# THE EFFECT OF THE CORPORATION INCOME TAX ON STOCKHOLDERS

by
Peter C. Briant

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Doctoral Committee:

Professor Clare E. Griffin, Chairman
Professor Robert L. Dixon
Professor Wilford J. Eiteman
Associate Professor Wallace W. Gardner
Associate Professor William B. Palmer

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# CHAPTER I

## INTRODUCTION

The taxation of the citizens of a country to provide revenue for the financial support of government activities is not a phenomenon of recent origin. Christ, himself, was born in a manger, and Bethlehem became the cradle of Christianity, because Caesar Augustus exercised his fiscal authority to tax the world, "And all went to be taxed, every one into his own city. . . ."[1] But no other democratic government, in ancient or modern times, can match the federal authority of the United States in the sheer magnitude and proportion of its current participation in the economic and social life of its people.

### The Private Economy

Growth in the public economy has not taken place solely at the expense of the private economy. Over the first half of the twentieth century, all sectors of the economy exhibited extraordinary rates of growth; population doubled during the period from 76 million in 1900 to 173 million in 1958,[2] gross national product rose from $104.436 billion in 1929 to $414.686 billion in 1956,[3] and the national wealth in unadjusted dollars increased by $811 billion.[4] In this period of

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[1] St. Luke 2:3.

[2] U.S., Department of Commerce, Bureau of the Census, Statistical Abstract of the United States (Washington: U.S. Government Printing Office, 1958), p. 5.

[3] Ibid., pp. 304-305.

[4] Facts and Figures on Government Finance, 1956-57 (9th ed.; New York: The Tax Foundation, 1957), p. 10.

rapid and almost consistent growth the industrial sector of the economy increased in absolute size, and individual enterprises have so enlarged the volume of their operations that some firms now have annual budgets that exceed in volume the budgets of the central governments of many of the world's minor powers. Labor, through the spread of unionism, has strengthened its hold on the economy over the fifty year period. The development of greatest import, however, has been the increase in the size and scope of the public economy.

The Public Economy

Increased government activity at the federal level has been an inevitable concomitant of domestic and international developments over the past fifty years. The depression of the 1930's led to the feeling, whether erroneous or not, that in the modern, industrial, free-enterprise economy government has a role to play in dampening the cyclical swings in economic activity. On the international front, the havoc in Europe occasioned by two world wars has left this country with a large part of the burden of leadership of the Western world.

The steady trend towards an enlargement of the public economy is clearly revealed in the figures for total federal tax collections. In 1900, federal tax receipts from all sources amounted to $528.9 million; they remained below $10 billion for the next forty years; in 1956, they were $75.9 billion. On a per capita basis, total federal tax receipts in 1900 were $7.07; in 1941, $59.28; in 1956, $451.65.[5]

In absolute terms the nation's tax bill for services by state and local governments has also increased considerably over the same

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[5]Facts and Figures on Government Finance, 1956-57, p. 10.

period. It is clear from Table 1, however, that relative to the federal government, state and local governments have fared badly since 1902.

TABLE 1

PERCENTAGE DISTRIBUTION OF FEDERAL, STATE AND LOCAL GOVERNMENT TAX RECEIPTS (SELECTED FISCAL YEARS 1902-1956)

| Year | Total | Federal | State | Local |
|---|---|---|---|---|
| 1902 | 100.0 | 37.5 | 11.3 | 51.1 |
| 1913 | 100.0 | 39.5 | 13.2 | 57.3 |
| 1922 | 100.0 | 47.7 | 12.3 | 40.0 |
| 1927 | 100.0 | 35.4 | 17.1 | 47.5 |
| 1932 | 100.0 | 22.7 | 23.7 | 53.6 |
| 1934 | 100.0 | 32.9 | 22.5 | 44.6 |
| 1936 | 100.0 | 36.4 | 25.0 | 38.6 |
| 1938 | 100.0 | 41.7 | 26.9 | 31.4 |
| 1940 | 100.0 | 39.4 | 29.1 | 31.5 |
| 1942 | 100.0 | 58.2 | 21.7 | 20.1 |
| 1944 | 100.0 | 80.6 | 10.4 | 9.0 |
| 1946 | 100.0 | 77.3 | 12.2 | 10.5 |
| 1948 | 100.0 | 73.6 | 14.3 | 12.1 |
| 1950 | 100.0 | 69.0 | 16.4 | 14.6 |
| 1952 | 100.0 | 75.5 | 13.3 | 11.2 |
| 1953 | 100.0 | 75.2 | 13.2 | 11.5 |
| 1954 | 100.0 | 74.3 | 13.6 | 12.1 |
| 1955 | 100.0 | 72.1 | 14.5 | 13.5 |
| 1956 | 100.0 | 72.3 | 14.7 | 13.0 |

Source:

Facts and Figures on Government Finance, 1956-57, p. 106.

This very pronounced swing away from state and local fiscal authority towards greater emphasis on expenditures by the federal government has brought with it some benefits in the direction of stabilizing income and employment: to synchronize fiscal policies at state and local government levels, and to direct assistance to areas that need it, is a virtually impossible task. On the other side of the

coin, the "blessed inefficiencies of local government" have been lost.

That the American people have come to bear a steadily rising tax burden during the twentieth century becomes more apparent from a study of the relationship between over-all economic activity and the nation's tax bill. As the net national product increases so does taxable capacity. Table 2 shows, however, that an increase in taxable capacity has not been the only source of additional government revenues; the percentage of the base that has been diverted to government has also increased over the years.

In the early 1900's less than 2 percent of our net national product was absorbed by government spending. The figure had not reached 10 percent by 1928. From 1929, however, more than 10 percent of our net national product has been absorbed by all three levels of government, and since that time the percentage has steadily increased. In 1946, one authority predicted that we would be lucky if needed tax revenue came to less than $15-20 billion annually, even in peace time, or 10 percent of national income.[6] We have not been that lucky! It now appears that total peace time government expenditures, other than transfer payments, will amount to about 20 percent of the net national product.

A reduction in the share of the net national product going to government can only be effected by a reduction in government expenditures. There is little likelihood of this happening in the near, or foreseeable, future. Of federal government expenditures of $69.4 billion in 1957, $44.4 billion, or 63.9 percent, was spent for defense. This amount is more likely to be enlarged rather than diminished. For servicing the

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[6]Henry C. Simons, Federal Tax Reform (Chicago: The University of Chicago Press, 1950), p. 2.

TABLE 2

RELATIONSHIP BETWEEN NET NATIONAL PRODUCT AND
FEDERAL, STATE AND LOCAL TAX RECEIPTS
CALENDAR YEARS 1929-1955

| Year | Net National Product | Tax Receipts | | | |
|---|---|---|---|---|---|
| | | Federal | State and Local | Total | |
| | | | | Amount | Percent of Net National Product |
| | (Millions) | | | | |
| 1929 | $ 95,819 | $ 3,724 | $ 6,552 | $10,276 | 10.7 |
| 1930 | 82,564 | 2,962 | 6,799 | 9,761 | 11.8 |
| 1931 | 68,105 | 1,978 | 6,556 | 8,534 | 12.5 |
| 1932 | 50,851 | 1,649 | 6,352 | 8,001 | 15.7 |
| 1933 | 48,803 | 2,618 | 5,922 | 8,540 | 17.5 |
| 1934 | 57,863 | 3,491 | 6,185 | 9,676 | 16.7 |
| 1935 | 65,267 | 3,911 | 6,659 | 10,570 | 16.2 |
| 1936 | 75,247 | 4,968 | 7,166 | 12,134 | 16.1 |
| 1937 | 83,034 | 6,976 | 7,582 | 14,558 | 17.5 |
| 1938 | 77,444 | 6,415 | 7,765 | 14,180 | 18.3 |
| 1939 | 83,257 | 6,662 | 7,899 | 14,561 | 17.5 |
| 1940 | 92,470 | 8,579 | 8,326 | 16,905 | 18.3 |
| 1941 | 116,781 | 15,344 | 8,782 | 24,126 | 20.7 |
| 1942 | 148,978 | 22,834 | 8,868 | 31,702 | 21.3 |
| 1943 | 181,647 | 39,067 | 9,106 | 48,173 | 26.5 |
| 1944 | 199,386 | 40,681 | 9,337 | 50,018 | 25.1 |
| 1945 | 201,009 | 42,161 | 9,832 | 51,993 | 25.9 |
| 1946 | 197,580 | 38,902 | 10,995 | 49,897 | 25.3 |
| 1947 | 218,110 | 43,054 | 12,678 | 55,732 | 25.6 |
| 1948 | 240,831 | 43,118 | 14,457 | 55,575 | 23.9 |
| 1949 | 238,870 | 38,750 | 15,814 | 54,564 | 22.8 |
| 1950 | 264,551 | 49,817 | 17,424 | 67,241 | 25.4 |
| 1951 | 304,763 | 64,081 | 19,213 | 83,294 | 27.3 |
| 1952 | 321,555 | 67,565 | 20,906 | 88,471 | 27.5 |
| 1953 | 336,732 | 69,877 | 22,521 | 92,398 | 27.4 |
| 1954 | 331,894 | 62,719 | 23,857 | 86,576 | 26.1 |
| 1955 | 359,522 | 71,678 | 25,579 | 97,257 | 27.1 |

Source:

Facts and Figures on Government Finance, 1956-57, p. 107.

interest on the national debt, $7.3 billion was needed in 1957, or 10.5 percent of total federal tax receipts.[7] There is no reason to hope for this to be reduced.

As alternatives to a continuing high rate of taxation to finance these expenditures, government may borrow or may print money. Either course is perilous. Few would deny that the most desirable course in fiscal affairs is to have the public pay for government services as they are rendered. In the absence of recession and unemployment, this calls for a balanced budget. Issuing government bonds on a massive scale, in lieu of taxation, would ultimately result in a thoroughly inequitable distribution of income through the transfer payments associated with interest on the public debt.

Printing more money, the second alternative, would lead to more inflation. In itself a form of tax, inflation is particularly arbitrary and inequitable as to its incidence. The inequities of inflation and the social destruction associated with it are so well known that it is unnecessary to consider it further as an alternative to taxation and responsibility in fiscal matters.[8]

We may expect, then, a continuation of the present high rates of taxation in the years ahead. It may be argued, however, that a tax burden amounting to almost 30 percent of the national income is not compatible with the requirements of a free enterprise economy.

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[7] Facts and Figures on Government Finance, 1958-59 (10th ed., New York: The Tax Foundation, 1959), p. 80.

[8] I am indebted to Professor Griffin for his pointing out in this connection that government does not have to rely on taxes for its income. Money can be printed to pay for government purchases of goods and services. Then, taxes might be needed to hold the price level in check, if that is desired. In other words, financing government expenditures through the printing press will not be inflationary if a counter-inflationary tax policy is adopted.

Raising the rates, or reducing exemptions, on the existing major forms of taxes may thus not be a feasible policy for the government to follow. Additional revenues will then have to come from an increased national output. That is to say, additional tax receipts will have to be found not by government attempting to coerce for itself a greater percentage of a given national income. The path of wisdom in this matter lies in its anticipating having at its disposal about the same relative share, or even less, than it has now, but from a larger national income.

The effects of a tax on over-all economic activity have, therefore, to be weighed carefully in the balance. In a free market system, economic growth depends primarily on individual incentives to save, to work, to invest, and to take risks. To the extent that any revenue source is harmful in its effect on these incentives, the rate of increase in the national income is retarded, and hence the nation's taxable capacity is less than it would have been had some alternative source of tax receipts been used.

## Purpose of Study

The broad problem with which this study is concerned is the logic of taxing the net income of corporate enterprise. No other tax in the federal tax structure is the subject of more controversy at the present time. When a levy of only one percent of corporate taxable income was in force, this was not so. Few people in 1913,[9] for example, stopped to consider the merits of taxing corporate net income. But now that more than one-half of the earnings of corporations are transferred

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[9]The ratification of the Sixteenth Amendment in 1913 paved the way for the Congress to lay and collect taxes on incomes from whatever sources derived.

to the federal government, the tax is criticized by businessmen, economists, and labor leaders.

Many critics attack the high tax rate per se. But most of the objection and discussion has arisen more from issues occasioned by the high rate at which the net income of corporate enterprise is now taxed than from the sheer magnitude of the tax rate itself.

One such problem, as yet unsolved, is the determination of who pays the tax. It is axiomatic that only people can pay taxes. The corporation income tax must thus be borne by its stockholders, in the form of earnings that are lower than they would be in the absence of the tax; or be shifted forward to consumers, through higher prices; or be shifted backward to the owners of the factors of production, through their receiving reduced payments for goods and services supplied. The problem of determining the final resting place of the burden exists whether the rate of tax is 1 percent or its present 52 percent. The current rate has, however, heightened the significance of the problem, and has underlined the need for a solution.

In appraising the corporation tax as a logical tax instrument, this study will, therefore, devote considerable attention, both theoretical and empirical, to the question of incidence. Some effects of the tax, particularly its influence on corporate financial policies with respect to capital structure and dividends, will also be considered. The findings will then furnish a basis for evaluating the logic of the corporation income tax in terms of its bearing on economic incentives, and in its relation to the principle of equity in taxation.

## Plan of Study

This work falls essentially into three separate parts of two

chapters each. In Chapter II, the principles of taxation will be reviewed. Chapter III will then assess the corporation income tax in the light of these principles and in its relation to other taxes in the federal structure. It will be demonstrated that knowledge about the incidence of the corporation income tax is, perhaps, the most important element in our understanding of federal tax policy, and that it is of crucial importance in considerations of its equity and incentive effects.

With this general discussion as a background, two chapters will review incidence theory and will consider whether the tax is shifted forward in higher prices or backward to wage earners. Chapter IV will present the traditional theory, wherein the corporation tax is assumed to be part of a general tax on income from all sources. Chapter V will modify the assumptions underlying the analysis in Chapter IV and will develop hypotheses as to incidence with reference to a corporation tax that is a unique element in the federal tax structure.

In Chapters VI and VII, empirical data will be presented to show the trend of stockholder earnings for the corporate sector of the economy and some of the effects of the tax on corporate financial policy.

Finally, in Chapter VIII, the various strands of analysis will be drawn together in a concluding summary. The results will show that the taxation of corporate income is incompatible with the functions of a free enterprise economic system.

## CHAPTER II

## THE PRINCIPLES OF TAXATION

The record of the last fifty years, as evidenced in the last chapter, has revealed a steady tendency for the public sector of the economy to grow relative to the private sector. Reducing the nation's total tax bill is, thus, a matter of current concern. But even if a major tax reduction were to be effected, the problem of the kind of taxes that should be levied in a free enterprise economy would still remain. It is to this latter problem that this thesis is addressed. We now turn, therefore, to the principles against which the present federal tax structure may be appraised.

### Purpose of Chapter

At the turn of the century, the collection of needed tax revenues as efficiently and as economically as possible, and the distribution of the burden with reasonable regard to fairness and social justice were the important criteria of a good tax system. Today, however, the effect of the levying of taxes on the growth of the national product must also be considered. It is suggested, therefore, that a modern Minister of Finance seeking to raise revenues in the large amounts currently needed might ask himself three questions:

1. From the point of view of raising the necessary revenue for operating the government, what taxes are the most efficient and economical?
2. How may the burden be distributed among individuals?

3. What will be the probable effects of the taxes on economic growth?

The first of these questions relates primarily to practical matters of administrative detail that have long been the concern of students of public finance. Three of Adam Smith's oft-quoted four canons of taxation deal, for example, with certainty, economy, and convenience.[1]

Question two is usually conceived of as dealing with matters of social justice. Rephrased, it asks the question: What class of people might be expected to contribute the most revenue?

Questions relating to other purposes of a tax, in addition to raising revenues, are largely a matter of the effects of the tax on individual and business incentives, and on economic growth. This aspect of taxation received only minor consideration in early discussions of public finance. When government absorbs a minor proportion of the national income, perhaps under 5 percent, few adverse effects of taxation on the private sector of the economy are to be anticipated.

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[1] Certainty. "The tax which each individual is bound to pay ought to be certain, and not arbitrary. The time of payment, the manner of payment, the quantity to be paid, ought all to be clear and plain to the contributor, and to every other person. . . .The certainty of what each individual ought to pay is, in taxation, a matter of so great importance, that a very considerable degree of inequality. . .is not near so great an evil as a very small degree of uncertainty."

Convenience of Payment. "Every tax ought to be levied at the time, or in the manner, in which it is most likely to be convenient for the contributor to pay it."

Economy in Collection. "Every tax ought to be so contrived as both to take out and to keep out of the pockets of the people as little as possible, over and above what it brings into the public treasury of the state."

Adam Smith, The Wealth of Nations (Modern Library Edition; New York: Random House, Inc., 1937), p. 778.

But an absorption of 25 percent of the national income leads to a situation where the very act of levying taxes and distributing the burden, quite apart from the subsequent disbursement of the tax receipts, affects the operation of the economy which is the source of the revenue. Today, therefore, the economic consequences of tax policies cannot be overlooked in an objective appraisal of the requirements of a good tax system.

This chapter is concerned with answering the three questions posed above. In seeking to provide answers to these questions, we shall arrive at the principles, or canons, of taxation.

## Administrative Aspects

The practical canons of taxation find their rationale in their bearing on the allocation of resources. Considerations such as low cost of collection, convenience as to time, manner, and place of payment, simplicity of tax design, and ease of enforceability, if disregarded, would result in a waste of human effort that could be put to better use in the production of goods and services.

Administrative costs also relate to equity in taxation. No matter how equitable a tax structure may appear to be, it will be inequitable in fact if evasion or avoidance is made easy by ineffective tax administration.

The canons relevant to administrative efficiency may be conveniently considered under the following grouping: simplicity, economy, awareness and yield.

### Simplicity

Simplicity of design lies at the very heart of effective and efficient tax administration. A clearly defined tax base with a

minimum of loopholes is conducive to high taxpayer morale, and economy of collection and enforcement.

Simplicity in taxation is basically a problem of architectural design. A tax on personal income can be effectively administered if there are just a few specific exemptions and a minimal graduation of rates. Allowing an excessive number of basic exemptions leads to further calls for special privileges. Confusion piles upon confusion, the elimination of one inequity automatically creates another, until special privileges are available to all. Such a tax structure, teeming with special exemptions and allowances, takes up the time of too many tax lawyers and accountants who could be more productively occupied elsewhere.

But simplicity cannot be considered in isolation from other tax goals. The simplest form of tax is possibly the sales tax,[2] which is paid by the taxpayer at the time of purchase of goods and services. But a tax system that relied solely on a general sales tax, which is thought to fall most heavily on low income groups, would run into conflict with the general requirement that the tax burden should be distributed equitably.

Economy

Tax collection costs money. Effective collection, from the viewpoint of the whole economy, requires minimum cost in collecting and enforcing from the government's viewpoint, and minimum cost of compliance on the part of the taxpayer. To the extent that complying with tax regulations takes up an inordinate amount of taxpayers' time,

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[2]But, according to Henry Simons, even the sales tax "teems with arbitrary unintelligible distinctions, elaborate yet crude stop-gap expedients, unprincipled exclusions and inclusions." Simons, op. cit., p. 9.

and collecting and enforcing requires the services of an army of government employees, resources that could produce goods and services are tied up unnecessarily. But these costs cannot be pushed too low, for evasion may then become too easy. Generally, economy in taxation is fostered by simplicity in design.

Economy in taxation, as with the principle of simplicity, has to be considered in relation to other requirements of the system. A tax with a low cost of collection and ease of compliance, for example, can only be accepted on the grounds of economy if it also matches up to other standards such as the equity or incentives requirements. Furthermore, convenience to the taxpayer and low cost of collection may conflict with our next canon--awareness.

Awareness

No one factor is more conducive to fiscal responsibility in the public economy than that each individual taxpayer be fully aware of the tax he pays. There is always the danger, in any political system, that government will attempt to conceal taxes in order to extend the limits of taxable capacity. The practice is downright dishonest, but considerations of economy and convenience can easily lead to taxes of which the public is not fully apprised. Deduction at source in the personal income tax is a prime example of a technique that reduces collection costs and simplifies taxpayer compliance, but at the cost of loss of awareness.

Henry Simons' observation on this principle of taxation merits repetition, although it is doubtful whether the ideal he suggests would be administratively feasible:

> If we want good democratic government, fiscally and otherwise, we should send every taxpayer a monthly or quarterly

> bill for his full share in the cost of government. We should avoid all indirection in levy. Moreover, we should maintain a system such that every taxpayer would be clearly and promptly affected by every change in expenditures, and in a manner which he would readily apprehend and anticipate.[3]

Yield

Yield, in relation to tax revenues, may be looked at from three viewpoints: adequacy, stability, and flexibility.

(a) Adequacy of Yield.--Perhaps the most important administrative principle is still that the tax system should provide a yield that is adequate to meet the authorized expenditures of government. In the absence of an adequate yield, government may be forced to suspend some vital activities, such as defense, or be forced to borrow or to print money. None of these can be considered feasible as consistent policy alternatives in the long-run.

If the primary purpose of a tax is to raise revenue, then yield must be an important consideration in framing the tax law and selecting tax sources. But where a tax is designed to serve non-financial ends, its yield will not be of major consequence. For example, a protective tariff designed to prevent the importation of a good will be completely effective if its yield is zero. On the other hand, the effectiveness of a heavy tax on low income workers, that has as its object the restriction of consumption in order to transfer resources to the government for building up the nation's capital, will be measured by the size of the yield.

(b) Stability of Yield.--Stability of yield was once considered to be an important criterion of tax policy. But with the concept of a managed compensatory fiscal policy, it has lost ground at the federal

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[3]Simons, op. cit., p. 7.

level to flexibility of yield. At the state and local levels of government, however, stability of yield is still important. A city administrator, for example, would have difficulty in budgetting his funds for a year if his tax receipts were dependent on the incomes of the residents of the city. For municipal and state governments, therefore, major reliance is placed on property and sales taxes. It thus seems that stability of yield will remain a prime requisite for state and local tax policy, but not for federal policy.

