A. Objectives

It is commonly understood nowadays that the burden of a debt cannot be shifted from one generation to another. The cost of war, which has been found to be the chief source of national debts, is borne by the generation which undertakes the war. Its bill is in terms of human and material destruction, together with the loss of potential output which might have been achieved had peace endured. The only sense in which the burden can be shifted to posterity is through the impairment of capital and in terms of the maldistribution of wealth which may result from debt creation. Paying for wars by borrowing rather than by taxation alters the portion of claims to income which each section of the community will receive in the future.[68]

The primary objective of debt retirement is usually considered to be the removal of burdensome taxes which act as a deterrent to production. But here an unfortunate paradox arises: the effort to remove a war-created

68. Cf. J. Viner: "Who paid for the war?", Journal of Political Economy, Vol.28, Nov.1,1928; E.R.A. Seligman: Essays in Taxation, N.Y.1921, 9th Ed., Chap.23.

debt may itself involve such a high level of taxation that the very burden which the nation is attempting to avoid is placed upon it. It is this diametrically opposite pull of debt reduction and tax reduction which has always made of debt retirement programs one of the most highly controversial matters in public finance.

In modern times, more subtle reasons for debt retirement - or the avoidance of it - have been advanced. The chief of these is the shift of income distribution which it is thought debt reduction will bring about. With the continued growth of progressive tax structures, most countries have sought to even out the burden of taxation in terms of capacity to pay. Since the great bulk of war debt is held by high income groups, who during the period of debt creation are the main source of loans, the retirement of debt will shift income from the poorer to the wealthier sectors of the community. On this point virtually all writers in the field of public finance are agreed.[69] But whether the objective of alleviating the tax burden on the low income group by rapid discharge of the debt is possible without at the same time crippling direct taxpayers to the point of creating unemployment, or whether the safest method lies in gradual debt redemption or none at all, are matters of dispute. Criteria which determine the most desirable speed of retirement will be dealt with later in this chapter.

A second objective of debt retirement is the release of funds for more productive forms of investment. Dietzel, an early German writer on the subject, laid down this maxim: "If no outstanding need for sums of

69. Cf.H.C.Adams: Public Debts, an Essay in the Science of Finance,N.Y. 1899 Ed., pp.557-58; A.C.Pigou: "The Problem of the National Debt", Contemporary Review, Dec.1919, pp.74 ff.; H.Dalton: loc.cit.

capital is present in the political economy the extinguishment of the debt is unjustified." [70] Lord Keynes, as noted above, was in a large measure of agreement with this criterion. But Dalton[71] and the Colwyn Committee[72] appeared to believe that the release of funds for private investment would always be desirable. This in turn is disputed by more recent writers, such as Fine,[73] who sees in debt retirement during prosperity a possibility of aggravating excessive levels of private investment and therefore an intensification of the boom and subsequent collapse.

Thus the arguments for and against debt retirement really hinge on the desirability of forced savings. All the writers referred to above tacitly assume that the repayment of debt represents a transfer of wealth from low to high income groups. At one time the view that forced savings were desirable at all times was more generally accepted, since it meshed with the very raison d'être of capitalism: the direction of money-income into savings for the purpose of building productive capacity. The more modern view, as exemplified by Keynes and his successors, is that such forced savings may be harmful, and will only be desirable when there is a dearth of funds for private investment. We have seen that in the case of the Mellon retirement, forced saving contributed to the fact of over-investment in the latter years of the 1920's. It wasnot, however, by any means the main source of over-investment; the cause was rooted in the public's belief in unlimited prosperity, and in the demand for bank credit which took its cue from that psychology. In the case of the Goschen retirement, forced savings were probably not sufficiently great to significantly influence the level of investment.

70. Cf. S. Matsushita: The economic effects of public debts, N.Y. 1929, p.187.
71. Cf. H. Dalton: loc. cit.
72. Cf. W. Withers: The Retirement of national debts, N.Y., 1932, p.253.
73. Cf. S.M. Fine: Public Spending and Postwar Economic Policy, N.Y., 1944. Chap.5

However, it might be pointed out that most debt retirement programs are carried out with the overriding intention of improving the government's credit standing and of reducing the nation's obligations in the event of new and more expensive wars. It has not been the purpose of this paper to consider the relative claims, by themselves, of those who advocate debt maintenance against those who favour debt retirement. Rather, it has been our object to demonstrate what the effects of debt reduction will be, whatever be the purposes for which it is undertaken. If it is possible to answer the question: what will be the economic and monetary effects of a debt redemption scheme? an answer to the problem of the relative claims of debt repayers and debt stabilizers may be broached.