(c) Flexibility of Yield.--At the federal level, flexibility of yield is now considered to be a more important criterion than stability of yield. The required degree of flexibility may be achieved in two ways. The first is by a cyclical sensitivity whereby tax yields increase on the upswing of a business cycle, and vice versa during the downswing, without any change in rates. The other method is by elasticity in a tax that enables the amount of revenue to be changed appreciably by a change in rates. Of the two methods, the first is the more desirable. From the point of view of business planning, stability of tax rates is an important criterion.

To achieve the desired type of flexibility in tax yields, taxes based on income are more satisfactory in federal fiscal affairs than taxes based on expenditures or wealth. Consumption does not always decline as income and employment decline, so that a major dependence on sales or excise taxes would run counter to the objective that when business activity declines, federal tax receipts should also decline. Taxes based on wealth are clearly not cyclically sensitive. Furthermore, wealth as a major basis of taxable capacity would not yield adequate revenues to pay the bills of government. And it is essential,

for fiscal responsibility in the long-run, to meet government expenditures out of tax receipts. This calls for a modest surplus in good years, with some provision for reducing the outstanding interest-bearing public debt, and moderate deficits in poor years.[4] Judged in terms of the flexibility requirement, major reliance should clearly be placed on income taxes, as against expenditure and property taxes, in the federal tax structure.

The Distribution of the Tax Burden

One of the oldest and most practicable canons of taxation, traceable to Sir Thomas Gresham, is, "pluck the goose that does the least squawking." This would be a satisfactory guide if tax receipts were small, but it cannot be accepted today. To rely on this as a principle of tax policy would result in low enforcement and collection costs, to be sure, but the resulting distribution of the burden would be thoroughly inequitable.

Equity in taxation may now be regarded as part of the general economic objective of equity in the distribution of income. This is not to say that the government's fiscal power should be used to reduce, or eliminate, inequalities in income distribution. But the levying of taxes should clearly not add to such inequalities as may exist.

In itself, equity in the distribution of income is a nebulous term lacking precise meaning. At one extreme, it can be interpreted as leading to a complete equalization of all income, or "chopping off the heads of all the tallest poppies." Few economists, or politicians for that matter, would advocate going to this extreme. But the position

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[4]See, for example, The Stabilizing Budget Policy--What It Is and How It Works (New York: Committee for Economic Development, 1950).

may be taken that gross inequalities in income distribution should be avoided. In particular, they should not be brought about by the levying of taxes.

Equity in taxation has two major aspects. On the one hand, there is the problem of according equal treatment to people possessing the same taxable capacity. This will be referred to as "horizontal equity." On the other hand, there is the problem of determining the appropriate relative burden on persons possessing different taxable capacities. This is the problem of "vertical equity." Both aspects of equity are really different sides of the same coin. Unless it has been decided that individuals in different circumstances should be treated differently, there is no necessity for determining when circumstances are essentially the same. But it is useful, for analytical purposes, to keep the two separate, and to consider equity problems as arising under both headings. There is little point, however, in claiming that one phase of equity is more important than the other.[5]

Horizontal and vertical equity are not considerations solely related to taxation. Precisely the same problem faces the college

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[5]Henry Simons treated the two concepts of equity as being on different scales of importance. In his Federal Tax Reform, he writes:

"Any departure from fairness on behalf of incentives should be confined to moderation in the degree of progression and should not involve any impairment of equity as regards similar taxation of persons in similar circumstances. Equity in this primary sense must, in an advanced nation, predominate over, if not wholly override, all other objectives.

"Federal taxation. . .should always impose similar burdens on persons in similar circumstances. Fairness between large and small taxpayers is now less important than fairness among large taxpayers and among persons in the first bracket."

Simons, op. cit., pp. 10-11.

president attempting to establish an equitable salary structure for the professors on his staff. Professors of equal stature will normally expect to receive substantially the same salaries, and differences in salaries must exist to give due recognition to unequal contributions and differences in rank.

Just as in the college field there is the problem of determining differences and equalities in academic prestige so, in taxation, there is the problem of defining similar circumstances and dissimilar circumstances. Two general solutions to these problems are offered. According to the first, equity requires that persons who derive equal benefit from government expenditures be treated equally, while differential taxes are levied on those who derive different benefits. The second, the ability-to-pay principle, leads to equal treatment of persons regarded as possessing the same ability to pay taxes, and different relative treatment to persons considered as being differently situated as to ability to pay.

The Benefit Principle

The benefit principle is not easy to apply in the modern economy because of the difficulties involved in determining the benefits rendered by the public sector to each individual taxpayer. When an individual buys goods or services in the market place, the price he pays is presumed to indicate the benefit he expects to derive from its consumption or use. A compulsory levy imposed by a public authority, however, lacks the specific transfer of goods and services attached to a private purchase. The benefits resulting from government spending of its tax receipts are, therefore, difficult to impute to individuals.

No way has yet been found to measure the direct benefits that

may be attributed to education, for example, or to national defense, or to police and fire protection. Furthermore, many who receive the benefits would not be able to pay the full cost of them should they be levied on a benefits received basis.

One case in which the benefit principles appears to be applicable is that of the recipient of an old age pension: persons receiving government annuities pay for them in the years during which they are at work. No one would recommend, however, financing pension payments from the income of those to whom the pensions are paid. Short of this the benefit principle fails to be completely applied. As the system usually operates, many who contribute to the pension fund die before they are able to collect. Those who live to an old-age receive a benefit greater than the cost to them.

The successful application of the benefit principle evidently requires that the specific benefits individuals receive from government services be measurable. This is generally impossible to do. The only alternative is to set up some arbitrary criteria of benefit and to tax persons in terms of some indicia of benefit such as income, expenditures, or wealth.[6] But taxes levied on this basis are barely distinguishable

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[6]Many earlier writers who supported the benefit principle of taxation, including Bentham, Rousseau, Montesquieu and Sismondi, argued in terms of protection enjoyed under the state and concluded in favor of either proportional or progressive taxation. John Stuart Mill, an outspoken opponent of the benefit rule, on the other hand, sharply rejected the principle. He argued that application of the benefit rule would lead to regressive taxation, as the poor are more in need of protection, the wealthy being better able to take care of themselves. That the principle may be made to support such diverse views is clear evidence of the difficulties that arise in its practical application and indicates its inappropriateness as an operating guide to tax policy.

For a lucid survey of these views, see Richard A. Musgrave, The Theory of Public Finance (New York: McGraw-Hill Book Company, Inc., 1959), pp. 63-73.

from the ability-to-pay principle. It is, indeed, difficult to differentiate between the two principles where taxpayers benefit from general government service, and for the bulk of government activities major reliance is placed upon ability-to-pay.

Cost of Services Rendered

Closely related to the benefit principle, but distinct from it, is the "cost of services rendered" principle of distributing the burden of taxation. The principle cannot actually be applied to services out of tax receipts. No way could be determined, for instance, to charge each taxpayer with his proportionate cost of defense expenditures. But it can be used where the public pays for specific goods and services received, even though cost is not necessarily related to benefits received. Thus, it is suggested, corporations could be charged for the costs incurred in connection with enforcing the antitrust laws.[7]

Ability to Pay

The principle that persons at about the same level of economic well-being should pay equal amounts of taxes and that persons of greater ability should pay more to the government that those with a lower standard of living is today commonly accepted.

An early expression of the doctrine is found in Smith's first canon of taxation:

> The subjects of every state ought to contribute towards the support of the government, as nearly as possible, in proportion to their respective abilities; that is, in proportion to the revenue they respectively enjoy under the protection of the state. The expense of government to the individuals of a great nation is like the expense of management to the joint tenants of a great estate, who are all obliged to contribute in proportion to their respective interests in the

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[7]William H. Anderson, Taxation and the American Economy (New York: Prentice Hall, Inc., 1951), p. 56.

state. In the observation or neglect of this maxim, consists what is called the equality or inequality of taxation.[8]

In the first sentence of his maxim, Smith suggests a measure by which ability may be determined. The rule, according to Smith, is to tax individuals "in proportion to their respective abilities; that is, in proportion to the revenue they respectively enjoy under the protection of the state."[9] This formula, as given, would seem to define ability to pay as proportional taxation.

It should be noted, however, that there is no real justification for equating the two. For, as one writer puts it, "once this principle [of ability to pay] is accepted, we have embarked upon a line which has no discoverable logical end short of equalizing all incomes."[10] If, for example, two men earn incomes, respectively, of $12,000 and $3000, and $2000 in tax is to be collected from them, a literal interpretation of ability to pay would require that the entire amount be collected from the man with the larger income. Continuing with the same assumptions as to income, if needed tax receipts were $9000, the application of the principle would still call for the entire tax-bill to be levied on the $12,000 income. To stop short of this point would result in taxing the poorer man more than in accordance with his ability to pay. It can be seen that in its most extreme interpretation, the ability to pay rule will result in the man with the $3000 income paying taxes only when needed tax revenues exceed $9000.

There has to be some level, of course, at which income needed

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[8]Smith, op. cit., p. 777.

[9]Ibid.

[10]Clare E. Griffin, Enterprise in A Free Society (Chicago: Richard D. Irwin, Inc., 1949), p. 362.

for the necessities of life is exempted from tax. Such a policy is justified on equity grounds, and also as a matter of administrative expediency. There would be little point, for instance, in levying a tax on a man whose income is only just enough to support him at the subsistence level of living. Any tax on such income or on necessities purchased with such income would either have to be passed on to others or, on humane grounds, be counterbalanced by welfare payments. Some progressivity is thus indicated at the lower, but not necessarily at the upper, end of the income scale.

In view of these considerations, ability to pay may be more usefully translated to mean "equality of sacrifice." Following this latter principle, a just apportionment of tax shares would be achieved when the direct money burden of a tax is so distributed that all taxpayers incur an equal sacrifice occasioned by the tax. On reasonable assumptions as to the relation between money income and the welfare derived from it, equality of sacrifice supports a progressive tax, but not one that results in equalizing incomes.

A fairly sharp degree of progressiveness can be achieved by applying a fixed percentage rate of tax to income with a fixed exemption. An individual with an income of $6,000, for example, will pay 20 percent of his income in taxes if a fixed exemption of $2,000 is allowed and the nominal tax rate is 50 percent. Under the same assumptions, an individual with an income of $10,000 will bear a tax burden of 24 percent. To get nominal progressiveness under an income tax from the ability to pay principle requires the implicit assumption that ability increases more rapidly than income, and that interpersonal satisfactions derived from income are comparable.

Any attempt to justify extreme progressiveness on the supposition that satisfaction between persons can be compared is open to question.[11] The modern justification of progressive taxation is, therefore, couched in terms of the resulting distribution of income being in consonance with the consensus in society as to equity in the distribution of income. One expression of this view is as follows:

> Progression can be defended for what it is: a direct fiscal attack upon inequality. If such inequality as exists is considered undesirable in principle by the bulk of the population, progression in the tax structure is a way to reduce this inequality.[12]

With more rhetoric, Henry Simons has expressed somewhat similar thoughts:

> The case for drastic progression in taxation must be rested on the case against inequality--on the ethical or aesthetic judgment that the prevailing distribution of wealth reveals a degree (and/or kind) of inequality which is distinctly evil or unlovely.[13]

Similar ideas have been expressed on the other side of the Atlantic by Nicholas Kaldor, who states:

> The "ideal" degree of progressiveness. . .can only be thought of as the one which most closely reflects the prevailing social conceptions of equity.[14]

But this defense of progressiveness in taxation is subject to two objections. In the first place, the tax system is a crude tool to

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[11] See M. Slade Kendrick, "The Ability-To-Pay Theory of Taxation," American Economic Review, XXIX (March 1939), 90-101. See also, Henry C. Simons, Personal Income Taxation (Chicago: The University of Chicago Press, 1938), pp. 6-15, and Walter G. Blum and Harry Kalven, Jr., The Uneasy Case for Progressive Taxation (Chicago: University of Chicago Press, 1953), pp. 56-63.

[12] Edward D. Allen and O. H. Brownlee, Economics of Public Finance (2nd ed.; New York: Prentice Hall, Inc., 1954), p. 196.

[13] Simons, Personal Income Taxation, pp. 18-19.

[14] Nicholas Kaldor, An Expenditure Tax (London: George Allen & Unwin Ltd., 1955), p. 27.

use to correct for an unsatisfactory distribution of income that stems from a lack of equality of opportunity. The ideal in a free enterprise society is to have equality of opportunity to pursue unequal rewards. To tax away the fruits of success is to weaken the foundations of the capitalist system.

The second objection to equalizing incomes through the tax system is that the tax structure required to do the job runs counter to the requirement for incentives for production. In modern society, a broader approach to the distribution of the tax burden is needed since the criterion of equity is, in the long-run, less important than economic progress, whether viewed in terms of the economic welfare of the people paying the taxes or of the government concerned with financing its expenditures. Any system of taxation has to be directed towards maximizing social well-being in the long-run. This calls for increased production, full employment of available resources, and their efficient allocation to productive uses.

We now turn, therefore, to the effects of the tax system on the expansion of the economy.

## Economic Effects of Taxation

Total tax receipts are the product of the tax base and the tax rate. But raising tax rates and raising receipts are not always the same thing.

With continued healthy growth of the economy, through private enterprise steadily renewing and improving plant and equipment, the Treasury will automatically obtain larger tax revenues without new taxes or higher rates. It is essential, therefore, when formulating the criteria of a good tax system, to take into account the effect of

taxes on the total volume of production. In earlier discussions of public finance, when taxation resulted in a diversion of only a small percentage of national income to government, it was customary to ignore this question. Today, the effects of the tax system on the national product are of major importance.

Based on the mechanism of the free market and the indirect discipline of competition, the success of the American economy depends on the activities of individuals. It is individuals who decide whether to work more or less, save more or less, and invest more or less. The growth of the economy is, therefore, intimately dependent upon the existence of incentives that are adequate to induce individuals to put forth their best efforts as producers. Types of incentives that are important are:

1) Incentives for enterprisers to establish new companies or develop new industries.

2) Incentives for existing businesses to expand plant and equipment, and to introduce new machinery and methods.

3) Incentives for people to invest their money savings in ventures exhibiting some degree of risk.

4) Incentives for people to work and to take risks.

The importance of this facet of taxation has been recognized by students of the subject. The Committee for Economic Development has stated, for example:

> A good tax system should be tailored to the requirements of an economy that depends for expansion primarily upon the free choice of private individuals and business.
>
> To meet the needs for the future, such a system should encourage individuals to put forth their best efforts in their capacity as producers. It should encourage them to invest their savings in new and risk-taking enterprises. To

> create such a tax system would be to recognize the truth that it is the role of the individual which is crucial in our kind of economy.[15]

But there is a basic conflict between the aims of equity and incentives. On the one hand, the incentives view of taxation would call for a regressive tax system, in which tax rates would diminish as the tax base increases. We would then have a situation in which initiative, hard-work, and enterprise were rewarded: the more a man contributes to the national income, the more he would be able to keep. This would be analogous to the incentive proferred to a worker to induce him to work overtime.

Equity, on the other hand, in taxation calls for proportionality at least and perhaps some degree of progressiveness, where tax rates increase as the tax base increases. There is thus a basic conflict existing between the incentives and equity requirements in taxation; the farther we move towards satisfying one ideal, the farther we depart from satisfying the other. It will never be possible fully to reconcile the two objectives, but some compromise is needed. As Seligman has said:

> A democracy which is educated both economically and morally will seek in its tax system to preserve the proper balance between the principle of ability to pay on the one hand and the principle of what might be called innocuity, i.e., harmlessness of taxation on the other.[16]

The ideal to be sought for is neutrality. In this sense, one authority has suggested a tax system that will "leave them as you find

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[15] Taxation for Growth (New York: Committee for Economic Development, 1957), p. 16.

[16] Edwin R. A. Seligman, "Income Taxes and the Price Level," Appendices to the Report of the Committee on National Debt and Taxation (London: H. M. Stationery Office, 1927), pp. 125.

them."[17] The relative status of taxpayers under this ideal will be unaffected by taxation; the allocation of consumer choice will be the the same with taxes as without; and actions taken by taxpayers will be undertaken independently of the tax burden. Taxes on business can perhaps never be quite this neutral. An impost of any sort is bound to be taken into account in choosing between methods of production, for a tax on business enterprise has its first impact at the very heart of decision making. The neutrality argument does indicate, however, that both progressive and regressive taxes may have potentially undesirable economic consequences. Perhaps the most satisfactory compromise between the incentives and equity objectives would be a proportional tax on personal income as the major source of federal revenue.

## The Ideal Tax System

The ideas contained in the preceding pages lead to three conclusions as to the nature of the ideal tax system. In the first place, it will be free of unnecessary complications and anomalies that add to the administrative costs attached to collection by government and compliance by taxpayers. Secondly, it will be relatively free of inequities between one class of taxpayers and another. And lastly, it will minimize the harmful effect of taxes on national effort and prosperity, productivity, and the total volume of production.

It must particularly be borne in mind that tax rates alone do not bring the revenue. There must be a tax base, which is the nation's net national product or national income. The rates themselves, and other aspects of tax policy, affect the rate of growth of the national

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[17] Hugh Dalton, Principles of Public Finance (4th ed., London: George Routledge & Sons, Ltd., 1955), p. 63.

income and, hence, the rate of growth of the tax base.

Shifting, Incidence, and Effects of a Tax

In order to evaluate the equity of a tax and its effects on economic incentives, it is necessary to know how the burden of the tax is distributed among various persons and income groups. This distribution of a tax burden is referred to as its incidence. The pattern of incidence is clear where the burden of a tax rests upon the persons on whom it is levied. But in some cases, as a consequence of an economic transaction taking place, a tax is shifted from the persons upon whom it is imposed to others. The incidence of the tax then becomes a result of the process of shifting.

In contrast to the incidence of a tax stand its economic effects. As the term is used, the effects of a tax are all the ultimate economic conditions which flow from the impact, shifting and incidence of a tax. It is often difficult to separate the question of incidence from that of effect because the incidence of a tax is frequently a consequence of its effects and the economic effects are similarly often related to its incidence.

We shall use the term incidence to refer to the ultimate money burden of the tax. With reference to the corporation tax, the subject of special study, we are concerned with determining whether the burden of the tax is borne by stockholders or is shifted so that the incidence of the tax is on others. As to the effects of the tax, we shall find it necessary to consider effects on corporate investment and financial policy. A more inclusive study would also consider effects of the tax on other economic variables, including savings, consumption, and investment. If, for example, the tax is shifted forward to consumers,

it would be interesting to inquire into the probable effects of the shift on the pattern of savings and consumption. Should the tax be shifted back to wage-earners, there would be effects on incentives to work to be investigated. But such a comprehensive analysis is beyond the scope of this study.

## CHAPTER III

## THE FEDERAL TAX STRUCTURE

The Federal tax system consists fundamentally of the income tax, individual and corporate, which now produce about 48 and 25 percent, respectively, of total Federal revenue; a series of special excise taxes levied on the sales of various commodities, producing 6 percent of total revenue; taxes at very high rates on alcohol and tobacco, yielding 7 percent; taxes on transfers of property by gift during life, or at death, 2 percent; and customs duties, just over 1 percent.[1] Each of these taxes will now be appraised in the light of the principles of taxation discussed in Chapter II. In this way, the problems germane to the corporation income tax will be brought sharply into focus.

As a point of reference, the major sources of Federal tax receipts are presented below for the years 1913, 1940, and 1958. The reader is invited to observe the relative decline in excise taxes and customs duties as revenue sources, and the increasing reliance now placed on taxes on income.

### The Personal Income Tax

The personal income tax is now our largest single source of revenue. Whereas in 1939 it contributed $1.0 billion, or 16.94 percent,

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[1] Employment taxes also constitute an important source of Federal revenue. But as these reflect primarily withholdings for social security payments, they are not treated as taxes in this chapter.

of all federal tax receipts, in fiscal 1958 the total yield of this tax was $38.6 billion, or 47.56 percent of all revenues. Commodity taxes offer a more stable yield because they fall on consumption, which is more stable than income during cyclical fluctuations. But the revenue possibilities of the personal income tax in prosperous years have overshadowed the greater stability, but lower yield, of commodity taxes.

TABLE 3

FEDERAL TAX RECEIPTS BY SOURCE
(IN BILLIONS OF DOLLARS)

| | 1958 (1) | | 1940 (2) | | 1913 (3) | |
|---|---|---|---|---|---|---|
| | $ | % | $ | % | $ | % |
| Individual income taxes | 38.6 | 47.56 | 1.0 | 16.94 | -- | -- |
| Corporation income taxes | 20.5 | 25.32 | 1.2 | 20.34 | -- | -- |
| Estate and gift taxes | 1.4 | 1.74 | .4 | 6.78 | -- | -- |
| Excise taxes[a] | 10.8 | 13.33 | 1.6 | 27.12 | 0.3 | 42.86 |
| Employment taxes | 8.6 | 10.65 | 0.8 | 13.56 | -- | -- |
| Taxes not otherwise classified | 0.01 | 0.01 | 0.6 | 10.17 | 0.1 | 14.29 |
| | 79.9 | 98.61 | 5.6 | 94.91 | 0.4 | 57.15 |
| Customs collections | 1.1 | 1.39 | .3 | 5.09 | 0.3 | 42.86 |
| | 81.0 | 100.00 | 5.9 | 100.00 | 0.7 | 100.00 |

Sources:

(1) Based on U. S., Treasury Department, Annual Report of the Secretary of the Treasury on the State of the Finances; Fiscal Year Ended June 30, 1958 (Washington: U.S. Government Printing Office, 1959), pp. 79 and 130.

(2) (3) Based on U. S., Bureau of the Census, Historical Statistics of the United States, 1789-1945 (Washington: U.S. Government Printing Office, 1945), pp. 295, 296, and 304.

[a]Taxes on alcohol and tobacco and special excises.

In principle, the tax is sound. Only people can pay taxes,

the levy is, therefore, on the ultimate source of tax receipts. Because it is not hidden, the personal income tax, more than other taxes, makes people aware of the cost of government.

It is generally believed that the tax is not shifted. To the extent that this is true, the tax conforms to the requirement of certainty. There is a possibility that high tax rates may induce workers to work less, and costs and prices will be increased thereby. But as the workers buy the goods at prices higher than they would have been, the tax is indirectly shifted back to them again. An increase in personal tax rates may lead to worker demands for wage increases. These, again, if obtained, would lead to higher costs and prices. There is very little likelihood, therefore, that the incidence of the individual income tax rests elsewhere but on the persons upon whom it is first imposed.

The tax is further to be supported on the grounds of neutrality. It is removed from the center of decision making, and thus has less direct effect on a businessman's decisions than a tax levied on the earnings of a business.

Its contribution to economic stability is a final point in favor of this tax. Tax collections go down as personal incomes decline through a normal decline in business activity. But the progressive rates serve to moderate the decline in consumer disposable income.

Most of the criticisms against the individual income tax stem from the sharply progressive rates. The concept of ability-to-pay calls for some progressiveness in the tax system; that is, as the tax base increases, the tax rate increases. But this progressiveness can be achieved through the fixed exemption principle, with a proportional

rate. A married man with two children would receive, in 1958, for example, a total exemption of $2400. If the rate of tax were a flat 20 percent his average tax rate would be computed, for different levels of income, as follows:

TABLE 4

AVERAGE TAX RATE AT DIFFERENT LEVELS OF PERSONAL INCOME

| Income | Exemption | Taxable Income | Tax | Average Tax Rate |
|---|---|---|---|---|
| $2400 | $2400 | $ 0 | $ 0 | 0% |
| 2500 | 2400 | 100 | 20 | 0.08 |
| 3000 | 2400 | 600 | 120 | 4.0 |
| 4000 | 2400 | 1600 | 320 | 8.0 |
| 5000 | 2400 | 2600 | 520 | 10.4 |
| 6000 | 2400 | 3600 | 720 | 12.0 |

Additional progressivity has been built into the personal tax structure, however, by the rising marginal rates. In consequence, a single taxpayer with a taxable income of $10,000 in 1958 would be taxed as follows:

| | | | |
|---|---|---|---|
| On 1st | $2000 - 20% | = | $400 |
| 2nd | 2000 - 22% | = | $440 |
| 3rd | 2000 - 26% | = | $520 |
| 4th | 2000 - 30% | = | $600 |
| 5th | 2000 - 34% | = | $680 |
| | | | $2640 |

On his first $4000 of taxable income, he would pay tax at an average rate of 21 percent. This average rate on the entire $10,000 would be 26.4 percent.

Few objections can be raised against the progressiveness

inherent in the fixed exemption principle if the exemption is not too high. But the progressiveness that stems from the increase in marginal rates is strongly to be condemned from the incentives viewpoint. Economic growth, in a free enterprise economy, is largely dependent upon the exercise of individual initiative. Sharply rising marginal tax rates conflict with this feature of our economic system. Rarely does a man decide whether or not to do any work at all, to spend at all, or risk all of his assets in a speculative undertaking. The crucial decisions relate to whether to work more or less, to save a little more or less, or to invest a little more or less. With the present personal tax structure, the individual who works a bit harder is unjustly penalized when the government takes an increasing share of his paycheck. As the Committee for Economic Development said, steeply graduated rates:

> Tend to discourage effort and activity devoted to producing and earning incomes. . .they reduce the incentives and ability of individuals to save and to enter into enterprises which do not benefit from the tax exemption or other provisions that confer substantial tax benefits.[2]

High marginal tax rates may be further indicted on the ground that they tend to place a substantial premium on tax avoidance. According to one writer, high rates have led to so many special privileges and exclusions, that only 40 percent of personal income is now treated as taxable income.[3] The more numerous these exclusions become, the more complex becomes the tax law. Simplicity in design is lost, and costs of administration and compliance rise. We seem to have reached the point now where lower rates are not feasible unless a greater

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[2] Tax Reduction and Tax Reform - When and How (New York: Committee for Economic Development, May, 1957), p. 22.

[3] Paul F. Icerman, "Erosion and Taxes," Michigan Business Review, XI (January, 1959), p. 26.

proportion of income is brought within the definition of taxable income, but the high rates, themselves, foster more "special privileges."

The inequities in the individual income tax are, to a large extent, a consequence of the progressive marginal rate. For one thing, the tax violates the principle of equal pay for equal work. Consider, for example, the case of two men, the first of whom works for eleven months of the year and earns ₹55,000. He also decides to work in December, and earns another ₹5,000. The second man works only in December, also earning ₹5,000. Assuming that they are both married, the tax law is such that the first man pays a tax of ₹3,750 on his December earnings; the second man, ₹1,000. For the same work, therefore, one has a take-home pay of ₹1,250 from his December work; the less industrious of the two, ₹4,000.

Over a period of years, the tax law discriminates against the individual with a fluctuating income or whose earning power is compressed into a short period of time. Consider, for example, the case where A's annual income follows the pattern ₹20,000, ₹10,000, ₹20,000, ₹10,000 etc., and B's income is regularly ₹15,000 a year. In any consecutive two-year period both will earn ₹30,000. But, assuming that both are unmarried and that neither itemizes his deductions taking, instead, a standard deduction of ₹1,000, A will pay income taxes of ₹3,508 over the two years while B will pay ₹4,004, or ₹504 less than A. Where earning power is compressed into a brief time-span, the case of the athlete who earns ₹100,000 a year for 10 years, and then suffers a substantial decline in his income is illustrative. As a result of the progressiveness in the personal tax structure, he will pay far more tax on his earnings in the ten years of his greatest earning power than

another person who earns $1,000,000 over 40 years. Some relief provision is needed for recipients of lump-sum profit shares, inventors, ball players, and others similarly situated. Rather than correct this inequity through special relief provisions excluding this kind of income from the tax base, it has been suggested that "cumulative averaging" of income be allowed.[4] By this device, income earned in any year is taxed at the rate appropriate to the average income of all previous years.

The personal income tax should desirably be neutral in its economic effects. It is not neutral! Instead of providing incentives for growth, the steeply graduated rates have the opposite effect; they discourage efforts to produce more and work harder, reduce incentives to save, restrict mobility of investment funds and people, and, in larger incomes, discourage risk-taking.

The personal income tax should also be fair among persons[5] if dishonesty, complexity, and tax avoidance are to be avoided. It is not fair! Though they were passed to avoid inequities, special exemptions and relief provisions have created inequities, and have led to returns so complex that it is now difficult to distinguish between natural and dishonest errors. The villain in the piece is, as previously stated, the graduated marginal rates.

The question naturally arises: does progressivity bring much additional revenue to the government? Judging from the statistics,

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[4] Kaldor, op. cit., pp. 40-41. W. Vickrey, Agenda for Progressive Taxation (New York: The Ronald Press Company, 1947), Chap. 6.

[5] Simons, Personal Income Taxation, p. 178. "The income tax is not a tax upon income but a tax upon persons according to their respective incomes; and, subject to the requirement of adherence to simple, general rules, the objective of policy must be fairness among persons, not fairness among kinds of receipts (whatever that might be construed to mean)."

the answer is, "not much." In an estimated distribution of tax rates and yields for the calendar year 1956, the National Association of Manufacturers concluded:

> The entire progressive super-structure produces only about 17 percent of the total revenue derived from the individual tax, or $5.5 billion. The remainder, $27.2 billion, or 83 percent, is derived from the basic tax rate paid by all income tax payers on all of their taxable income.[6]

If the surtax had been completely removed in 1956, in other words, federal tax receipts from the personal income tax would have been $27,175 millions in that year instead of $32,650 millions, a decline of 16.7 percent. Had the surtax ceased to increase above the $32,000 income range, receipts from the personal income tax would have been reduced, in 1956, by only $1,509 million. These findings are supported by another, more recent, estimate that the whole rate structure above 20 percent brings in only $5 billions.[7] My own research indicates that the bulk of the tax revenues come from people in the middle-income group. For 1955, as the figures in Table 5 illustrate, abolition of the increase in the surtax rates on incomes in excess of $30,000 would have cost the Treasury much less than $5 billions, and it is in this range that the trouble lies.

Henry Simons called the personal income tax, "the outstanding contribution of popular government and liberal political philosophy to modern fiscal practice."[8] But he surely did not foresee, at the time

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[6] Facing the Issue of Income Tax Discrimination (New York: National Association of Manufacturers, December, 1956), p. 14.

[7] Robert Lubar, "A Plan for Tax Reform," Fortune, LVIII (March, 1959), p. 95.

[8] Simons, Personal Income Taxation, p. 41.

he wrote these words, that marginal rates would go as high as 91 percent. A reasonable compromise between incentive and equity requirements would seem to indicate a stopping point at 50 percent. An individual would be induced to work harder if the government had only an equal interest in his additional earnings. Some progressivity is needed if the personal tax structure is to conform to the objectives of ability-to-pay and equality of sacrifice. But it should not go so far as to destroy incentives.

TABLE 5

INDIVIDUAL INCOME TAX BY GROSS INCOME CLASSES
1955 FISCAL YEAR

| Income Class | Number of Returns | Income Tax (Bil. of $) | Percent of Total Tax Receipts |
|---|---|---|---|
| $0 - $2,999 | 24 mill. | $ 1.9 | 8% |
| $3,000 - $29,999 | 33 mill. | 21.8 | 73 |
| $30,000 - up | 291 thous. | 5.8 | 19 |
| | | $29.5 | 100% |

Source:

U.S., Internal Revenue Service, Statistics of Income: Individual Income Tax Returns /Part 1/ 1955 (Washington: U.S. Government Printing Office, 1958), p. 18.

The Corporation Income Tax

For almost two decades the corporation income tax has been the second most important revenue source of the Federal Government, and it seems likely to continue in this position for some time to come. First enacted in 1909 at a nominal 1 percent of net income, its rate has risen

consistently, and now stands at its highest point, of 52 percent. In fiscal 1958, the tax furnished 25.32 percent of all Federal tax receipts, or $20.5 billions. From the point of view of yield, the tax has, therefore, much to commend it.

The corporation income tax is most difficult and perplexing to appraise because the arguments for and against the tax as a source of federal revenues depend upon our knowing something about the effects of the tax on investment, capital structure, and incentives of individuals to save and work and take risks, and also on the policies of the corporation. These effects, in turn, are in varying degrees related to its incidence.

That the corporation is not the real taxpayer is certain, for taxes can only be paid by people. It is therefore fallacious to argue that because individuals are taxed, corporations should be taxed too. The tax either falls on stockholder earnings, or is shifted forward to consumers or backward to wage-earners or suppliers--or is shared to some extent by all three groups.[9]

Being imposed on corporation profits, the prima facie presumption is that the tax is paid by the shareholders. Both critics and proponents of the tax base their case on this assumption. The critics assume absence of shifting when they maintain that the tax is discriminatory because profit income is taxed first when received by the corporation, and again when received by the shareholder. This is said to constitute "double taxation," while other incomes such as wages and

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[9] R. A. Musgrave et al, "Distribution of Tax Payments by Income Groups. A Case Study for 1948," National Tax Journal, IV (March, 1951), pp. 1-53.

interest are taxed but once.[10] Also the critics imply that the initial burden of the tax is on profits when they hold that the tax discourages investment, be it because it reduces profits available for investment, or because it lowers the incentive to invest available funds in a going concern. The tax is also indicted, under the non-shifting assumption, for hampering incentives to form new businesses. This is particularly serious in a society in which major reliance is placed on competition as a disciplinary force, for new firms are needed to act as a destabilizing factor on established concerns. If the tax is not shifted, it could also lead to a shortage of venture capital as funds are put into government bonds, spent on consumption, or invested overseas. It could also lead to greater dependence on wage and salary income rather than profit income. The proponents of the tax assume no shifting when they maintain that the corporation income tax is desirable as a charge for benefits which owners of corporations receive from governmental activity, or because it increases the progressivity of the tax structure.[11] Unless the incidence of the tax is known, little can be said about the merits of a tax on corporate profits as a major component of the tax structure.

If the tax is borne, either in whole or in part by workers, it reduces their wages below what they would have been in the absence of the tax. The consequences of the corporation income tax would then be more or less similar to those of a payroll tax. Further adjustments

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[10] E.g., W. L. Crum, "The Taxation of Stockholders," Quarterly Journal of Economics, LXIV (February, 1950), pp. 15-56.

[11] See Kenyon E. Poole, Public Finance and Economic Welfare (New York: Prentice Hall, Inc., 1951), pp. 208-211 for arguments in support of a tax on the net income of corporations.

would depend on its effects on the incentives of wage earners. The equity of the tax in terms of the ability to pay criterion would also be open to question.

Forward shifting to consumers through higher prices would imply that the tax is a hidden, regressive sales tax whose incidence is thoroughly arbitrary and uncertain. It would mitigate the progressiveness of the personal income tax, if this be the case. On the other hand, there would be little logic in retaining a tax on this score when it is not doing what it is intended to do; that is, tax the earnings of stockholders, particularly the earnings retained by the corporation.

Regardless of who bears the ultimate burden of the tax, it is certain that its incidence may be capricious and arbitrary and thus violate the principle of equity. To the extent that it rests on stockholders, the corporation income tax takes no account of the widely differing abilities to pay of individual stockholders. If it is passed forward or backward it takes no account of differences in the economic circumstances of buyers or workers, and it may well affect the prices of some goods more than others. Because of its uncertain incidence, the tax has become politically acceptable, and a lucrative source of tax revenues that nobody feels as a direct money burden. Higher government spending is thus accepted because no one is aware of the direct cost attached.

Apart from its uncertain incidence, the tax is criticized on the grounds that it strikes at the very heart of decision making and is not, therefore, neutral in its economic effect. It is asserted, for example, that the deductibility of interest charges encourages debt financing; that it prejudices against the corporate form of organization,

particularly by small firms deciding between forming a partnership or a corporation;[12] and that it encourages waste and inefficiency when more than half of any increase in costs is borne by the Treasury.[13] The tax is further claimed to favor the multi-line company, which can write off loss operations in any one year against its income of that year, and to discriminate against the company with a single line. Since there is not a complete carry-forward of losses, the tax is also said to discriminate against the firm with a highly fluctuating income.

While it is true that the initial impact of the tax is on the shareholder or residual claimant, and is, therefore, bound to exercise some influence on business decisions, and is to be censured on this account, the ultimate logic of taxing corporate income depends on our knowing who really pays it. We have already noted that nearly all the views, of critics and proponents alike, rest on the assumption that the tax falls on profits and that it is borne by shareholders. If this assumption should be incorrect, wholly or in part, current views of the corporation tax, and of its role in the tax structure, must be revised drastically.

## Excise Taxes

Our present galaxy of excise taxes may be said to date from 1932 when, as a depression measure, "special excises" were enacted in

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[12] Griffin, op. cit., p. 368.

[13] Colin Clark, "A Prolonged American Slump Unlikely," The Manchester Guardian Weekly (Thursday, May 1, 1958), p. 7. Clark also attacks the corporation income tax as adding to inflationary pressures in the economy, viz:

> "Excessive taxation, particularly too high a rate of taxes on corporations, is the root cause of the persistent fall in the value of the dollar, which has been going on ever since the war ended."

lieu of a general manufacturers' sales tax. The rose apparently smelled sweeter under another name. Rates have been increased since 1932, and the retailers' and transportation excises have been introduced. A major tax reduction was effected in 1954, when rates in excess of 10 percent were reduced to 10 percent.

The yield of all excise taxes in fiscal 1958 was roughly $10.8 billion or 19.33 percent of Federal tax receipts. Of this sum, $4.7 billion was derived from excises on alcohol and tobacco, and the remaining $6.1 billion from the other special excises. Excise taxes provide a good, stable revenue, and are easy to collect.

The basic case for excise taxes rests on the fact that since they are generally included in the price of products, they fall on consumption expenditures and, therefore, have less direct effect on incentives than other taxes. Against their use, two major arguments may be made: First, they may be criticized on equity grounds. Since they are included in product prices, they are regressive in effect, for the poor spend a larger part of their income on goods and services than the rich do. But whether this regressivity is good or bad depends on the rest of the tax structure. Excise taxes may be justified as offsetting the over-progressiveness of the income tax structure. If the corporation tax is borne by stockholders, this would definitely be the case. Should the corporation tax be shifted either forward or back, and thus be regressive, there would be room for questioning whether the tax structure as a whole is, perhaps, regressive. Second, the use of special excises such as those on retail sales of jewelry, furs, toilet preparations, and leather goods, while the remainder of retail sales are exempt, has a discriminatory effect on output, employment and incomes in the taxed industries.

On the whole, some use of excise taxes is justified by their low cost of collection, their revenue producing capabilities, and the stability of the revenue. The objections to them would not be great if the amounts involved were relatively small.

Unfortunately, our present excise tax structure fares very badly under critical analysis. We tax as luxuries such items as automobiles, telephone and telegraph services, and transportation, all of which are not only consumer goods and services in general use but also business expense items. We have exceeded the bounds of reason in our heavy sumptuary taxes which, in some cases, account for more than half the retail price of a product. In addition, we impose, on freight and business machines, excise taxes that cannot be justified on any grounds. The classic statement by Henry Simons sums up the need for reform in this area:

> These [excise] taxes, to my mind, are the worst elements in our revenue system. They are much more regressive than sales taxes. They are almost wholly concealed, precluding real awareness by individuals of their actual annual burden. They pander to misguided demands for sumptuary legislation, deriving strong support from alleged purposes which they are carefully designed not to serve. They pose as levies upon "luxuries," while serving to divert expenditures not from the objects taxed but from "necessities." Like corporation taxes, they are the revenue devices of political cowards who live in terror of voter-taxpayers and of government by intelligent discussion. The only cogent defense of them rests on the Calvinist premise that poor consumers of the objects in question are obviously damned for the next life and may properly be prepared now for their fate, by carrying what would otherwise be tax burdens of the elect. The large-yield federal excises are superior, by democratic standards, only to our margarine taxes and protective tariff duties.[14]

## Estate and Gift Taxes

Estate taxes, which are levied by the Federal Government in

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[14] Simons, Federal Tax Reform, pp. 36-37.

contrast to inheritance taxes which are levied by the states, in conjunction with gift taxes yielded $1.4 billion or 1.7 percent of tax receipts in fiscal 1958. Their yield is relatively far less than that of other taxes in the Federal system, but they are easy to collect and could be made to produce more revenue.

Estate taxes have much to commend them: their incidence is certain and not arbitrary. They also help to avoid concentrations of wealth. But inheritance taxes are superior, in this respect, because they encourage widespread distribution of legacies. In a society avowing equality of opportunity to pursue unequal rewards, it is highly desirable that effective use be made of this aspect of the tax system to eliminate an obstacle to equality that is not innate.

The major issue in death taxes relates to their effect on incentives. Some hold that young men are motivated by a desire to leave an estate, and that confiscatory estate taxes would have undesirable disincentive effects. On the other hand, it may be argued that the productive period of a man's life is between the ages of 35 and 50, when little thought is given to heirs. If this be the case, more weight could be placed on these taxes without concomitant undesirable economic effects, and the increased revenues could be used to moderate the present highly progressive individual income tax rates.

## Customs Duties

The bulk of customs collections represents duties on imported merchandise. In 1958, their yield was only $1.1 billion.

Since customs duties are often used to protect domestic industries from foreign competition,[15] their effectiveness cannot be

[15]Revenue is, of course, the object of some customs duties. The duties on coffee and tea, for example, are purely revenue taxes.

judged solely on the basis of their yield; they are often doing their best job when no revenue is forthcoming at all. This objective of tariffs is reflected in their high collection costs relative to taxes collected by the Internal Revenue Bureau. In 1958, for example, total collections by the Bureau of Customs amounted to $1,122,000,000, costs of collection were $51,878,000. Every $100 of customs' revenue thus cost $4.62 to collect.[16] The Bureau of Internal Revenue, on the other hand, spent $337,429,000 to collect $80,000,000,000--or 42 cents per $100 of receipts.[17]

Designed to serve a special purpose, customs duties have declined in importance as revenue producers in the federal tax system over the years. Their problems, in the light of other taxes in the Federal structure, are of minor concern.

## Conclusions

Viewed as a whole, the Federal tax system fares better when appraised in terms of the administrative criteria of taxation than it does in terms of the requirements of equity and incentives. The shift, since 1914, to taxes based on income, for instance, has greatly increased federal tax receipts. Indeed, it is hard to see how the two world wars could have been financed without income taxation at the federal level. Income taxes have also provided a flexible yield which swells in

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[16] U.S., Treasury Department, Annual Report of the Secretary of the Treasury on the State of the Finances; Fiscal Year Ended June 30, 1958 (Washington: U.S. Government Printing Office, 1959), pp. 79 and 87. The official figures do not give enough detail for us to compute the collection costs on particular items of merchandise. But it is most unlikely that the duties on revenue items such as tea and coffee suffer from a high collection cost.

[17] Ibid., pp. 129 and 136.

prosperous periods, when incomes increase, and recedes in periods of declining income. This requirement is, today, of greater importance to the Federal government than a yield that is stable through time. Except for 'deductions at source,' the personal income tax fully satisfies the need for awareness on the part of each taxpayer of his share of the cost of government services. The same thing can be said about the corporation income tax, provided it is not shifted through prices or wages. Excise taxes and customs duties are generally hidden taxes. But as these are small in amount, the tax system cannot be subjected to too much criticism on this account. From the published figures, it appears that taxes can be collected far more cheaply by the Internal Revenue Bureau than by the Bureau of Customs. In consequence, collection and enforcement costs per dollar of tax revenue have declined sharply throughout the past fifty years. There is some doubt as to whether taxpayer compliance costs have also been reduced. Anyone who has tried to fill out an individual income return would judge otherwise. The battery of tax lawyers and tax accountants now in practice evidence the increase in the complexity of our tax system as the years have passed.

The loss of simplicity in our tax system is directly related to the high rates at which incomes, personal and corporate, are taxed. These high rates are, in turn, responsible for the serious weaknesses in the federal tax structure from the incentives and equity point of view.

Most of the problems in the individual income tax could be solved by our placing an upper limit of 50 percent on the marginal rate of tax. This would eliminate the need for a great deal of tax avoidance and evasion that is now the vogue, and would bring currently exempt

income back into the tax base. With fewer exemptions, the individual income tax would be simpler in design, cheaper to collect, easier to enforce, and taxpayer compliance costs would be reduced. Its yield would be increased, and no flexibility of yield would be lost. Of greatest importance, we would have a personal tax that is compatible with an economic climate in which individual initiative and enterprise are rewarded.