B.Techniques

Once the intention of reducing the national debt be admitted, the methods by which this may be achieved must be considered. Three possible methods (sinking fund, budget surplus and conversion) have been dealt with above. What conclusions may be drawn from them? Sinking funds have the outstanding merit that they provide for a consistent policy of debt reduction which may be planned for in advance by the taxing authority. But as we have seen in the case of the Goschen retirement, sinking funds are hardly less inviolable to raids than are accidental revenue windfalls. They are often reduced when the Treasury wishes to avoid further taxation for supplementary purposes. The other fault of the sinking fund lies in the other direction: it may become too rigid to meet fluctuations in the business cycle. In order to meet it during depressed periods, the government may have to borrow at higher rates of interest than it is paying on the outstanding debt. That the American sinking fund enabled the U.S. government to refinance part of its debt at lower rates of interest in the 1930's was the result of good fortune

rather than good management. It depended on the large excess reserves of the banks and the idle capital funds in the country which could be induced to accept very low rates of interest. Governments may be faced with the converse situation: in periods of prosperity and stringency in the money market, a sinking fund may force the Treasury to borrow at high rates in order to repay debts carrying low rates.

But normally the government will benefit both ways: in periods of prosperity it can readily meet its sinking fund out of taxes, as did Mellon in the 1920's and Goschen in 1887-92. In periods of inactivity it can take advantage of excess funds on the market by refunding the debt at lower rates of interest. But if this form of compensatory policy were intended, it could best be achieved by utilizing budget surpluses during prosperity and conversion operations during depression. The latter might, however, prolong the depression by reducing the purchasing power of the rentier group. Although many writers and financiers have considered the sinking fund to be the only sound method of debt retirement,[74] we have seen that even under the best of conditions it contributed but a third to the total retirements under Mellon. In the United Kingdom it represented a larger proportion of total retirements, but only because budget surpluses were used for other purposes.

The maintenance of bond prices by means of a sinking fund, though frequently cited as a valuable attribute of this method of debt redemption, is a very secondary objective. A Treasury purchases its own securities, not when it seeks a good market for the flotation of new loans, but when it is attempting to effect net reductions in the debt. Thus the government might well be satisfied to let its obligations fall below par if it were acting as a buyer itself through the sinking fund. However under

74. Cf. H. Dalton: loc.cit.; R.A.Love: Federal Financing, N.Y. 1931, Chap.13.

the present post-war conditions, with extremely large interest-bearing debts outstanding, most Treasuries have an interest in maintaining bond prices because of their desire that low interest rates should continue.

The use of a budget surplus for debt retirement is psychologically the least painful method of debt discharge. Its cost, in terms of burden on the national income, is no less great than any other method of achieving excess revenue over expenditure. But the characteristic budget surplus arises from unexpectedly large tax yields, tax rates remaining unchanged. It therefore does not impose a greater strain, dollar for dollar of income, than a balanced budget would have achieved had there been no rise in incomes; it amounts to the Treasury's participation in the increased productivity of a prosperous economy. The budget surplus has the further advantage that it is highly sensitive to the business cycle; it ceases to burden the tax-payer at the very moment when taxation is hardest to bear. On the other hand, national Treasurers are considered derelict in their duty if they report a large budget surplus. The successful use of this method of debt retirement calls for deliberate planning to bring about a surplus, rather than dependence on accidental revenue increases. If debt retirement is designed to curb bank credit during inflationary periods, the Treasury must either pay off debt held by the central bank or else retain the tax receipts indefinitely in its cash balance. Theoretically the latter technique is feasible, but given the popular unwillingness to accept the implications of counter-cyclical fiscal policy, it has not been considered a practicable solution in this paper.

Conversion is a method of reducing the burden of debt, but does nothing to lower the debt's principal. It depends for success on unusually favourable market conditions. "The art of debt conversion

consists in turning one loan into terms of another in such a way that the individual will be prepared to make the exchange, while at the same time the State is making an immediate or ultimate profit according to its object."[75] Circumstances enabled Viscount Goschen to carry out such an exchange in 1888-89. The benefit was not immediate, since it cost about £3 millions in bonuses to complete. But it ultimately saved the Exchequer about £2.8 millions per year. After the Great War, Britain witnessed another debt conversion, but this one was carried out by increasing the capital value of the debt considerably. The short run gain from the program was nullified by long run costs, and the whole conversion was of doubtful value.[76]

A fourth method of debt reduction which was not used in the Goschen and Mellon retirements is the capital levy. Although a great deal has been written on this subject, a full-scale use of the method has never been attempted. The capital levy Technique consists of a once-for-all tax on some form of wealth, graduated very steeply and falling for the most part on high income groups. Its merit is supposed to consist of its falling on the same persons and institutions which own the bulk of the debt. It would amount to a shift of claims to wealth from right hand to left, and would relieve the Treasury at one stroke of principal and interest on a large part of the debt. It would also relieve the consumption tax-payers of a major share of responsibility towards debt discharge, and is therefore viewed as being the most equitable method of debt redemption.