A much greater problem is posed by the corporation income tax--nobody knows who pays it. Until more empirical knowledge is obtained on this point, an over-all assessment of the federal tax structure is impossible. If the tax is not shifted, the tax structure is one that is highly progressive. If it is shifted forward to consumers or backward to wage earners, the tax weakens the entire tax structure from the equity viewpoint while still operating adversely on incentives. The need is urgent for more information about the incidence and effects of the corporation income tax. We blindly continue to tax away more than half of all stockholder earnings, and accept the probability of adverse incentive effects, under what may be the erroneous notion that the tax is not shifted. What if it is included in prices in the long-run? The next four chapters seek to answer this question.

## CHAPTER IV

## THE TRADITIONAL VIEW OF INCIDENCE

According to the classical view,[1] a tax on corporate income cannot be shifted either in the short-run or in the long-run. This argument, as usually presented, rests on two assumptions: that the tax is part of a general tax on all income,[2] and that it rests only on economic surplus. Thus, the generality of the tax precludes the diversion of resources to untaxed fields; and, since pure profits are not an element of cost, a change in income tax would not affect incentives to invest or the supply of goods. In the present chapter, we shall review the classical argument. This will lay the foundation for the analysis in Chapter V, in which the two assumptions noted above will be examined

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[1] See, Edwin R. A. Seligman, The Shifting and Incidence of Taxation (4th ed.; New York: Columbia University Press, 1921), pp. 358-363; Edwin R. A. Seligman, Studies in Public Finance (New York: The Macmillan Company, 1925), Chap. III; W. H. Coates, "Memorandum on the Incidence of the Income Tax," Appendices to the Report of the Committee on National Debt and Taxation (London: H. M. Stationery Office, 1927), pp. 65-114; Dalton, op. cit., pp. 81-85; Richard Goode, The Corporation Income Tax (New York: John Wiley & Sons, Inc., 1951), pp. 47-58. Also see, Great Britain, Report of the Committee on National Debt and Taxation /Colwyn Report/ (London: H. M. Stationery Office, 1927), cmd. 2800.

The Colwyn Committee conducted hearings from 1924 to 1927 on the national debt and on the incidence of existing taxation. Evidence was taken from 62 witnesses, among them: bankers, economists, financial experts, and representatives of various English societies, guilds, congresses, and councils.

[2] By this assumption, the corporation income tax is taken as being fully integrated with the personal income tax. That is to say, the tax on corporate income operates as a withholding tax which is later offset as an advance payment against an individual's liability under the personal income tax. This was a characteristic of the corporation income tax when it was first introduced, but is not so today.

and conclusions at variance with those of the traditional analysis will be drawn.

Short-Run Forward Shifting

In a competitive industry, so the argument goes, the marginal firm earns no profit and thus pays no tax. The more profitable firms within each industry are thereby precluded from raising their prices because of the potential competition from the marginal firm which has no inducement to raise its price. Further, the intra-marginal firms will not adjust their output following the imposition of a tax, or an increase in an already existing tax, because they are already deemed to be operating at the point of most profitable output. There is, therefore, no post-tax output any more profitable than the profit-maximizing pre-tax output.

The logic of this reasoning rests on two key propositions: that price is determined by the marginal firms, and that in each industry there exists a marginal concern operating at no profit or at a loss. Seligman stated the case in this way:

> A tax on income is a tax on net profits; and net profits are not cost, but the surplus over cost. A tax on profits cannot reach the man who makes no profits. . . .If the man at the margin who at any particular time fixes the price for the entire supply of commodities that is sold in the market pays no tax, how can the income tax be added to the price? The tax on profits is made only by the man who makes profits, that is by the intra-marginal producer, not by the marginal producer. But the tax paid by the intra-marginal producer cannot affect the price which is fixed by the marginal producer who pays no tax. . . .
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> Under normal conditions, . . .when there is neither a business boom nor a business depression, when there is neither a sellers' market nor a buyers' market, but just an ordinary, normal, average market, the producer will not even have an excuse for adding an income tax to the price. For. . .prices will tend, under normal conditions, to be fixed at the cost of production of the marginal competitor who pays no taxes

because he finds at the end of the year that he has made no profits.[3]

The traditional doctrine of incidence is completed by its extension to the case of a monopolist. Here, too, the conclusion is[4] that a tax on the net income of a monopolist will fall on pure profit, and will not induce a change in the pre-tax monopoly price. The rational monopolist, says the theory, is presumed to be maximizing the excess of his gross receipts over cost. If he is successfully doing this, a tax which takes a constant percentage of his net income will not change

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[3]Seligman, Appendices to the Report of the Committee on National Debt and Taxation, pp. 120-123. Also reproduced in Professor Seligman's Studies in Public Finance, Chapter III, pp. 73-76.

Seligman's views on the marginal firm have not been uncritically accepted by all economists. For example, at the time of the Colwyn Committee report, D. H. Robertson wrote:

> "I do not think any warrant can be found in Marshall's pages either for the view that the costs of production which are relevant to the determination of normal value are those of the most inefficient or unfortunate producers, or for the view that they do not comprise a substantial element of profit."

D. H. Robertson, "The Colwyn Committee, the Income Tax and the Price Level," Economic Journal, XXXVII (December, 1927), 566-581. Robertson's comments were directed primarily against J. H. Coates' statistical argument that the wide cost variances he found among firms within an industry proved that price is determined by marginal (no-profit) firms, and that, therefore, the tax is not shifted. But they are equally relevant when applied to Seligman's theoretical argument which was presented to the Colwyn Committee at the same time.

At a later date, Duncan Black, another British economist stated:

> "Marshall would have disliked saying that the margin determines price: he always considered the margin as being itself determined by the forces of demand and supply, and as altering when either of these altered."

Duncan Black, The Incidence of Income Taxes (London: Macmillan & Co., Ltd., 1939), p. 13.

[4]See Goode, op. cit., p. 47.

the optimum combination of price and output. One half of his profit at the price yielding the largest profit is larger than half of the profit from any other price. Hence the best price with the tax is the same as the best price without it. Thus the monopolist has no alternative but to share some of his gains with the government. Any attempt to raise prices on his part can only leave him worse off in gross and net terms.

One exception to this argument is the monopolist or quasi-monopolist who is not charging all the traffic will bear. A former British Chancellor of the Exchequer states the situation as follows:

> A tax on a monopolist, such that its incidence. . .would be entirely on him, may sometimes be shifted on to his customers by means of a more rigorous exercise than before of monopoly power. A monopolist, in fact, like a landowner, may react to taxation by "taking in the slack."[5]

American business is not characterized by these extremes of perfect competition and monopoly, but by monopolistic competition and oligopoly. Nevertheless, under these conditions, each firm will be motivated by the profit maximizing principle, and therefore striving to, and succeeding in, equating its marginal cost and marginal revenue. Production is thus pushed to the point where the two are equal. To produce less would involve foregoing a possible gain; to produce more, to pass beyond the profit maximizing point. From this it follows, with a given scale of plant, that a tax imposed on corporate income will not affect output or price. Profits after tax will be lower as a consequence

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[5]Dalton, op. cit., pp. 45-46.

Both the steel and the automobile industries in the late 1940's instance cases where firms were not charging all that the traffic would bear. Under such circumstances, the first imposition of, or increase in, a tax would surely cause the managements concerned to reconsider their price policies with a view to passing some of the additional tax burden on to the consumer.

of an increase in the tax. But no other price-output combination will yield a larger after tax net income. Given an unchanged demand, unchanged technology, and plant and equipment the same as before the tax, supply and prices will not be altered.

Short-Run Effect on Wages

Consistent with the assumption of short-run profit maximization in the theory of product price determination is the further assumption, with respect to wage rates, that wages are determined by the value of the marginal product. According to this theory, every employer will endeavor to hire workers up to the point where the value of output produced by the last worker hired is just equal to his wages. To stop before this point would occasion the employer a loss of income because additional workers hired, up to the equilibrium point, would add more to the value of goods produced than they would be paid. By proceeding beyond this point, the employer would be producing some units at a loss. If the optimum adjustment is achieved, the last unit of labor is employed at the margin, where there is neither gain nor loss. Since the last unit of output would be a break-even unit, there would be no corporate income tax liability associated with it. Hence the level of employment in any one firm, and its wage rates, will be unaffected by the tax.

Long-Run Shifting

As expressed in the traditional argument, shifting of the corporation income tax is no more possible over the long-run than the short-run.

Since the tax was assumed to be confined to pure profit, and

not, therefore, a true overhead charge entering into production cost, it was thought to exercise no influence on the investment policies of old or new firms. Fundamental to this position is the assumption that necessary returns, such as rewards for abstinence, loss of liquidity, or risk were not reduced by the tax. This would be true only if the tax law permitted the deduction of all costs, including the wages of owner-managers and a charge for a normal return on invested capital. We shall see, however, in the next chapter, that corporate income taxes are not levied solely on pure profit and that the traditional argument is invalid in this regard.

To counter objections to this assumption, recourse was made to the second assumption that the corporation income tax, together with the personal income tax, applied to all income. Businessmen and investors would then, it was argued, have no alternatives to which to turn even if the tax were levied on normal returns to capital. Investment, prices, and output would, therefore, still be unaffected by the tax even in the long-run.

One objection to this argument is that the tax may preclude price or wage adjustments that might otherwise follow improvements in productivity. As productivity increases in any field of enterprise, a fall in prices or increase in wages would be a normal consequence as competition in business caused some of the gains to be passed on to consumers or wage earners. The interests of both groups would suffer, if, as a consequence of an excessive tax on income, a fall in prices or increase in wages, stemming from improvements in productivity, were checked. Indirect shifting of the tax would occur in this event, with consumers and wage earners footing the bill.

The traditional argument is also objectionable because it assumes that businessmen have to be businessmen and investors have to be investors. This is, of course, not true. The businessman could have gone into teaching, the church, the army, farming, or to working for someone else. And if his potential income from business is cut in half, he would be encouraged to do so. The same is true of the investor. If his return on corporate investment is reduced by the tax, he may decide to spend more or less, to use up past savings, to invest his savings in real estate or government bonds, or to invest in a single proprietorship or partnership. There is also the possibility that the reduction in their net income may induce businessmen and investors to divert some of their time and resources to fields offering psychic, non-monetary rewards.

In short, in the United States, we do not have a captive lot of enterprisers and investors who cannot escape a corporation income tax. On the contrary, they have a lot of escape hatches. Some of these will be discussed more fully in the next chapter.

## Conclusions

The traditional view of the incidence of the corporation income tax is only as sound as the assumptions on which it is based. If these assumptions are allowed, then the conclusion that the tax will not be shifted in either the short or the long-run has also to be allowed. As stated by the Colwyn Committee:

> The broad economic argument is true for practically the whole field and for practically the whole of time, any exceptions being local or temporary and insufficient to invalidate it.[6]

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[6] Great Britain, The Report of the Committee on National Debt and Taxation, p. 119.

But the assumptions underlying the traditional argument are not valid. In the next chapter we shall see that when they are modified, it may be deduced that the corporation income tax, as it actually operates in this country today, is, in all likelihood, shifted in both the short and the long-run.

## CHAPTER V

## THE SHIFTING AND INCIDENCE OF THE CORPORATION INCOME TAX

The tax on corporate income, if not included immediately in product prices, will initially be absorbed in retained earnings, assuming no compensating reduction in dividend payments, and will lower the profitability of investments. Capitalization of the tax burden by prospective purchasers of corporate capital stock may also be expected. The level of stock market prices should, therefore, fall as a consequence of the imposition of a new tax, or an increase in present tax rates. As a result of these effects, the corporate sector will be less amply supplied with funds than it was before the change in tax policy, and new funds will cost more. The demand for funds will also fall in view of the reduced marginal efficiency of capital.

Nevertheless, according to the traditional view, as presented in the previous chapter, investment in the corporate sector would not be affected. The absence of tax-free fields would prevent the diversion of funds to other economic activities, and the efficiency of capital at the margin would remain unaffected since the marginal firm would pay no tax. Intra-marginal firms, always earning more than a normal return on their investment, are assumed to be transferring some of their income to the public purse and bearing this imposition without its influencing their investment policy.

An extension of this line of reasoning to the federal corporation income tax calls for an examination of how well the tax, in actual

practice, conforms to the earlier theoretical requirements of a general tax on pure net income. The plan of this chapter will, therefore, be to consider first the generality of the present tax on corporate income, and the possibility of a shift of resources to less heavily taxed, or untaxed, activities. We shall then consider, if other more favorable fields tax wise do exist, how the reduction in corporate yields will induce investors to transfer their resources to other areas.

## The Generality of the Corporation Income Tax

The corporation income tax is imposed on profit income derived from capital invested in a corporation. A similar tax is not levied on partnership income, the income of sole proprietors, or income in the form of wages, interest, and rent. Many domestic outlets for investment of funds are, thus, wholly tax exempt or subject to tax at personal rates only. Investors have the further option of putting their funds into foreign enterprises. As an alternative to investment in any form, available funds may be held as idle balances or spent on consumption if the tax affects the willingness of enterprisers to take risks.

A familiar example of a change in the pattern of security buying stemming from an increase in the corporation income tax rate is the common stockholder who shifts to state or local bonds, the interest on which is tax exempt. The stockholder selling shares that he already owns will not, in the process of so doing, reduce the supply of funds to the corporate sector: corporations obtained their money when the shares were first issued. Nevertheless, if more current holders of stock stand willing to sell than buyers stand willing to buy, the price of equity shares in the market will fall. New funds will thus cost more. Indirectly, in this way, a shift by security holders from stocks

to government bonds can influence the flow of new funds to the corporate sector.

This conclusion must be qualified in the sense that if dividends are reduced by the amount of the increase in the tax liability, corporate retained earnings will remain unaffected by higher taxes, provided demand is constant. Should this be the case, the corporate sector will have less need to resort to the market for funds, and will not, therefore, be as subject to the influence of the high cost of new funds as it would be had dividend payments continued undiminished from their pre-tax-increase rate.

In addition to a shift into government, and other non-corporate, bonds, a further diversion of funds from the corporate sector may be effected through investment in partnerships or single proprietorships instead of in corporations. Large companies, for whom the corporate form of organization offers particular advantages, would never consider disincorporation as a feasible procedure even in the long-run. Indeed, companies such as U. S. Steel and General Motors, with their thousands of stockholders, could not do so. But small partnerships may defer incorporating because of the tax penalty that may be involved. Similarly, small corporations already in operation may find it profitable to disincorporate and revert to a partnership.

Decisions not to incorporate or to disincorporate will not, however, aid in shifting the corporate tax liability forward. For a shift to occur, total investment and output must decline, given an unchanged demand. There is no reason to believe that a small corporation that has reverted to a partnership will reduce its output. Conversion to a partnership may, in some instances, permit the retention

of more internal funds for growth than would continued operation on an incorporated basis.[1]

Investment by Americans in business abroad is coming to play an increasingly important role in our Balance of Payments.[2] This does not imply that high domestic tax rates on stockholder earnings have been a motivating factor inducing American corporations or individuals to invest abroad. One adequate reason for investing funds in businesses in other countries, in preference to domestic investment, is the higher relative rate of return promised by foreign operations. But the differential between home and foreign earnings is widened whenever foreign tax treatment of earnings from corporate enterprise is more liberal than our own.

There appear to be many other fields to which funds that would normally find their way to the corporate sector may go. The speed of such a shift will depend, inter alia, on whether the economy is stationary or growing, and on whether an increase in the tax burden is met, by corporations as a whole, through reduced dividend payments or by absorption in retained earnings.

In a stationary economy, any diversion of funds to fields with a lighter tax load would have to await the recovery of funds invested in the past. The shift would be faster if dividend payments were continued rather than reduced by the amount of the tax, for stockholders

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[1]The effects of the tax on funds for expansion is dealt with at length by J. Keith Butters and John Lintner, Effect of Federal Taxes on Growing Enterprises (Boston: Graduate School of Business Administration, Harvard University, 1945).

[2]U.S., President, 1953 - (Eisenhower), Economic Report of the President: Transmitted to The Congress, January 20, 1959 (Washington: U.S. Government Printing Office, 1959), p. 122 and pp. 127-128.

could readily dispose of their funds by buying bonds or consumption goods. Holding idle cash balances or buying securities of foreign corporations are other alternative uses either for prior investments that have been repaid or for new moneys that have become available. But a decline in output would proceed along with the shift of investment funds only if depreciation charges precisely reflected the wearing out of assets. Depreciation charges are at best, however, only estimates, and merely approximate the wear and tear on assets.

Should dividends be reduced by the added tax burden, funds recovered from investments in the past would continue to be available to corporate managers. But few corporations would invest large sums of venture capital in state or municipal bonds; redirection to overseas investment would take time to implement; and corporations are not likely to spend money on consumption. Thus, in a stationary state, retained funds could be left to pile up in idle cash balances in the corporate sector.

We may conclude that, under stationary conditions, funds would shift out of the corporate sector, under the stimulus of high tax rates on corporate income. The shift would be more rapid if dividend payments were continued at their pre-tax charge rate, and recovered funds and current earnings continued to flow out of the corporate sector as before, than if dividends were reduced to maintain the balance of retained earnings.

In the American economy, however, growth and change are the rule rather than the exception. A decline in plant capacity need not, therefore, take the form of a decision not to replace worn-out equipment. In a growing economy, the tax may be shifted forward in the

short-run by a slowing up of the investment process relative to the rate of increase in demand.

The post-war years, in particular, have been years in which industry has had to increase its capacity constantly merely to keep up with expanding demand. Investment has been a continuing process. Thus, a formal distinction on the basis of time periods cannot be maintained: to some extent the long-run has merged into the short-run.

If a tax on corporate income reduces the profitability of investment, it is reasonable to expect a decline in the rate of growth of investment in an industry in which demand is expanding. Merely slowing down the rate of addition to plant capacity would cause a reduction in the rate of growth of supply and, therefore, a higher price than would have existed in the absence of the income tax. This reduction in the rate of investment could occur in a fairly short period of time, merely by a cancellation of expansion plans that would otherwise have been made. A forward shifting of the income tax could accordingly take place in a fairly short period of time.[3]

The establishment of new firms would also be discouraged whenever an unshifted corporation income tax so lowered prospective yields that new enterprises were unwilling to accept the risks inherent in new undertakings. Where a decision to start a new business is marginal, the burden of the corporation tax may well swing the balance towards

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[3]See Diran Bodenhorn, "The Shifting of the Corporation Income Tax in a Growing Economy," Quarterly Journal of Economics, LXX (November, 1956), 567.

Bodenhorn estimates that a tax increase from 50 to 60 percent of taxable income could be shifted forward in a year. But his assumptions (10 percent of planned investment cancelled, a demand increase of 5 percent, net income equal to one percent of sales, and demand and supply curves of unitary elasticity) are hardly descriptive of the real world.

the safer rather than the more risky investment.

There is no way of knowing how many investors would put their money into government securities, partnerships or overseas investments, hoard it, or spend it on consumption goods rather than undertake a new venture. It is clear, however, that over the long-run, if the corporation income tax is not added directly into price, higher taxes on income tend to reduce investment and output in both competitive and monopolistic industries. In reducing the net returns on corporate investment, the tax reduces the supply of equity capital, internal and external, and raises the standard of profitability to which new projects must conform.

If, in industries populated largely by small firms, there are some firms operating at a rate of return that is only just enough to reward the owners for risks involved, it is in the dropping out of these firms or in the discouragement to the formation of new enterprises that the corporation income tax will exercise its greatest influence on commodity prices through changes in investment and output. In the oligopolistic industries, dominated by large multi-product firms, the tax will influence new investment projects in enterprises that already exist. This tendency is evidenced in the capital budgetting policies of many of the country's largest corporations, which invest only in new projects promising more than a minimum rate of return after tax. Let us, then, turn to effects of the tax on corporate investment.

## Tax Effects on Corporate Investment

### In the Marginal Firm

Long-Run Effects.--Although there exist other fields that are wholly tax exempt or are subject to tax at rates lower than the current tax rate on corporate net income, no tax shifting by the corporate

sector would take place if, as argued in the traditional doctrine, marginal firms were 'no profit' firms and hence paid no tax. Unless their profits are reduced by the tax levy, there is no tax inducement for them to raise their product prices. Intra-marginal firms, on the other hand, would be paying tax on their differential profits. But as these profits are price determined and not price determining, they would be unable to recover their own tax costs through price increases.

The concept of taxable income is not, however, the profit of economic theory, but includes substantial elements of cost, or imputed interest and wages of management that are essential to attract capital to business. In reducing the net return to investors, the tax may impinge on these minimum returns on capital necessary to attract new investment. As a consequence of these differences, the marginal firm that is just earning a normal return will pay tax, and higher taxes on corporate income ultimately will tend to be reflected in higher prices.

The reasoning[4] may be illustrated by the operating results of Chrysler Corporation in 1956. Chrysler's earnings of stockholders, before taxes, for the year ended December 31, 1956 were reported at $35,552,969; after-tax earnings were $19,952,969; federal taxes on income were $15,600,000.[5] Chrysler's average capital employed during the year, at book value, was $649,122,868.[6] Allowing 2.5 percent,

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[4]The theoretical analysis has been fully developed for the case of a perfectly competitive industry by J. Fred Weston. See his "Incidence and Effects of the Corporate Income Tax," National Tax Journal, II (December, 1949), 300-315.

[5]Chrysler Corporation, 32nd Annual Report for the Year Ended December 31, 1956, pp. 26-30.

[6]Obtained by averaging the opening and closing stockholders' equity, as reported.

the approximate yield on long-term government bonds, as the opportunity cost of the common stock equity and 3.5 percent as the risk premium,[7] Chrysler would need at least a 6 percent return on its invested capital to justify its staying in business in the long-run. Six percent on its 1956 average capital is $38,947,372. Thus, not only did Chrysler Corporation fail to earn its required return after the corporation income tax, its pre-tax return was inadequate. Here, then, is a case of a firm that is suffering an economic loss before taxes, but is liable to tax on the basis of its accounting net income. Clearly, the doctrinal view that the marginal firm pays no tax is in error. In Chrysler's case, the tax liability of $15,600,000 was levied on essential cost elements that have to be covered in the long-run if Chrysler is not to leave the automobile industry. This could be accomplished by Chrysler's reducing its investment in plant. The output of automobiles would decline, their price would increase, and Chrysler would once again become a normally profitable marginal firm.