The major objection to the Capital Levy is its impracticability. Dalton considers it to be "politically inexpedient" as well as "adminis-

75. Cf. J. C. Stamp: The Financial Aftermath of War, London, 1932, p.129.
76. Cf. Withers: op.cit., pp. 85 ff.

tratively awkward". The latter seems to be the most telling criticism; in order to carry out a capital levy it would be necessary to assess all property, whether real or monetary, in a very short space of time, and under conditions of absolute price stability. A fluctuation of prices would itself cause enormous injustices, quite apart from the patronage, evasion and corruption which would accompany the assessment. Furthermore, this method would have to be employed before a post-war deflation made the burden insupportable. In short, this method may be dismissed on the grounds that the necessary conditions for its being put into effect are almost utopian.

Finally, debt redemption may be carried out by deliberate inflation. Given a vast increase in bank credit and/or currency, the Treasury could cause such a rise in prices as would enable it, in its capacity as debtor, to relieve itself of its national debt. This was done in Germany after the Great War, at the price of destroying the German middle class. No responsible government can undertake this method of debt retirement in the economies with which this study is concerned. But governments do enjoy the effects of inflation even when it is not deliberately induced by them. Since the second Great War, most Western economies have been easily able to service their debts out of inflated revenues, and in the case of the United States, to commence a further debt retirement era. Under circumstances in which the government has not actively fostered inflation, the redemption of debt out of inflated tax receipts cannot be called "repudiation", as some writers have implied.

The speed of debt retirement, which is an important aspect of technique, appears to be largely determined by external economic conditions. In the case of the Goschen retirement, the speed was very gradual, and was regulated not in terms of its monetary effects, but solely as a compromise

between those who wished to reduce the debt and those who wished to lower taxes to favour various sectors of the electorate. It was the tax reducers, supported by Goschen and his successors, who invariably won out. In the United States, the speed of debt redemption was determined in the first instance by the sinking fund. But this statutory rate was more than doubled with the aid of budget surpluses, and was therefore dependent on external conditions in the economy. Since the Mellon retirement represented the maximum rate of debt reduction achieved by orthodox methods (ie.- without repudiation) anywhere, we can say that a 7% annual rate of debt retirement under conditions of rising national income is at least not superficially harmful. But under the specific conditions which existed inthe United States, rapid retirement did magnify a maldistribution of income as between consumption and investment.

As we have seen, a very rapid debt retirement program, such as is epitomized by the capital levy, will fall on the high income groups. The working class, never far from the subsistence level,[77] would contribute very little to a rapid debt retirement. This might well be desirable, since the latter own a very small portion of the debt directly, and should therefore not be made responsible for carrying almost the whole cost of war. Their monetary contribution would have been made through high consumption taxes during wartime.

But the speed of redemption will be conditioned by the willingness of individuals and enterprises to support high income taxes. One of the chief dangers of the capital levy is that it might deprive industries

77. The more modern term of "minimum standards of health and decency" is more appropriate, since the working class in most Western economies is considerably above the subsistence level, in terms of biological necessities.

of their working balances for a time. Although it may be argued that they regain in debt redemptions virtually the same money which they pay in taxes, the transitional dislocation which might result would be serious indeed. More fundamentally, the carrying out of a rapid debt retirement by ordinary methods is limited by the level of taxation which will disccurage production. Since no nation has in peacetime attempted to determine the marginal tax rates beyond which yields will fall, it is impossible to formulate a definite answer to this problem. The wartime experience of Great Britain would seem to indicate that that country approached marginal rates under the unique circumstances which existed. Marginal peacetime tax rates would be somewhat lower. On the whole, Adams' remark that debt redemption must be carried out gradually or not at all[78] would seem to be the most precise statement which can be made about the speed of redemption.

C. Results

The monetary effects of debt retirement have been a primary object of study in the case of the Mellon and Goschen histories. Most of the conclusions which can be drawn are negative, in the sense that they disprove some of the commonly accepted beliefs but do little to replace them by a constructive theory.