The effect of the difference between accounting (or taxable) net income and economic profit may be conveniently illustrated by a diagram. Assume that an enterprise is just earning a normal return on its capital and that the elements of this normal return (opportunity cost and risk premium) are included in its costs. The relationship between its demand curve and cost curve may then be as in Figure 1. Curve AA is the curve of long-run average economic costs before the levying of a tax. For tax purposes, however, a normal return on invested capital is not allowed as a deduction from revenues. The curve

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[7]These estimates are taken from Weston's illustration, op. cit., pp. 303-304.

of costs deductible for tax purposes is therefore represented by BB. Since the firm, although only just profitable, will have to pay tax on its income, its new curve of economic costs becomes CC. Thus, the marginal firm reaches the point where its after-tax return on investment is not enough to justify the acceptance of the risks involved. The tax on its net income has entered into the long-run cost structure of the firm, and will cause the eventual exit of the firm from its industry.

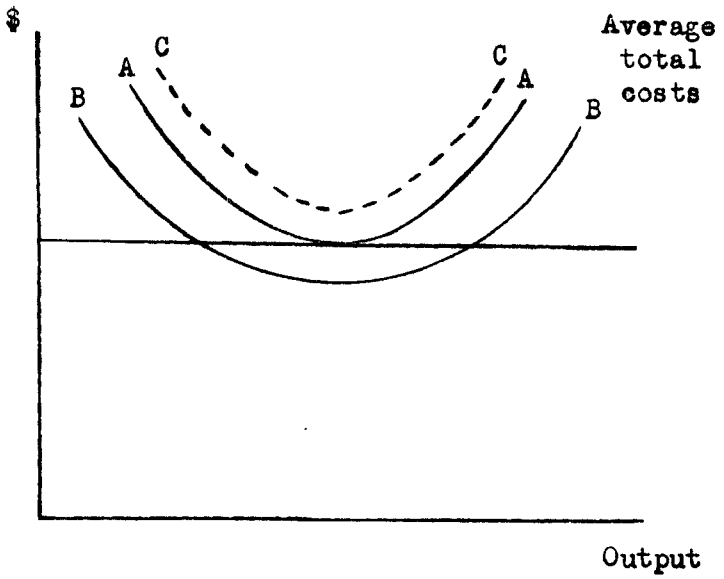



Fig. 1.--Relationship between economic costs and costs for tax purposes.

Short-Run Effects.--Some short-run shifting could also be accomplished by a reduction in investment in inventories. Total tangible assets are not represented solely by investment in plant and equipment. The assets of most manufacturing companies can be broken down into three major groups:

(1) Cash and cash equivalents (including short-term security holdings and receivables).

(2) Short-term investments, of which inventory is the major component.

(3) Long-term investment, comprising land, plant and equipment, and certain intangibles.

Thus, part of the normal return any enterprise needs to earn to justify continued investment in its industry is the return on its inventory. If this return is not forthcoming, some stocks on hand will not be replaced as they are sold. Adam Smith clearly perceived this effect of a tax on profit when he wrote:

> The traders are all careful to bring no more goods to market than what they can sell at a price sufficient to reimburse them for advancing the tax. Some of them withdraw a part of their stock from the trade, and the market is more sparingly supplied than before. The price of the goods rises, and the final payment of the tax falls on the consumer.[8]

When the long-run is defined as a period long enough to permit changes in the scale of plant and equipment, a change in investment in inventory falls into the short-run of economic theory. It may be argued, therefore, that the corporation income tax will always affect the short-run marginal cost curve of a corporation, and, hence, short-run output and price.[9]

In Marginal Projects

The analysis so far has placed the entire burden of the shifting of the corporation income tax on investment adjustments by the marginal firm. Intra-marginal firms have been assumed to accept the tax levy without it affecting their investment plans at all. But a moment's

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[8] Smith, op. cit., p. 807.

[9] A recent defense of this position has been made by E. Carey Brown, "The Corporate Income Tax in the Short-Run," National Tax Journal, VII (September, 1954), 240-241.

reflection clearly indicates that this does not present a realistic picture of the investment process.

The effect of the tax on investment in the entire corporate sector may be best understood by a simple illustration. If a tax were to be levied on the net income of only one enterprise, the funds available to the enterprise would be reduced and the standard of profitability to which new investment projects would have to conform would be raised. This would lead to a gradual transfer of funds to more profitable areas until the rate of return on the remaining investment in the taxed company were restored to its former level.

If all manufacturing corporations were taxed, while retailing and wholesaling and other companies were left untaxed, similar effects could be expected. The process of readjustment would take longer since some productive resources could be used only in manufacturing industries. Eventually, however, it is clear that aggregate investment in manufacturing corporations would be less than it would have been in the absence of the tax. Output will decline relative to demand, and the prices of manufactured products will increase sufficiently so that the rate of return on invested capital is restored to its pre-tax level. Thus, the incidence of the tax will be on the consumers of manufactured goods. This result, it should be noted, is a consequence of the effects of the tax on the supply of savings and on incentives to invest in all manufacturing corporations. The role of the marginal firm is not crucial in this analysis. All manufacturing corporations will have less funds available for investment purposes and will cease to undertake new projects whose after-tax yield is insufficient to justify the acceptance of the risks involved.

When a net income tax is levied on the whole corporate sector, an extension of the preceding line of reasoning reinforces the conclusion that total investment by the corporate sector will be less than it would have been in the absence of the tax. If the tax is not included directly in product prices, yields on committed capital may decline for a while. But the withdrawal of invested funds from the corporate sector will continue until the yields are restored to their former level. In a growing economy, it is not necessary to await a decline in investment in order to restore former rates of return. A mere cut-back in expansion plans, in the face of growing demand, will be sufficient to reduce supply relative to demand and shift the tax forward to consumers.

If investors decide to spend on consumption instead of committing their funds to foreign investments or government bonds, the additional expansion of consumer demand will further aid the shifting process. Once again, the shifting of the tax is not dependent solely on investment changes made by the marginal firm. In large multi-product companies there are always marginal projects that will not be undertaken when the prospective after-tax yield fails to meet the standard of performance required.

## Conclusion

The imposition of a tax on the net income of corporations transfers command over some goods and services from the corporate sector of the economy to the public sector. Government spending of the funds so made available to it cannot help but attract resources to public activities that would otherwise have been engaged in the production of investment goods or consumer goods for private industry.

Theory suggests, therefore, that while it is unlikely that

the corporate sector as a whole could successfully shift a tax on its net income forward by adding it directly into product prices, shifting can take place through the effect of the tax on the supply of savings and on incentives to invest. Marginal firms, for instance, will leave an industry when the tax falls on the minimum returns necessary to justify a continued acceptance of the risks involved. The ultimate departure of such a firm will normally take place only in the long-run through its failure to replace worn out or obsolete plant and equipment. Non-marginal firms will also aid in the shifting process by their cancellation of marginal projects that no longer meet the pre-determined standard of profitability.

If this reasoning is correct, the record of corporate yields on invested capital should not, ceteris paribus, exhibit the steep downward trend that one might expect to be associated with the steady increase in corporate tax rates that have characterized the last two decades. The next chapter will, therefore, present empirical evidence on rates of return on investment in the corporate sector in order to cast further light on this problem.

## CHAPTER VI

## CORPORATE EARNINGS 1926-1955

In the three decades since 1926, the normal rate of tax on corporate net income has steadily increased. From an initial rate of 1½ percent in 1926, it declined to 11 percent in 1929, but rose to a high of 24 percent during World War II and now stands at a maximum rate of 30 percent. Over and above the normal tax, surtax rates have been imposed since 1941. It is the latter rate that has advanced the most. First introduced at a rate of 7 percent in 1941, the surtax is now levied at a rate of 22 percent on all taxable income in excess of $25,000. The combined nominal tax rate for many corporations is now, therefore, 52 percent. During war years, corporate earnings were further subject to the excess profits tax.

The purpose of this chapter is to examine empirically the effect of these changes in tax rates on the earnings of stockholders, for all corporations submitting tax returns with balance sheets attached. The short-run impact of tax changes will be taken up first; then the long-run effects will be considered. First, however, it is necessary to comment briefly upon other studies in this area.

### Past Empirical Studies

In recent years, a number of articles[1] have presented data

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[1] For an excellent review of current thought and a summary of empirical investigation to date, see B. V. Ratchford and P. S. Han, "The Burden of the Corporate Income Tax," National Tax Journal, X,

relating to rates of return on capital and/or sales margins. In some cases, focus has been on margins rather than on return on capital, it being overlooked that constant margins may be accompanied by changes in the rate of return if there is a change in turnover.[2] Other cases have

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(December, 1957), 310-324.

See also George E. Lent, "Price Effects of Tax Changes," The Relationship of Prices to Economic Stability and Growth: Compendium of Papers Submitted by Panelists Appearing Before the Joint Economic Committee (Washington: U.S. Government Printing Office, 1958), pp. 482-485.

[2] M. A. Adelman, "The Corporate Income Tax in the Long Run," Journal of Political Economy, LXV (April, 1957), 152-157.

It is difficult to reconcile Adelman's choice of statistic (the percentage of corporate profits before taxes to all income originating in corporations) with his theoretical predilection that "to deny profit maximization is to deny that economics can make determinate statements about anything" (p. 153). (Cf. Paul A. Samuelson, Foundations of Economic Analysis /Cambridged, Mass.: Harvard University Press, 1949/, pp. 17-19, 21-23.) Profit maximization is not the same thing as maintaining a profit margin, unless the margin is assumed to be a consequence of profit maximizing behavior and firms are all initially in a short-run equilibrium position.

One of the most thorough studies of profit margins was made in England by W. H. Coates, who concluded that changes in profit margins over a period of years, 1912-1923, did not evidence a shifting of the tax. But the British corporation tax was, at that time, part of a general tax on all income, and operated as a form of withholding. See, Coates, op. cit., pp. 65-114.

More recent figures on profit margins in the British economy are to be found in Kaldor, op. cit., pp. 141-172. Kaldor cites figures for U. K. industry which show that despite a steady increase in tax rates from 1937 to 1950, the pre-tax profit margins of firms in monopolistic and oligopolistic industries (chemicals, steels, etc.) remained steady, showing no change over the period. Profit margins in competitive industries such as cotton, wool, textiles, and jewelry, on the other hand, increased substantially in the post-war period. But this increase, in Kaldor's opinion, is attributable not to the direct influence of rising tax rates, but is a reflection of the depressed conditions of these industries before World War II and the excess capacity then obtaining. The rise in pre-tax margins in competitive industries, however, was enough to raise the average profit margins of U. K. corporations as a whole from 9 percent in 1937 to 10.5 percent in 1948-1950, an average increase of 1.5 percent. Kaldor concludes that for all British limited liability companies, "a considerable part of the

more properly focused attention on rates of return, but the analyses have presented contradictory results so that no definitive conclusions can be drawn from them.[3] Furthermore, they have dealt with isolated segments of the entire corporate sector. The conclusions from such cases may not, therefore, be valid when applied to the sector as a whole. To be most censured is the failure of any of the past statistical studies to allow for the effect of changes in the price level on corporate yields.

In addition to studies of a purely statistical nature, there have been a number of investigations based on the opinions and policies of businessmen.[4] A National Industrial Conference Board survey in the late 1920's revealed that industry was overwhelmingly of the opinion

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burden of taxation was offset. . .by an increase in prices relative to costs." (p. 151).

[3]Eugene M. Lerner and Eldon S. Hendriksen, "Federal Taxes on Corporate Income and the Rate of Return on Investment in Manufacturing, 1927 to 1952," National Tax Journal, VIII (September, 1956), 193-202.

Morris Beck, "Ability to Shift the Corporate Income Tax: Seven Industrial Groups," National Tax Journal, III (September, 1950), 248-256. (Beck studied sales margin, asset turnover, and capital structure, but made no attempt to relate his data to tax incidence.)

John C. Clendenin, "Effect of Corporate Income Taxes on Corporate Earnings," Taxes, XXXIV (June, 1956), p. 391 et seq.

[4]Robert P. Collier, "Some Empirical Evidence of Tax Incidence," National Tax Journal, XI (March, 1958), 35-55. (Collier polled executives of the red cedar shingle industry to determine whether their reported actions agreed with the way theory says they ought to act.)

The Shifting and Effects of the Federal Corporation Income Tax (New York: National Industrial Conference Board, Inc., 1928).

Effects of Taxes Upon Corporate Policy (New York: National Industrial Conference Board, Inc., 1943).

that the tax was not shifted forward in higher prices.[5] A more recent Conference Board survey of whether the corporation income tax had a "conscious influence" on price policies indicated no change in the predominant view that the tax has no effect on prices.[6]

The Harvard Business School has also conducted a number of special studies dealing with various effects of taxation on the behavior of corporations, and based on a relatively small number of case studies and interviews.[7] While the results of these studies are of considerable interest, they do not throw any light on the problem of incidence. Moreover, it is difficult, in a subject such as this, to arrive at reliable results by way of interview methods.

In all, it appears that no major effort has yet been made at dealing with the empirical problem of corporate tax incidence. The material in this chapter is to be considered as a further effort towards filling this gap. Because of the nature of the subject, the results will not be wholly conclusive. It is believed, however, that the data presented will throw additional light on what is still a major, if not the major, blind spot in Federal tax policy.

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[5] While 128 firms indicated that, in their opinion, the tax was shifted, 449 firms believed it was not shifted. National Industrial Conference Board, The Shifting and Effects of the Federal Corporation Income Tax, Vol. I, 1928, pp. 153-157.

[6] Against 58 "Yes" replies, 162 answered "No." National Industrial Conference Board, Effects of Taxes Upon Corporate Policy, 1943, pp. 57-62, 90-100.

[7] Butters and Lintner, op. cit.; J. K. Butters, J. Lintner, and W. L. Cary, Effects of Taxation: Corporate Mergers (Boston: Graduate School of Business Administration, Harvard University, 1951); Dan Throop Smith, Effects of Taxation: Corporate Financial Policy (Boston: Graduate School of Business Administration, Harvard University, 1952).

Method and Limitations

Statistics of Income [Part II][8] offers a wealth of income and balance sheet data drawn from corporate tax returns, for the corporate sector as a whole, and with further breakdowns by industrial groups and size classifications. From this source we have obtained data on corporate net income, margins, turn-over rates, rates of return on capital and other indices of interest to incidence analysis. The behavior of these indices over time has been observed and the results used to sustain or contradict the hypotheses previously developed as to incidence. This approach is generally in line with what has been done so far, but the analysis has been carried some steps further. In particular, adjustments have been made to allow for the effects of inflation on corporate earnings, etc., and corporate capital structures have been related to incidence analysis.

The number of companies included in the sample ranges from 455,320 in 1926 to 746,962 in 1955, the last year for which the data is currently available. This increase in sample size undoubtedly has some effect on the comparability of the figures, particularly if it represents a major change in the structure of industry in the corporate sector. A test of relationships drawn from Statistics of Income against similar relationships based on Department of Commerce data, from which reciprocal sales and purchases have been eliminated, indicates, however, that no

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[8] U.S., Internal Revenue Service, Statistics of Income: Corporation Income Tax Returns [Part II] (Washington: U.S. Government Printing Office).

Separate data on individual and corporation income tax returns are published annually by the Internal Revenue Service. hereafter, Statistics of Income [Part I] will refer to data on individual income tax returns; Statistics of Income [Part II] will refer to data on corporation income tax returns.

major distortions appear in the figures based on corporation tax returns.[9]

It has been necessary to make two adjustments to the original data, the first of which materially affects the results of this study.[10] Prior to 1937, short-term interest bearing debt and reserves out of retained earnings were included in the figure for current liabilities. As these items have been reported separately since 1937, it was necessary to take out of the current liabilities for 1936 and prior years

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[9]Margins and turnovers computed from Tables 18, 20 and 29 of U.S., Department of Commerce, Office of Business Economics, National Income, 1954 Edition: A Supplement to the Survey of Current Business (Washington: U.S. Government Printing Office, 1954) exhibit the same trend, and only trivial variations in yearly percentages, as figures computed from Statistics of Income /Part II/.

[10]A failure to make the first adjustment has resulted in some thoroughly inept work in this area:

Lerner and Hendrikson, op. cit., pp. 199-202, conclude that annual rates of return on investment (stock equity + interest-bearing debt) for all manufacturing firms producing net income between 1927 and 1952 exhibit "no long-run upward trend." For their calculations through the years 1927-1936 they used an investment figure that was at least 6½ percent less than it should have been for those years. In consequence, their computed rates of return were too high. Later on in this chapter, it will be shown that rates of return on stock equity plus interest bearing debt have edged slightly upwards for all corporations over the period cited. My other investigations of manufacturing corporations also reveal a similar trend in earnings' rates.

A second case of negligence in the use of Statistics of Income data is to be found in George E. Lent, "Bond Interest Deduction and the Federal Corporation Income Tax," National Tax Journal, II (June, 1949), 131-141. In a footnote (p. 138), Lent warns his readers to use data on surplus and undivided profits reported to the Bureau of Internal Revenue "with some caution because of the failure to segregate 'capital' surplus from earned surplus." This has nothing to do, however, with the 25 percent increase in retained earnings reported by the corporate sector in 1937, which Lent finds "questionable in view of the small net amount of undistributed profits of this year." The difference between 1936 and 1937 retained earnings is explained by the faulty classification of equity reserves prior to 1937 and adjusted for in the data used in this study. Because of his failure to notice this major change in reporting procedure, Lent's conclusions must be viewed with some caution.

the portion representing short-term interest-bearing debt and equity reserves. Accordingly, for all years prior to 1937, current liabilities have been reduced by about $20 billion a year, and short-term interest-bearing debt and equity reserves have been increased by about $10 billion each.

A second adjustment was necessary because the Internal Revenue Service did not publish related income statements for corporations submitting balance sheets prior to 1931.[11] In the 1930's, however, it appears that sales and other income data for corporations submitting balance sheets represented about 97 percent of the data for the entire corporate sector. This relationship was therefore used to reconstruct income statements for corporations filing balance sheets, and based on the aggregate income statements for the corporate sector as a whole. Only the years between 1926 and 1930, inclusive, are affected by this approximation. Again, further tests against Department of Commerce data indicate that whatever errors may arise from this process are negligible and have no bearing on the final result.[12]

A further limitation of this study is that it does not permit us to separate the effects on margins, net income or rates of return which resulted from changes in tax rates from those which resulted from changes in other economic variables. This is particularly serious as changes in tax rates tend to coincide with other major changes in the economic scene. The years since 1926 have been marked by a great

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[11]There is no indication that Lerner and Hendriksen, op. cit., recognized the need to make this adjustment either. They apparently related the income statements of all corporations to the balance sheets of 97 percent of them.

[12]See note 9.

depression, one world war, the conflict in Korea, and numerous minor fluctuations in business activity. Temporary excess-profit taxes, price controls, and an excess of aggregate demand during the war periods must also be taken into account. In addition, the concept of income has changed over the period, especially the use of accelerated amortization during the war years, and more recently in peace-time. Depreciation charges as a percentage of fixed assets seem, however, to have remained fairly constant in the years of peace. The rate of depreciation recorded for tax purposes has increased slightly since the 1930's, but this is to be expected in view of the rapid rate of obsolescence of all goods today. On the whole, the relative constancy of depreciation charges in relation to fixed assets suggests that changes in the depreciation policies of firms offset one another and exercised no material effect on the trend of rates of return.

The data on net income, margins, turnover, and rates of return provided by Statistics of Income /Part II/ tend to be distorted because the substantial increase in the price level, since 1940, has had differential effects on various items in the financial statements. For comparative purposes, certain fairly rough adjustments have been made to estimate the variables under consideration in terms of current dollars. The incidence of the corporation income tax in the long-run will thus be considered on this basis as well as in historic dollars.[13]

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[13] The word historic will be used in this study when reference is made to data obtained from financial statements in which all items are expressed in the dollars of the year in which they were originally entered. Since the purchasing power of the dollar has been most unstable over the period under review, financial statements that have not been adjusted for changes in the price level contain a heterogeneous array of dollars.

The word current will be used when reference is made to data

Incidence Analysis--Short-Run

The theory developed in earlier chapters suggests that if the rate of corporation income tax is changed, its immediate incidence will fall upon the earnings of stockholders. If, for example, tax rates increase, the rate of return on equity capital should immediately decline. In the converse case, a reduction in tax rates should serve to increase yields. Other things may, of course, change so as to offset the effect of a change in tax rates. But within the space of one year it is unlikely that capacity would be adjusted sufficiently quickly to enable successful shifting to take place. Furthermore, it would not normally be possible for corporations to introduce cost-saving innovations to reduce the impact of taxes on stockholder earnings during short-periods of time.

Shifting demand is the major force that may be expected to operate on net income and rates of return in any one year. The effect of this influence is difficult to isolate, and corrections to neutralize the effect cannot easily be made. Any conclusions about the incidence of the corporation income tax are, therefore, merely tentative and remain subject to correction in the face of refined econometric techniques.

To study the question of the short-run incidence of the corporation income tax, we test the hypothesis that there is no shifting in the short-run. Thus, in a year in which the effective tax rate[14] increases, the rate of return on stockholder equity must decline to be

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obtained from financial statements in which all items have been adjusted to the dollars prevailing at the time the statements were prepared.

[14] The effective tax rate is defined as the ratio of total federal taxes on earnings of stockholders to stockholder earnings before tax for all corporations filing tax returns with balance sheets attached.

consistent with the hypothesis. Should yields remain constant or increase, when the effective tax rate increases, this will be taken as evidence inconsistent with the hypothesis. It must be emphasized, however, that such evidence does not offer conclusive proof of short-run shifting. The rate of return may remain constant or increase for many other reasons entirely unrelated to the change in tax rates. Rates of return have, for example, been affected by changes in the price-level throughout the period under review. This aspect of the changing economic scene is ignored in the analysis of short-run incidence, for the price level has rarely changed enough in one year to warrant its being considered as an item of major consequence in periods of only twelve months.

Table 6 shows the annual effective income tax rate for all corporations reporting net income or losses, and submitting balance sheets as well as income statements in support of their tax returns:

TABLE 6

THE EFFECTIVE INCOME TAX RATE FOR ALL CORPORATIONS
1926-1955

| Year | Effective Tax Rate | Year | Effective Tax Rate |
|---|---|---|---|
| 1926 | 12.91% | 1941 | 42.56% |
| 1927 | 13.08 | 1942 | 52.15 |
| 1928 | 10.96 | 1943 | 56.39 |
| 1929 | 9.99 | 1944 | 55.82 |
| 1930 | 15.27 | 1945 | 50.31 |
| 1931 | 30.71 | 1946 | 34.81 |
| 1932 | 6.88 | 1947 | 34.57 |
| 1933 | 27.89 | 1948 | 34.36 |
| 1934 | 19.34 | 1949 | 34.45 |
| 1935 | 13.09 | 1950 | 40.36 |
| 1936 | 14.98 | 1951 | 50.36 |
| 1937 | 16.07 | 1952 | 49.35 |
| 1938 | 20.48 | 1953 | 49.75 |
| 1939 | 19.42 | 1954 | 45.68 |
| 1940 | 41.86 | 1955 | 45.34 |

Source:

Based on U.S., Internal Revenue Service, Statistics of Income [Part II], 1926-1955. Computations as indicated in the text.

This table clearly reveals that effective tax rates in the 1940's and 1950's have been much higher than they were in the late 1920's and through the whole decade of the 1930's. Until 1939, a normal tax only was levied on corporate net income. But 1940 saw the start of the tax on excess profits. Then in March 1941, the excess profits tax was increased and a surtax was enacted. The marginal rates of surtax were increased in October 1942, and the excess profits tax was also raised. In consequence, the effective rate of tax on net income computed in historic dollars rose to over 55 percent. When, on December 31, 1945, the excess profits tax was repealed and the combined normal and surtax rate was lowered to a maximum of 38 percent, the effective tax rate declined from 50.31 percent in 1945 to 34.81 percent in 1946. The effective tax rate ultimately fell to a low of 34.36 percent in 1948. But, with the outbreak of war in Korea, the normal and surtax rates were raised, and the excess profits tax was reimposed in July 1950. Once more, the effective tax rate, based on income in current dollars, soared to the 50 percent level and has remained there ever since. Although the excess profits tax was repealed at the end of the Korean War, corporations have continued to be taxed at a normal rate of 30 percent, and a surtax rate of 22 percent on taxable net income in excess of $25,000. For the larger corporations, it is reasonable to assume that the federal government now takes 52 cents out of every dollar of taxable net income. This explains why the effective rate of tax in 1954 and 1955, both years in which no tax on excess profits was levied, remained at almost the 52 percent level in current dollars.

The pattern of effective tax rates throughout most of the 1930's is extremely variable and is at a level far in excess of the normal rate

of tax, and the undistributed profits tax of 1936 and 1937, then in force. This discrepancy between the two measures of tax liability arises from the fact that the figures relate to all corporations, whether they reported net income or losses. Since, over the decade of the 1930's, companies suffering losses outnumbered those reporting profits by almost 2 to 1, there is an obvious bias in the effective tax rate. The net income obtained by merging the income statements of both groups of companies has yielded a much higher effective rate of tax than would be obtained by relating the aggregate annual tax cost to the pre-tax net income of only those companies reporting net income. However, the relationship between profitable and unprofitable companies remained fairly stable from 1930 to 1939 so that the change in annual effective tax rates, with which we are concerned, has not been materially distorted. The one exception is 1932, when only 82,646 companies reported a net income for tax purposes and 369,238 companies reported operating losses.[15] For the rest of this study, despite the problem peculiar to the 1930's, it is considered desirable to deal with the combined data for both profit-reporting and loss-reporting companies. In this way, the entire corporate sector can be analyzed rather than one particular segment of it only.

Table 7 records the annual nominal tax rate[16] levied on corporate net income, the year to year change in the effective tax rate, and the corresponding yearly change in the after-tax rate of return on average stock equity for the years 1927-1955 inclusive. All calculations are

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[15] U.S., Internal Revenue Service, Statistics of Income /Part II/, 1939, p. 46.

[16] Normal and surtax rates.

TABLE 7

COMPARISON OF NOMINAL TAX RATES AND ANNUAL CHANGES IN EFFECTIVE TAX RATES WITH ANNUAL CHANGES IN AFTER-TAX YIELD ON AVERAGE STOCK EQUITY FOR ALL CORPORATIONS SUBMITTING TAX RETURNS WITH BALANCE SHEETS ATTACHED 1927-1955

| Year | Normal and Surtax Rate (1) | Change in Effective Tax Rate[a] (2) | Change in Yield[b] (3) | C or N (4) |
|---|---|---|---|---|
| 1927 | 13.50% | + 0.17% | -0.68% | C |
| 1928 | 12.00 | - 2.12 | +0.92 | C |
| 1929 | 11.00 | - 0.97 | +0.14 | C |
| 1930 | 12.00 | + 5.28 | -4.16 | C |
| 1931 | 12.00 | +15.44 | -1.71 | C |
| 1932 | 13.75 | -23.83 | +2.00 | C |
| 1933 | 13.75 | +21.01 | -1.80 | C |
| 1934 | 13.75 | - 8.55 | +0.95 | C |
| 1935 | 13.75 | - 6.25 | +1.46 | C |
| 1936 | 15.00 | + 1.89 | +1.25 | N |
| 1937 | 15.00 | + 1.09 | +0.18 | N |
| 1938 | 19.00 | + 4.41 | -2.23 | C |
| 1939 | 19.00 | - 1.06 | +2.05 | C |
| 1940 | 24.00 | +12.44 | +0.63 | N |
| 1941 | 31.00 | + 0.70 | +1.75 | N |
| 1942 | 40.00 | + 9.59 | +1.08 | N |
| 1943 | 40.00 | + 4.24 | +0.68 | N |
| 1944 | 40.00 | - 0.57 | -0.66 | N |
| 1945 | 40.00 | - 5.51 | -1.00 | N |
| 1946 | 38.00 | -15.50 | +3.34 | C |
| 1947 | 38.00 | - 0.24 | +1.62 | C |
| 1948 | 38.00 | - 0.21 | +0.02 | C |
| 1949 | 38.00 | + 0.09 | -2.59 | C |
| 1950 | 42.00 | + 5.91 | +2.46 | N |
| 1951 | 50.75 | +10.00 | -2.41 | C |
| 1952 | 52.00 | - 1.01 | -1.44 | N |
| 1953 | 52.00 | + 0.40 | -0.21 | C |
| 1954 | 52.00 | - 4.07 | -0.47 | N |
| 1955 | 52.00 | - 0.34 | +1.66 | C |

Source:

Based on U.S., Internal Revenue Service, Statistics of Income [Part II], 1926-1955.

[a] $\frac{\text{Income tax cost}}{\text{Earnings of stockholders (before tax)}}$

[b] $\frac{\text{Earnings of stockholders}}{\text{Average stock equity (Common \& Preferred Stock)}}$

Average stock equity is the simple average of stock equity at the beginning of the year and at the end of the year.

based on data collected from Statistics of Income [Part II], and no adjustment has been made for changes in the price level. Column 4 of the table records whether the relationship between the annual change in the effective tax rate and the annual change in the rate of return, as defined, is consistent with the hypothesis that no shifting of the tax takes place in the short-run. Where, for example, the effective tax rate increased and the yield went down, a "C" is placed in column 4 to indicate a reaction that conforms to tax theory. Whenever yield increases or remains constant in a year in which the effective tax rate is increased, an "N" is placed in column 4 to signify a reaction that is not consistent with the hypothesis.

According to the record of the twenty-nine year period, the relationship between the change in the effective tax rate and the change in the rate of return on average stock equity was consistent with the hypothesis that the immediate impact of the corporation income tax falls upon the stockholders 18 times. The facts are inconsistent with the hypothesis in 11 of the 29 years.

In assessing this result, it should be noted that short-run shifting occurred primarily during the war years 1940-1945, and 1950-1952. These were years in which unemployment rates fell sharply and aggregate demand was constantly in excess of aggregate supply. Moreover, they were years in which many companies were producing goods for the government on a cost-plus basis. Since the corporation income tax had a bearing on the margin allowed, it is not surprising that changes in rates of return were positively correlated with changes in the effective tax rate.

If the war years are excluded as not being indicative of the

normal case, the hypothesis of no short-run shifting is supported in 17 years and has to be rejected on the basis of the record in 3 of them. Two of the three remaining years were 1936 and 1937. It was during this period that the unwise experiment of levying a tax on undistributed corporate profits was attempted. These years should also be excluded as not representative of the typical case.

On the basis of the remaining eighteen years, the initial impact of the corporation income tax appears to have fallen upon the stockholders in every year but one. While the evidence is not conclusive, experience so far indicates that in fact as well as in theory, tax increases and tax reductions are not passed on in the short-run; at least, when the short-run is defined as one year. Theory suggests, however, that forward shifting may take place over a longer period of time as a consequence of the effect of the tax on the supply of savings and on incentives to invest. We now turn, therefore, to an analysis of the rate of return on average stock equity over the entire 30 year period.

## Incidence Analysis--Long-Run

### Rate of Return on Stock Equity

Historic Dollars.--Figure 2 presents the annual rates of return, before and after tax, on average stock equity for all corporations filing tax returns with balance sheets attached for the period 1926-1955 inclusive. Three characteristics of this series call for comment. The strong cyclical pattern is the first. Distinct troughs are evident in 1931, 1933, and 1938 in the midst of a decade that witnessed an over-all decline in the profitability of investment. Further dips occurred in 1945, 1949 and 1954. Of greater importance is the absence of any

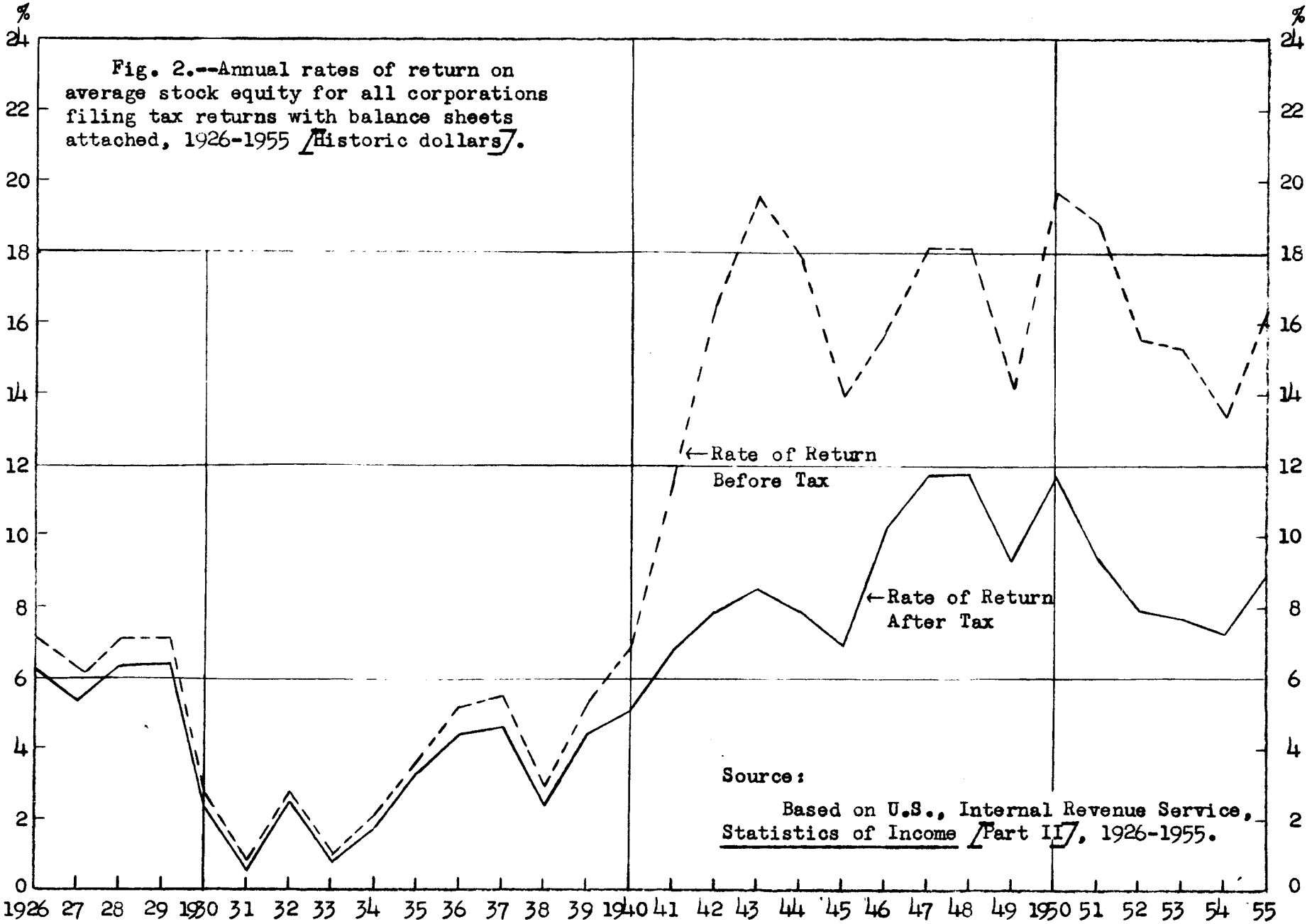



Fig. 2.--Annual rates of return on average stock equity for all corporations filing tax returns with balance sheets attached, 1926-1955 [Historic dollars].

downward trend over the period as a whole. After-tax yields, in historic dollars, averaged 6.24 percent in 1926 and about 7.30 percent in 1954. During a period in which effective tax rates rose from 12.91 percent in 1926 to a high of 56.39 percent in 1943 and finally settled around the 50 percent mark in the early 1950's, the yield on average stock equity edged upwards slightly. This is so even though there is no evidence of tax shifting in the short-run.

The third, and most important, feature of the series is the enormous increase in the before tax rate of return since 1940. An increase from 6.87 percent in 1940 to a high of 19.68 percent in 1950, when considered in conjunction with the relatively moderate increase in the yield after tax, raises the question of which of the two yields might be considered as "normal," had there been no tax. The past economic history of movements in the rate of interest, and the share of national income going to wages, profits and rents suggests that the lesser increase in yield makes more sense in terms of the general growth of the economy. The record of the economy up to 1940 gives no cause to believe that in the prosperous decade and a half between 1940 and 1955 the profitability of investment in corporate equity capital would triple in fifteen years. It is reasonable to conclude, therefore, on the basis of corporate yields in historic dollars, that the increase in the yield before tax is a consequence of the corporation income tax itself. This suggests that long-run shifting has taken place.

Current Dollars.--In Figure 3, the pattern of yields on average corporate stock equity from 1935-1955 is presented after adjustment for the impact of inflation.[17] Yields between 1926 and 1934 are also shown,

[17]The technique of adjustment is explained in full in the appendix.

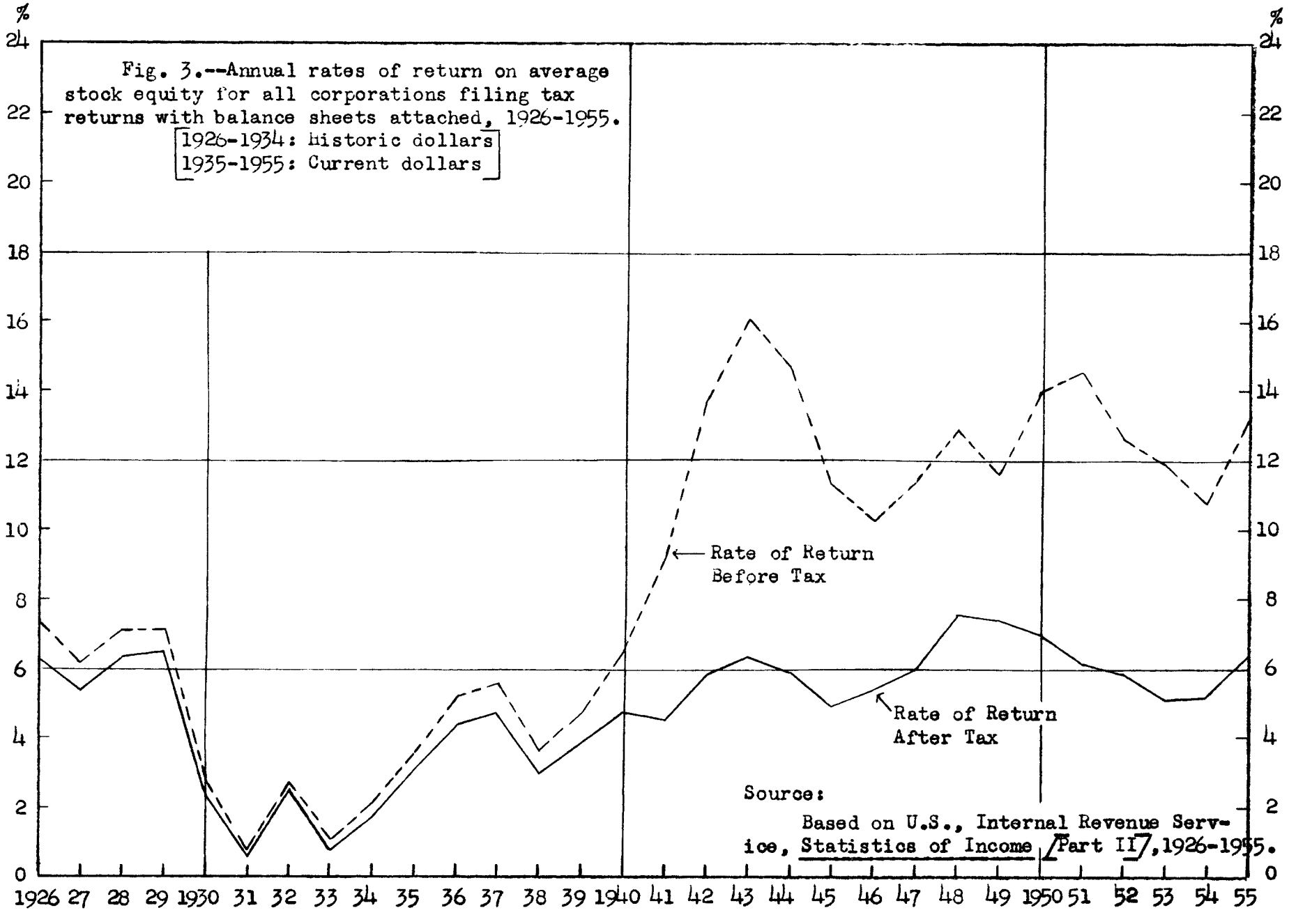



Fig. 3.--Annual rates of return on average stock equity for all corporations filing tax returns with balance sheets attached, 1926-1955.
[1926-1934: Historic dollars
1935-1955: Current dollars]

Source:
Based on U.S., Internal Revenue Service, Statistics of Income [Part II], 1926-1955.

but have not been so adjusted. A test during these years (1926-34) indicates that correcting for the changing value of the dollar would not change the figures in any material particular. Accordingly, the series has been plotted on the basis of historic dollars for the years 1926-1934; between 1935 and 1955 the annual yields have been computed from figures converted to dollars of the purchasing power prevailing in each year.

While both the before tax and after tax series have been slightly flattened out by the adjustment, the over-all picture has not changed. Yields before tax, in current dollars, have increased by far more than one would normally expect in the absence of the tax and in the light of the rate of growth of the economy. And this increase in pre-tax yields has been enough to preserve yields after tax at about the same level as they were in the second half of the 1920's. Some increase in yields may have been expected in view of the improvements in the quality of capital.[18] But an increase in the amount of capital relative to other factors would have the effect of decreasing the rate. These two forces have apparently offset each other over the period under review, so that adjusted rates of return exhibit an almost level trend.

It thus seems clear that long-run shifting of the corporation income tax has taken place either forward to the consumer in the form of prices higher than they would have been in the absence of the tax or backward to wage-earners and suppliers. There remains to be answered the question of how the shift has occurred and in which direction. A

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[18]According to a recent estimate, output per unit of tangible capital rose by about 1 percent per annum from 1889-1953. See Solomon Fabricant, Basic Facts on Productivity Change ("Occasional Paper No. 63"; New York: National Bureau of Economic Research, Inc., 1959), pp. 5-8.

tax induced restraint on investment such that the pre-tax rate of return is tripled, and the after-tax yield is restored to its former pre-tax level, would require a backward shift along the aggregate investment demand schedule. In the absence of technological improvement shifting the schedule, business investment in the economy would thus decrease. The record of consistent growth in the economy since 1940 suggests that other forces, bearing on the problem of tax incidence, have also been at work. To explore this matter, the component elements of the rate of return need to be investigated.

Margin and Turnover

The rate of return on average stock equity may be expressed as the product of two things: margin (the ratio of the earnings of stockholders to sales) and turnover (the ratio of sales to average stock equity). Symbolically, the relationship may be expressed as follows:

$$\frac{NI - i}{SE} = \frac{S}{SE} \times \frac{NI - i}{S}$$

where NI refers to net income after tax

i refers to interest charges

SE refers to average stock equity

S refers to sales and gross receipts from operations.

Margin.--If sales margins are taken to be the incidia of tax shifting, and if turnover of capital is assumed to be constant, margins before tax must increase and post-tax margins must either remain constant or increase for the conclusion to be drawn that some shifting has taken place. Given an unchanged capital turnover, falling after-tax margins on sales would give rise to lower yields. Should the decline in yields be equal to the impingement of the tax on profits, it would

be clear that there had been no shifting.

The sales' margin series, before and after tax, are plotted on a historic dollar basis in Figure 4, together with the after-tax rate of return on investment. Noteworthy in this graph is the close relationship between the cyclical swings in rates of return and margins before tax. Both series hit troughs in 1931, 1933, 1938, 1949, and 1954; both reached peaks in 1929, 1932, 1943, 1947 and 1950. Margins after tax portray much the same cyclical picture, but the amplitude of the swings has been considerably dampened since 1939.