Firstly, we have seen that, insofar as the purely mechanical operation of debt retirement is concerned, there is no reason to expect a deflationary effect. The repayment of private holders, including the commercial banks, did not affect the cash-deposit ratio of thebanks adversely. In the one instance where such an effect could occur - that of retiring debt held by the central bank - we found that the latter institution

78. Cf. Adams: op.cit., p.306.

held too small a proportion of the debt to make its reduction of assets a deflationary impulse. Moreover, its open market operations were conducted in terms of short run cyclical fluctuations, and in neither instance did the central bank undergo a net reduction in its government securities holdings.

Secondly, the retirement of the national debt might have an indirectly deflationary effect through the cancellation of a common form of collateral. Since government obligations are used to secure private bank loans, the retirement of a large portion of the debt might affect the ability of borrowers to offer safeguards to the commercial banks. This would therefore impede the extension of bank credit and have a deflationary effect on the economy. On the other hand, the release of savings through debt retirement would tend to flow into alternative forms of investment, which would then be used as collateral for bank loans. The outstanding volume of securities is almost certainly always great enough to provide security for new bank loans, which over any one period represent only a small fraction of the former.

But far from being deflationary, the retirement of debt might well be inflationary, and the evidence available on the Goschen and Mellon retirements lends at least some support to this view. If savings are recovered through debt retirement and thus released for alternative employment, they must inevitably tend to drive up other bond and stock prices, which implies a lowering of the rate of interest. This in turn would provide impetus for the flotation of new security issues under favourable market conditions. Moreover this tendency would be exaggerated to the extent that the redemption of debt constituted net additions to savings rather than simply the release of past savings, that is, if the

discharge of debt is paid for out of consumption.

We have already seen that the forced-loan portion of the American debt retirement under Mellon represented about 6% of total capital formation during 1920-30, and about 10% of new security issues. Nor is this a complete measure of the inflationary effects of debt reduction. The $5 billions of released funds may have instigated over-optimistic views on the part of borrowers, and led to a larger part of the new security issues than the $5 billions itself represented. Debt retirement may be said to have fueled the fires of over-investment which burned apace during the years 1923-30. If this was the case, debt redemption made a direct contribution to the stock market boom and collapse in the last year of the decade. The results of this process were of course hidden from view by the stability of wholesale prices. Far from there being a possible correlation between the fall in debt and the fall in prices during the Mellon retirement, as Withers suggests,[79] a relationship between the fall in debt and the rise in bank credit is much more probable. No very conclusive indication of the degree of inflation could come to light so long as the volume of physical production kept pace with the extension of bank credit. It was only with the desperate rush for quick profits on the stock market that the degree of maladjustment between investment and consumption became apparent.

The coincidental fact that prices were falling during the Goschen retirement also serves to obscure the more probable relationship between debt retirement and the volume of circulating media. But, as has been shown above, the general deflation which was taking place in Britain was the result of reduced gold imports more than it was the result of debt

79. Cf. Withers: op.cit., pp.152-53.

reduction. As in the case of the U.S., the Goschen retirement may actually have contributed to capital formation and have mitigated the decline of prices.

We are therefore compelled to draw our conclusions from the indirect monetary effects of debt redemption. These took place through shifts in the distribution of income. If the tax structure was regressive and if the debt was at least partly concentrated in wealthy hands, debt reduction caused a shift of income from consumption to savings. Since both prerequisites probably existed in the U.S. - and more probably in the U.K. - we can tentatively suppose that debt reduction fostered the investment boom which occurred in both cases. In the absence of effective breakdowns of the debt into categories of owners by income group, this must remain a supposition.

If, then, debt retirement is not deflationary but inflationary, the implications for counter-cyclical fiscal policy are serious. As was suggested in the opening paragraphs of this paper, most Keynsians have accepted the view that inflation could be controlled in the upper phase of the business cycle by debt retirement, and deflation counteracted in the downswing by the converse policy. Regardless of whether the latter is valid or not, we have seen that the former is not. On the contrary, it may well aggravate the condition which it seeks to cure.

Apart from the purely monetary aspect of the problem, the maldistribution of income which eventually results from the incurrence of war debt may present much more deep seated difficulties if debt redemption is attempted. The restriction of consumption through a prolonged retirement program may cause a highly undesirable curtailment of aggregate demand, and lead to that very unbalance of production which business cycles theorists

seek to avoid. A more appropriate and effective method of controlling inflation than using surplus revenues to retire debt will have to be devised, so long as the surplus is not retained in the Treasury's cash balance.

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