A second important feature of the profit margin series is the slight long-run downward trend in both series since 1926. This stands in stark contrast to the slight upward trend in post-tax rates of return over the period. Margins, before tax, were consistently above 8 percent between 1926 and 1930; since 1952 they have consistently been below 8 percent. Margins after tax reveal a greater rate of decline, having varied between 7 and 9 percent between 1926 and 1930, and ranging between 4 and 6 percent from 1939 to 1955.

The slight long-run decline in margins before tax and the sharp downward trend in margins after tax does not appear to be compatible with the shifting hypothesis; for, as argued earlier, margins before tax would have to increase for shifting to take place. On the other hand, the question arises as to which of the two margin series would we have found in the absence of a tax on corporate income? Would margins have remained at the 7 or 8 percent level if no tax were levied? or would they, in fact, have been lowered, through the pressure of rivalry among sellers for the patronage of buyers, to around 4 or 5 percent of sales? This is a species of the genus, "unanswerable questions in

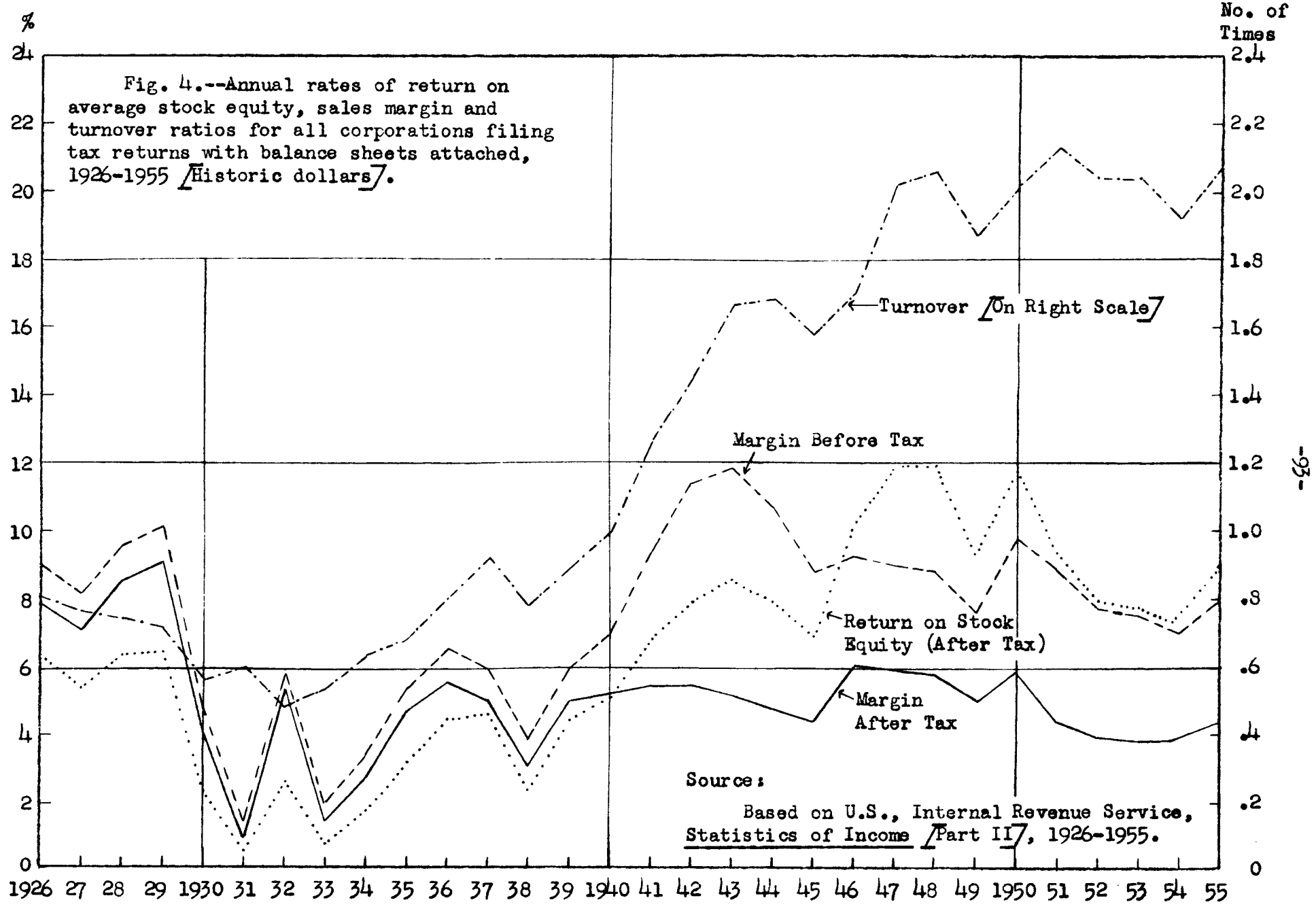



Fig. 4.--Annual rates of return on average stock equity, sales margin and turnover ratios for all corporations filing tax returns with balance sheets attached, 1926-1955 [Historic dollars].

economics," because it is impossible to hold the relevant variable constant and test the series under alternative conditions. Hazarding a guess, however, I am inclined to the view that if there were no corporation income tax, normal margins would be closer to the present post-tax than pre-tax level. If this guess is correct, then consumers are paying higher prices for products (or wages are lower) than they would be were there no tax on corporate income.

Conversion of the data to current dollars, plotted in Figure 5, serves only to strengthen, not modify, this hypothesis. The cyclical pattern of margins, after adjusting for inflation, is less violent than the comparable series in historic dollars. The downward trend is still more marked with pre-tax margins averaging about 7 percent of sales since 1945, and post-tax margins about 3.5 percent. In all, the history of average profit margins between 1926 and 1955 indicates that the margin required to cover both taxes and profits is higher than it would have been had the margin had to cover profits alone. From this it follows that prices are higher than they would have been and that tax shifting has occurred. But if it is agreed that profit margins, in the absence of a corporation income tax, would now average about half their rate in the late 1920's, yields would not have risen were it not for the phenomenal increase in the other component of the return on investment identity, turnover of stock equity. Otherwise, yields would have been cut in half, and this has not taken place. An analysis of turnover is, therefore, of greatest significance in answering the question, why has the corporation income tax not lowered yields in the long-run?

Turnover.--As Figure 4 indicates, the turnover ratio has increased tremendously since 1938. Between 1938 and 1944, it more than

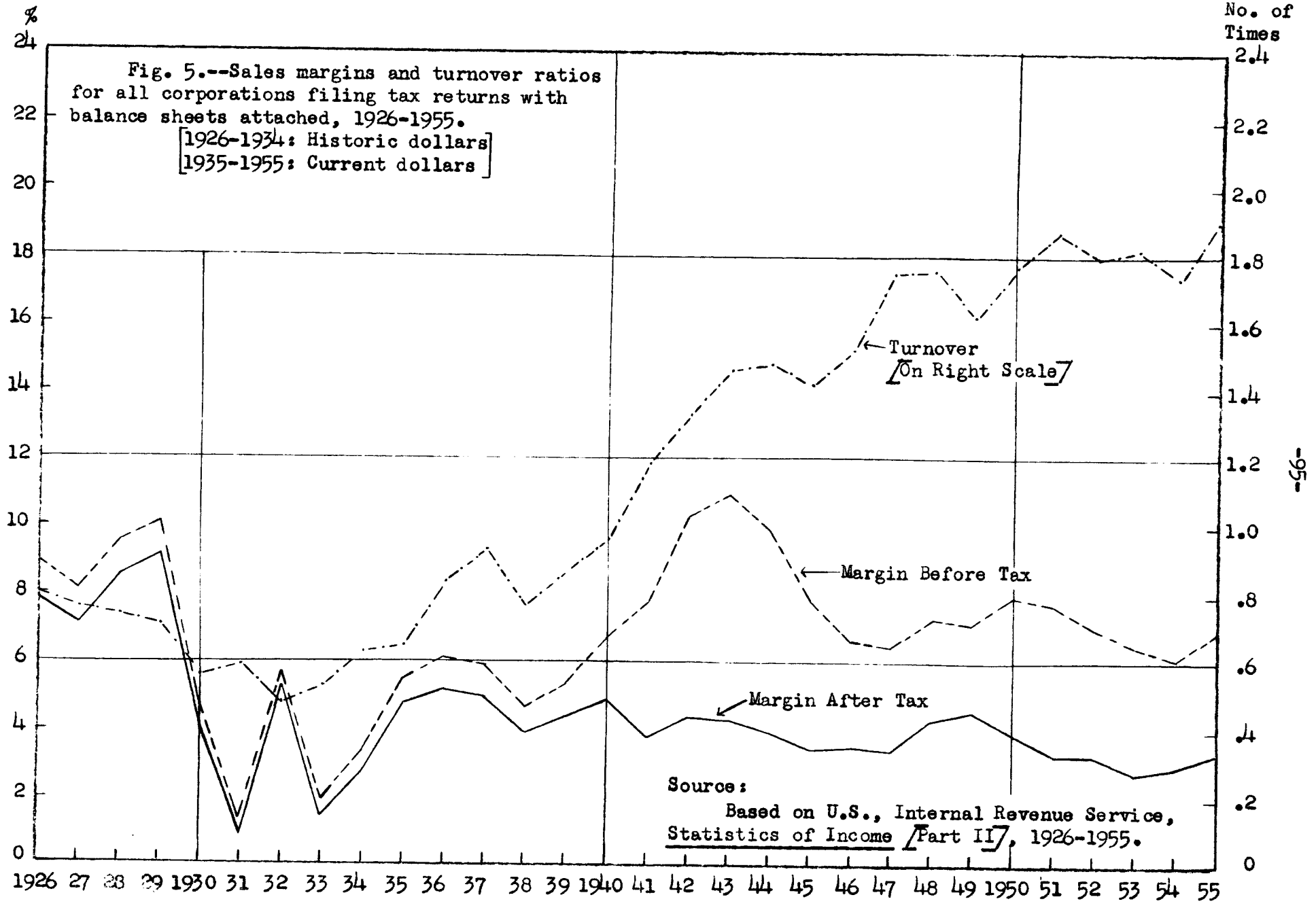



Fig. 5.--Sales margins and turnover ratios for all corporations filing tax returns with balance sheets attached, 1926-1955.
[1926-1934: Historic dollars]
[1935-1955: Current dollars]

doubled: from .78 times to 1.68 times per annum. It has since increased by 30 percent of its 1944 figure, to 2.07 times per annum in 1955, with a peak of 2.13 times in 1951.[19]

There have been three major forces at work to bring about this increase in the turnover of equity capital:[20] inflation; the full utilization of capacity during and since World War II; and improvements in the productivity of capital stemming from technological innovations. The first, inflation, has the effect, in any one year, of matching against stockholder investment, in historic dollars, sales of that year in cheaper dollars. The impact of inflation on the turnover ratio has been allowed for in the series plotted in Figure 5, where both sales and equity capital in the dollars prevailing in each year were used in the calculations. Surprisingly, the adjustment for inflation only slightly dampens the upward movement of the series since 1935. In adjusted dollars, the turnover of stock equity has risen from .77 times in 1938 to 1.91 times in 1955. The accounting distortion associated with inflation is, thus, of little importance in explaining the increase in the productivity of equity capital.

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[19]It is interesting to observe that a tendency towards increasing turnover of assets has also characterized the British economy since 1938. Kaldor (op. cit., pp. 156-157) cites figures which show the increase in gross fixed capital in the U. K. by the early 1950's, over pre-war years, to have been 25 percent. Industrial production in 1951-53 was 55 percent greater than in 1938. Turnover of gross capital in Britain therefore increased by about 25 percent. This increase (most of which Kaldor attributes to the high degree of utilization of capacity under full employment) when taken in conjunction with the 15 percent rise in sales margins (see p. 73 ) increased yields before tax by 40 percent. As a result, despite an increase in taxes of 66 2/3 percent (from 30 percent to 50 percent), yields after taxes were held almost constant.

[20]A fourth, the method of financing, will be discussed in the next chapter.

The increased use of industrial capacity offers a partial explanation for the increase in capital turnover from the depressed lows of the 1930's. But it is significant that turnover declined in the 1930's relatively far less than margins. Turnover of capital does not appear to be as closely related as margins to the volume of aggregate economic activity. Moreover, the late 1920's were periods of sustained high levels of employment, and the turnover of stock equity in that period was never higher than .8 times a year.

The major explanation for the preservation of after-tax rates of return on investment in a period of rising tax rates and declining after tax sales margins appears to be that the productivity of capital has increased enough to offset the effects of the tax on yields.

To explain the underlying causes of the rise in output per unit of capital is a complex task since there have been so many changes in the economy since 1926. But some insight is provided by the turnover ratios of inventories and plant and equipment on the assets side of the balance sheet. Table 8 presents the annual figures for these items. Ratios in historic dollars are shown for the period 1926-1955; similar data in current dollars are also shown for the years 1935-1955.

Inventory turnover has risen steadily since 1926. On a historic dollar basis, stock-turn in 1955 was 1.81 times the stock-turn in 1926. In current dollars, the recorded increase in turnover is slightly greater because such a large part of the increase in investment in inventory since 1940 reflects the impact of inflation. After allowing for the inventory valuation adjustment, as reported by the Department of Commerce,[21] the turnover of average inventories was 1.83 times

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[21] 1935-1951--U.S., Department of Commerce, Office of Business

TABLE 8

THE RATIO OF SALES TO AVERAGE INVESTMENT IN INVENTORIES AND IN PLANT AND EQUIPMENT FOR ALL CORPORATIONS FILING TAX RETURNS WITH BALANCE SHEETS ATTACHED, 1926-1955

| Year | Turnover of Inventories | | Turnover of Plant & Equipment | |
|---|---|---|---|---|
| | Historic $'s | Current $'s | Historic $'s | Current $'s |
| 1926 | 4.92 | | 1.06 | |
| 1927 | 4.94 | | 1.02 | |
| 1928 | 5.22 | | 1.02 | |
| 1929 | 5.37 | | 1.01 | |
| 1930 | 4.67 | | .80 | |
| 1931 | 5.60 | | .81 | |
| 1932 | 5.18 | | .64 | |
| 1933 | 5.78 | | .70 | |
| 1934 | 6.51 | | .87 | |
| 1935 | 6.41 | 6.43 | .91 | 1.00 |
| 1936 | 7.49 | 7.72 | 1.18 | 1.28 |
| 1937 | 7.45 | 7.62 | 1.32 | 1.35 |
| 1938 | 6.22 | 6.40 | 1.09 | 1.06 |
| 1939 | 7.03 | 7.39 | 1.16 | 1.13 |
| 1940 | 7.34 | 7.53 | 1.30 | 1.24 |
| 1941 | 7.94 | 8.44 | 1.76 | 1.62 |
| 1942 | 7.90 | 8.50 | 2.05 | 1,80 |
| 1943 | 8.76 | 9.09 | 2.40 | 2.00 |
| 1944 | 9.29 | 9.48 | 2.58 | 2.13 |
| 1945 | 9.19 | 9.34 | 2.58 | 2.17 |
| 1946 | 8.60 | 9.48 | 2.82 | 2.37 |
| 1947 | 8.60 | 9.97 | 3.28 | 2.62 |
| 1948 | 8.80 | 9.68 | 3.45 | 2.69 |
| 1949 | 8.32 | 8.34 | 2.98 | 2.37 |
| 1950 | 8.76 | 9.03 | 3.10 | 2.56 |
| 1951 | 8.31 | 8.78 | 3.24 | 2.68 |
| 1952 | 7.85 | 7.86 | 3.06 | 2.54 |
| 1953 | 8.13 | 8.13 | 3.02 | 2.57 |
| 1954 | 7.99 | 8.07 | 2.82 | 2.46 |
| 1955 | 8.91 | 8.98 | 3.07 | 2.73 |

Source:

Based on U.S., Internal Revenue Service, Statistics of Income /Part II/, 1926-1955.

greater in 1955 than it was in 1926; it was almost one and a half times as great in 1955 as it was in 1935.

The improvement in the turnover of plant and equipment has been even greater than that of inventories. Whereas in 1926, in historic dollars, each dollar invested in plant and equipment generated $1.06 of operating revenue, each dollar similarly invested in 1955 generated revenue of $3.07. In other words, investment in plant and equipment is turned over 2.90 times faster now than it was in the prosperous, high employment years of the second-half of the 1920's. The turnover of plant and equipment in 1955, in the dollars prevailing in that year, was 2.73 times, slightly less than the corresponding figure in historic dollars. This modest difference is accounted for by the addition to invested capital when the accounts are formulated in terms of dollars of the same current purchasing power. In any event, the figures mean, in real terms, that average investment in net plant and equipment was turned over 2.57 times faster in 1955 than it was in 1926, and 2.73 times faster than in 1935.

What factors were responsible for this tremendous increase in the utilization of real assets? A complete answer to this question would fill a separate treatise. We may note, however, that the reduction in investment in inventory in relation to sales is probably connected with improvements in communication, transportation, marketing, and management in the last thirty years. Orders may be placed and

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Economics, National Income, 1954 Edition: A Supplement to the Survey of Current Business, Table 23, pp. 194-195.

1952-1955--U.S., Department of Commerce, Office of Business Economics, Survey of Current Business, Vol. 36 (July, 1956), (Washington: U.S. Government Printing Office, 1956), Table 23, p. 18.

delivery of goods secured more quickly today than they were in the 1920's.[22] Manufacturers, wholesalers and retailers now find that they are able to fill customer orders from a relatively smaller stock of goods than heretofore. Also a factor is the trend towards services, in which no investment in inventory is required.

The increase in turnover of plant and equipment is a reflection of the tremendous technological developments that have taken place since 1939. Technological improvements, in turn, bear eloquent testimony to the competitiveness of business enterprise, the need to develop new ways to produce old products and to develop new products in order to keep up with the progress of one's rivals.

Technological improvements and changing marketing techniques cannot, alone, explain the decline in the ratio of capital to output that has taken place. The American market also had to alter radically to absorb the increased output of goods. A recognition of the economies of mass production led to the need for extensive and intensive market cultivation. Rising incomes made it possible for consumers to buy goods that were originally classified as luxuries, but eventually came to be regarded as basic essentials of life. At the same time as incomes were increasing, business came to recognize that maintenance of high profit margins was less important than a high rate of utilization of assets.

The year 1914 is reported to mark the change in the trend of

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[22]Another factor that has been suggested to me, but is perhaps not too important, is the habit of municipalities to include inventories in their definition of property for local tax purposes. To avoid this imposition, manufacturers have tended to schedule the arrival of raw materials and supplies to coincide with the immediate need for them on the assembly line.

the ratio of capital to output. A study prepared by the National Bureau of Economic Research[23] shows that between 1870 and 1913, the ratio of capital to output increased; since 1914, however, it has been decreasing. Creamer's explanation for this fortuitous reversal of trend, at the time the corporation income tax was first introduced, is that between 1870 and 1914 capital tended to replace labor; since 1914, the emphasis has been more on replacing existing capital with more efficient capital.[24] This is not, to my mind, a sufficient explanation of the trend since 1914. It is well known that the services of labor have become increasingly expensive relative to those of tangible capital so that the incentive for enterprisers to substitute capital for labor has been, and still is, strong. A more plausible explanation seems to be that technological advance and other means to improve efficiency have led to savings of capital as well as of labor, and have offset the normal economic tendency towards diminishing returns as the supply of one factor increases relative to the supply of all other factors.

Whatever the explanation, factual evidence of a trend that supports the picture based on Statistics of Income [Part II] data is contained in Table 9 adapted from Creamer's study. When capital is subdivided into fixed capital (land, buildings and equipment) and working capital (cash, accounts receivable, inventories, and miscellaneous assets), the trend movements for all manufacturing are similar, as shown in Table 10.

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[23] Daniel Creamer, Capital and Output Trends in Manufacturing Industries, 1880-1948 ("Occasional Paper No. 41"; New York: National Bureau of Economic Research, Inc., 1954).

[24] Ibid., pp. 76-77.

TABLE 9

RATIO OF CAPITAL TO OUTPUT IN MANUFACTURING INDUSTRIES, 1919-1948

| Benchmark Years | Ratio of | | |
|---|---|---|---|
| | Capital (Book Value) to Output (in current prices) | Capital (in 1929 prices) to Output (in 1929 prices) | Capital (in current prices) to Output (in current prices) |
| 1919 | .688 | 1.022 | .873 |
| 1929 | .829 | .885 | .867 |
| 1937 | .744 | .741 | .787 |
| 1948 | .532 | .648 | .621 |

Source:

Adapted from Creamer, op. cit., p. 43.

TABLE 10

RATIO OF WORKING CAPITAL AND FIXED CAPITAL TO OUTPUT IN MANUFACTURING INDUSTRIES, 1929-1951

| Benchmark Years | Ratio of | |
|---|---|---|
| | Working Capital to Output | Fixed Capital to Output |
| 1929 | .452 | .433 |
| 1937 | .395 | .346 |
| 1948 | .340 | .308 |
| 1950 | -- | .327 |
| 1951 | -- | .321 |

Source:

Adapted from Creamer, op. cit., p. 49.

## Conclusion

The empirical evidence presented in this chapter supports the theory of tax incidence developed earlier. There appears to be no indication that the corporation tax is shifted in the short-run or that its immediate incidence falls on any group but stockholders. The overall stability of yield on stock equity in a period of rising tax rates leads to the conclusion, however, that some long-run shifting has occurred.

An interesting long-run comparison is between the highly prosperous pre-depression years in the second-half of the 1920's and the generally prosperous years in the first-half of the 1950's. Over this period, the corporation tax rose by 40 percentage points, yet the post-tax rate of return on equity capital remained almost unchanged. It averaged around 6.24 percent from 1926 to 1929, and around 6 percent, on a current dollar basis, in the later period.

Since return on invested capital is equal to the product of margin and turnover, the behavior of these two variables over the same period is also of interest. In the face of a tax on corporate income, yield may be restored either by a related increase in margin with turnover constant, or by an independent increase in turnover with margin remaining at its post-tax level, or by some combination of changes between these two extremes.

Considering again the changes for all corporations from the late 1920's to the early 1950's, we find that the increase in turnover was so sharp (from.8 times in 1926 to 1.91 times in 1955) that it fully compensated for the decline in the after-tax margin, which was more than halved over the period (from 7.8 percent in 1926 to 3.3 percent in

1955). The stability of the rate of return after tax was thus entirely due to a rise in turnover which cannot be related causally to the tax. This independent increase in turnover has been, however, a fortuitous event which rendered permissible the decline in margin despite the 40 percent increase in the nominal tax rate over the period. At the same time, it is possible that the decline in margin, assuming the doubling of turnover, would have been greater had there not been a concurrent increase in tax rates. In this respect, it may be concluded that the corporation tax has prevented some of the gains in productivity from being passed on to consumers in lower prices. These gains have instead been siphoned off, inter alia, by the federal government, thereby precluding price reductions which, through the pressure of competition, might have been forthcoming.

The crucial role of turnover is also of interest for the light it throws on the process of adjustment and tax effects on corporate investment. Where the required after-tax rate of return on investment is 6 percent, a corporate tax levy of 52 percent is equivalent to a rate of 6.5 percent on investment. The combined rate of return on investment to yield 6 percent after tax is, therefore, 6 percent plus 6.5 percent, or 12.5 percent. Thus a corporate income tax of 52 percent has the effect of raising the standard of profitability to which new projects must conform from 6 percent to 12.5 percent. Where an 8 percent after-tax return on investment is regarded as a standard, a 52 percent tax raises the required before-tax yield to 16.66 percent. Increases of this magnitude in required yields automatically exclude a host of investment projects that would otherwise be eligible in the absence of the tax. Plans for new business ventures and additions to

existing facilities are cancelled or deferred; firms that would be just marginal in the absence of the tax have to leave their industries because their rate of return is no longer great enough to satisfy the demands of the Treasury and the needs of the investor.

Assuming other factors to have remained constant, this picture suggests that shifting over the long-run is achieved through an absolute decline in corporate investment and output. But the behavior of turnover indicates that other factors did not remain constant over the period. In particular, it shows that changes in the state of the arts have raised the productivity of capital through time.

Technological improvement, or any change that has the effect of improving the quality of capital, has the effect of shifting the marginal product of capital to higher levels. If there is some prospective average rate of return that appears to be the minimum necessary to induce the acceptance of the risks inherent in business enterprise, a favorable shift in the marginal product of capital should induce more real investment. Should some of the gains that would normally accrue to capital be taxed away, the effect would be to reduce the promised rate of return. There would then be less investment in the corporate sector than would have taken place in the absence of the tax. Thus, the impact of inventions and innovations serves to modify the earlier theoretical conclusion that long-run shifting takes place through an absolute decline in investment. In a society characterized by technological progress, a decline in corporate investment relative to what it would have been in the absence of the tax is all that is needed to shift the tax.

It is for this reason that we have not experienced the decline

in investment which incidence theory suggests should occur during a period of increasing tax rates. Technological improvements and other aids to efficiency, reflected in the increase in the turnover of capital, have fortunately continued to be forthcoming and operating favorably on the aggregate investment demand schedule. It seems reasonable to conclude from the record, nonetheless, that investment in the corporate sector has been relatively less than it would have been in the absence of the tax. Should the rate of invention and innovation slow down for any length of time in the future, an absolute decline in the level of corporate investment would be the price we would pay for meeting some of the financial demands of the public treasury by a tax on corporate income.

## CHAPTER VII

## EFFECTS OF THE CORPORATION INCOME TAX ON CAPITAL STRUCTURE AND DIVIDEND POLICY 1926-1955

In this chapter, we shall be concerned with the effects of the corporation income tax on capital structure and dividend policy. Both topics bear indirectly on the analysis of the incidence of the tax. By shifting from stock equity to debt, the yield on stock equity can be partially restored to its pre-tax level. Should the tax induce a reduction in dividends, relative to corporate earnings, the reduction in the supply of internal funds, occasioned by the tax, can also be mitigated. First, we shall consider the effect of the tax on methods of financing; tax effects on dividend policy will then be discussed.

### Effect of the Tax on Capital Structure

#### Bond Financing

An inequity in our tax laws permits the deduction of interest charges in computing net income for tax purposes, while the deduction of dividend payments is disallowed. Financing through bonds instead of stock thus offers a distinct advantage over and above the normal benefits of financial leverage. This leads to the thought that since a shift into debt is one way of offsetting the burden of the tax on the earnings of stockholders, an increasing ratio of debt to stock equity should be in evidence as the rate of corporation tax increases.

The logic of this position can be readily illustrated by a

reformulation of the return on investment identity.[1] Return (after tax) to stock equity may be thought of as follows:

$$Y_{SE} = \frac{NI - i}{SE} = \frac{S}{SE} \times \frac{NI - i}{S}$$

where $Y_{SE}$ = earnings of stockholders

NI = net income after tax

i = interest charges

SE = stock equity

S = sales.

Since stock equity is equal to assets minus debt, we may restate the expression:

$$Y_{SE} = \frac{NI - i}{A - D} = \frac{S}{A - D} \times \frac{NI - i}{S} = \frac{\frac{S}{A}}{1 - D/A} \times \frac{NI - i}{S}$$

where A = total assets

D = total debt.

From the above expression it is apparent that as D increases relative to A, turnover of stock equity and, hence, yield on stock equity, increases. This will always be so provided that increases in 'i' (interest charges) do not more than offset the increase in turnover resulting from the increase in D relative to A. When interest charges are allowed as a revenue deduction in the determination of taxable income, the adverse effect of the charge on the profit margin available to stockholders is lessened. The tax should, therefore, operate as an inducement to corporations to increase the turnover of equity capital by shifting into debt.

The tax advantage of debt financing may be further illustrated by the hypothetical case of a $1,000,000 corporation in which the

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[1] See page 91.

prospective rate of return is 10 percent, or $100,000, before tax. Financing entirely through common and preferred stock would result in the payment of $52,000 a year in income taxes, at a rate of 52 percent. Substituting $500,000 of 5 percent bonds for part of the equity capital would reduce taxable net income by $25,000 annually and save $13,000 a year in taxes. As a result, the net after-tax return on stock equity would be increased from 4.8 percent to 7.2 percent, an increase in yield of exactly 50 percent.

The premium placed on borrowing by Federal tax policy is charged with encouraging unsound financial practices. Representative of criticisms of the tax on this score is the following excerpt from a statement issued by the Committee for Economic Development:

> The corporation income tax. . .discriminates against equity financing and encourages debt financing, thus making business firms more vulnerable to declines in business activity.[2]

A shift into debt based not on sound financial policy but on tax advantage injects an element of weakness into the economy. In times of recession, the interest charges associated with debt become a heavy burden and precipitate bankruptcies and retrenchments which tend to intensify and prolong the slump. If the record shows that the tax system influences corporate financial policy in this way, a call for tax reform will be justified in this respect.

Preferred Stock Financing

Preferred stock can also be used to restore, in part, the yield to holders of common stock after a tax increase, provided the return on total stock equity exceeds the dividend rate on the preferred

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[2] Tax Reduction and Tax Reform--When and How (New York: Committee for Economic Development, May, 1957), p. 24.

stock. This proposition becomes self-evident when the return to common stock is expressed in terms of our previous formulations:

$$Y_c = \frac{\frac{S}{A}}{1 - \frac{D}{A} - \frac{P}{A}} \times \frac{NI - i - P_pD}{S}$$

where $Y_c$ = rate of return on common stock equity

$P$ = preferred stock outstanding

$P_pD$ = preferred stock dividends

Other notations as before.

If it is argued that successful tax shifting has taken place when the yield on common share capital has been restored, the above expression is relevant.

In contrast with the deduction of bond interest, however, no tax allowance is made for preferred dividends. And since preferred stockholders have a prior claim on earnings, income taxes applicable to preferred dividends are borne by common stockholders. If, for instance, in the previous example, 5 percent preferred stock were used instead of bonds, the effective rate of tax on the pre-tax earnings of common stockholders would be increased from 52 to 69.33 percent.

The larger the percentage of after-tax net income absorbed by preferred dividends, the greater is the effective tax rate on earnings available for common stock. The corporation income tax thus not only discriminates against preferred stock in favor of borrowing, it also discriminates against the firm that has a ratio of preferred stock to common stock that is high relative to other firms. Illustrated below, for example, is the case of two companies A and B, each of which earns a pre-tax net income of $5000 on the same invested capital. But company B has more preferred stock outstanding than has company A. If the corporation income tax is levied at a rate of 50 percent, each

firm records a tax liability of $2500. The preferred dividends paid by A are $1250; B pays $2000. In consequence, the effective rate of tax on the pre-tax earnings of common is 66.66 percent for A and 83.33 percent for B.

| | Firm A | Firm B |
|---|---|---|
| Net Income before tax | $5000 | $5000 |
| Tax at 50% | 2500 | 2500 |
| Net Income after tax | $2500 | $2500 |
| Preferred Dividends: | | |
| A at 25% of taxable income | 1250 | |
| B at 40% of taxable income | | 2000 |
| Earnings of Common | $1250 | $ 500 |
| Effective rate of tax on pre-tax earnings of common | $2500 / $3750 = 66.66% | $2500 / $3000 = 83.33% |

## The Net Tax Differential 1926-1955

The preferential treatment of bond interest has been offset to some extent by the personal normal tax credit for dividend income. Interest charges, although excluded from corporation taxable income, have been fully taxable in the hands of the recipient. But, until 1936, the double taxation of dividend income was partially mitigated by the dividend credit.

Since 1926, the dividend credit notwithstanding, there has been an increasing bias in favor of debt financing, except for the years 1928-1935. In 1926 (as shown by Table 11), the differential between the corporation tax rate and the graduated individual normal rates for which taxed credit was allowed ranged between 8.5-12 percent. It gradually declined from this level to 5.75-9.75 percent in 1932-33. The reduction of the normal tax credit on dividends from a maximum of 8 percent to a flat 4 percent in 1934 marked a reversal of this trend.

TABLE 11

FEDERAL CORPORATION TAX RATES AND PERSONAL DIVIDEND TAX CREDIT
1926-1955

| Year | Corporation Normal and Surtax Rate | Personal Dividend Tax Credit (Income bracket in thousands) | | | Maximum Tax Differential |
|---|---|---|---|---|---|
| | | $1-$4 | $4-$8 | Over $8 | |
| 1926-27 | 13.5% | 1.5% | 3% | 5% | 8.5-12% |
| 1928-31 | 12.0[a] | 1.5 | 3 | 5 | 7.0-10.5 |
| 1932-33 | 13.75 | 4.0 | 8 | 8 | 5.75-9.75 |
| 1934-35 | 13.75 | 4.0 | 4 | 4 | 9.75 |
| 1936-37 | 8-15[b] | - | - | - | 15.0 |
| 1938-39 | 12.5-19[c] | - | - | - | 19.0 |
| 1940 | 14.85-24 | - | - | - | 24.0 |
| 1941 | 21-31[d] | - | - | - | 31.0 |
| 1942-45 | 25-40[d] | - | - | - | 40.0 |
| 1946-47 | 24-38[d] | - | - | - | 38.0 |
| 1950 | 23-42[d] | - | - | - | 42.0 |
| 1951 | 28 3/4-50 3/4[d] | - | - | - | 50 3/4 |
| 1952-53 | 30-52[d] | - | - | - | 52 |
| 1954-55 | 30-52[d] | 4.0[e] | 4 | 4 | 48 |

Sources and notes:

1926-1945--George E. Lent, "Bond Interest Deduction and the Federal Corporation Income Tax," National Tax Journal, II (June, 1949), p. 134.

1946-1955--U.S., Internal Revenue Service, Statistics of Income [Parts I & II], 1955, passim.

[a]Corporation and individual rates were reduced by one percentage point in 1929 by joint resolution of Congress.

[b]Excluding surtax on undistributed income.

[c]Less 2.5 percent dividend paid credit.

[d]Including surtax rate.

[e]The Internal Revenue Code of 1954 also provided for an exclusion from gross income of the first $50 of dividend income received by individuals from taxable domestic corporations. The dividend credit was 4 percent of the qualifying dividends in excess of the dividends excluded from gross income.

Further incentive to debt financing was occasioned in 1936, when dividends became fully taxable and the corporation rate rose to 15 percent. Successive increases in the corporation rate to 24 percent in 1940, 31 percent in 1941, 40 percent in 1942, 42 percent in 1950, and 52 percent in 1952 have further accentuated the discrimination against equity financing. The Internal Revenue Code of 1954 provided for an exclusion from gross income of the first $50 of dividend income received by individuals from taxable domestic corporations, and a dividend credit of 4 percent of the qualifying dividends in excess of the $50 dividend exclusion. But this provision does not go far along the road towards eliminating entirely the discrimination against equity financing.

## Corporate Capitalization 1926-1955

The preferential treatment accorded bond interest by the Federal corporation income tax should be reflected in the trend of corporate capitalization, ceteris paribus. An increasing ratio of explicit interest-bearing debt to stock equity in line with the bias introduced by the tax system would establish a strong presumption of the influence of the system on corporate financial policy.

### New Security Issues

Data on new security issues is available for the years 1926-1937 only in terms of the relative volume of issues of stock versus debt issues. This is not very helpful since the relative dollars amounts involved are more meaningful than the number of securities involved. But Table 12 below does indicate that despite the tax differential operating in favor of debt, the relative proportion of new stock issues to net debt issues increased substantially from 1926-1929.

The significantly high percentage (62.1) of new stock issues in 1929 is a reflection of the extensive use of equity securities to refinance long-term debt in that year.[3] During the depression of the 1930's the pattern is extremely variable, indicating no strong trend towards either method of financing. New issues of stocks and bonds were relatively small in those years, in any case.

TABLE 12

THE RELATION OF STOCK ISSUES TO TOTAL AMOUNT OF NEW CAPITAL ISSUES 1926-1937

| Year | Percent | Year | Percent |
|---|---|---|---|
| 1926 | 26.3% | 1932 | 5.8% |
| 1927 | 27.2 | 1933 | 74.4 |
| 1928 | 45.0 | 1934 | 21.4 |
| 1929 | 62.1 | 1935 | 17.2 |
| 1930 | 30.4 | 1936 | 29.6 |
| 1931 | 17.5 | 1937 | 33.0 |

Source:

Based on Irwin Friend, "Business Financing in the Postwar Period," Survey of Current Business, Vol. 28 (March, 1948), p. 14.

Table 13 summarizes the pattern of new security issues between 1938 and 1955 with data based on the dollars amount involved, and distinguishes between bonds, preferred stock and common stock. Despite the continuous heavy preponderance of external debt financing versus equity financing, there is no indication that the tax system has had

[3] See Friend, op. cit., p. 13.

TABLE 13

THE RELATIVE IMPORTANCE OF BONDS, PREFERRED STOCK AND COMMON STOCK IN NEW SECURITY ISSUES, BASED ON THE DOLLAR AMOUNTS INVOLVED, 1938-1955

| Year | Bonds | Total Stock | Preferred Stock | Common Stock |
|---|---|---|---|---|
| 1938 | 94.85% | 5.15% | 3.99% | 1.16% |
| 1939 | 91.45 | 8.55 | 4.53 | 4.02 |
| 1940 | 89.13 | 10.87 | 6.84 | 4.03 |
| 1941 | 89.58 | 10.42 | 6.28 | 4.14 |
| 1942 | 86.27 | 13.73 | 10.53 | 3.20 |
| 1943 | 84.62 | 15.38 | 10.60 | 4.78 |
| 1944 | 83.39 | 16.61 | 11.52 | 5.09 |
| 1945 | 80.77 | 19.23 | 12.63 | 6.60 |
| 1946 | 70.74 | 29.26 | 16.32 | 12.94 |
| 1947 | 76.55 | 23.45 | 11.59 | 11.86 |
| 1948 | 84.39 | 15.61 | 6.94 | 8.67 |
| 1949 | 80.80 | 19.20 | 7.04 | 12.16 |
| 1950 | 77.35 | 22.65 | 9.90 | 12.75 |
| 1951 | 73.52 | 26.48 | 10.82 | 15.66 |
| 1952 | 79.72 | 20.28 | 5.92 | 14.36 |
| 1953 | 79.60 | 20.40 | 5.50 | 14.90 |
| 1954 | 78.69 | 21.31 | 8.56 | 12.75 |
| 1955 | 72.46 | 27.54 | 6.20 | 21.34 |

Sources:

Adapted from data on new security issues, as follows:

1938-1947--Federal Reserve Bulletin, December 1953 (Washington: Board of Governors of the Federal Reserve System), p. 1364.

1948-1955--Federal Reserve Bulletin, December 1956 (Washington: Board of Governors of the Federal Reserve System), p. 1346.

any discernible influence on capital furnishing from external sources. In 1938, bonds comprised 94.85 percent of all new securities. This ratio declined steadily to a low of 70.74 percent in 1946. Since 1946 the percentage has varied between a low of 72.46 percent in 1955 and a high of 84.39 percent in 1948.

Of greater interest is the relative proportions of new issues of preferred stock and common stock. From 1938 to 1946, new preferred stock issues were consistently higher than new issues of common stock. The trend was reversed in 1947, with preferred stock issues gradually diminishing in importance and common stock issues rising to an unprecedented high of 21.34 percent of the dollar volume of all new issues of securities in 1955. It would appear that the tax bias against preferred stock has had a noticeable impact on the use of that stock as an external source of funds. But, with the exception of the years 1948 and 1949, the relative importance of stock, both preferred and common, in new security issues has been greater since 1946 than it was in the preceding years between 1938-1945. This conclusion is surprising in view of the continuous increase in the tax differential over this period.

Changes in Capital Structure

Aggregate balance sheet data in Statistics of Income [Part II] provides useful material by which all corporate financing, both internal and external, may be studied. Table 14 below shows long-term debt as a percentage of total equity plus debt for the years 1926-1955 in historic dollars, as well as in current dollars from 1935-1955.

Between 1926 and 1933, the proportion of long-term debt in corporate capital structures increased from 19.74 percent to 25.00 percent. The tax differential in favor of debt financing remained

fairly stable over this period ranging from a low of 5.75 percent to a high of 12 percent, depending on an individual's taxable income. On the surface, it would seem that corporations were taking advantage of the tax incentive to debt financing. But the rising trend, particularly between 1930 and 1933 coincided with heavy corporate losses and write offs of assets against capital and retained earnings. Accounting entries thus explain a large part, but not all, of the rising importance of debt in the aggregate corporate capital structure from 1926-1933.

TABLE 14

PERCENTAGE OF LONG-TERM DEBT TO TOTAL CAPITAL STRUCTURE,[a] 1926-1955

| Year | Historic $'s | Current $'s | Year | Historic $'s | Current $'s |
|---|---|---|---|---|---|
| 1926 | 19.74% | | 1941 | 25.77% | 24.61% |
| 1927 | 20.96 | | 1942 | 24.39 | 22.27 |
| 1928 | 21.93 | | 1943 | 23.09 | 20.77 |
| 1929 | 21.49 | | 1944 | 22.03 | 19.96 |
| 1930 | 22.69 | | 1945 | 21.05 | 19.42 |
| 1931 | 23.87 | | 1946 | 21.46 | 19.52 |
| 1932 | 24.75 | | 1947 | 21.69 | 19.09 |
| 1933 | 25.00 | | 1948 | 20.88 | 18.37 |
| 1934 | 24.27 | | 1949 | 22.88 | 20.51 |
| 1935 | 24.81 | 25.83% | 1950 | 22.73 | 20.71 |
| 1936 | 24.69 | 25.58 | 1951 | 23.36 | 20.96 |
| 1937 | 25.84 | 25.48 | 1952 | 24.10 | 22.00 |
| 1938 | 26.81 | 26.31 | 1953 | 24.63 | 22.78 |
| 1939 | 26.53 | 26.22 | 1954 | 24.51 | 22.96 |
| 1940 | 26.25 | 25.14 | 1955 | 24.39 | 22.93 |

Source and note:

Based on U.S., Internal Revenue Service, Statistics of Income [Part II], 1926-1955.

[a]Long-term debt is defined to include mortgages, notes and bonds with a maturity of one year or more. Capital structure is defined to include long-term debt, preferred and common stock outstanding, equity reserves, and retained earnings.

From 1934 to 1948, the ratio of long-term debt to capital

structure, both in historic dollars and in current dollars, actually declined year by year except for the period 1938-1940 inclusive. Since 1949, the proportion of debt has steadily increased, but by 1955 had still not reached its 1933 level.

The relative stability of the proportion of long-term debt in relation to the other components of capital structure over a time span of 30 years is surprising in view of the tax benefits that resulted from the repeal of the dividend credit and greatly increased corporate tax rates. On the basis of the statistical evidence, there is no indication that tax policy has had any pronounced influence on debt financing for the corporate sector as a whole.[4] Other forces have been at work.

Two of these forces are clearly discernible in Table 15 which shows in historic dollars all sources of funds expressed as a percentage of total assets for the years 1926-1955. Table 16 shows the same relationships between 1935 and 1955 in prevailing dollars. Figures 6 and 7 present the data in graphic form.

The effects of tax policy on the use of preferred stock is at once apparent. While the absolute amount of long-term debt outstanding has increased three-fold since 1926; common stock by 50 percent of its 1926 figure; and retained earnings more than four times, the value of

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[4] I recognize, however, that the proportion of outstanding long-term debt may well be higher than it would otherwise be were it not for the tax benefits. Were preferred stock accorded the same tax advantage as interest-bearing financial instruments, it is most possible that the percentage of long-term debt to capital structure would have declined, with a corresponding rise in the proportion of preferred stock.

We must also recognize that when a company uses lease-financing some obligations often do not appear in the main body of the balance sheet. See Donald R. Grant, "Illusion in Lease Financing," Harvard Business Review, Vol. 37 (March-April, 1959), pp. 121-142.

TABLE 15

SOURCES OF FUNDS EXPRESSED AS A PERCENTAGE OF TOTAL EQUITIES FOR ALL CORPORATIONS FILING TAX RETURNS WITH BALANCE SHEETS ATTACHED 1926-1955
(HISTORIC DOLLARS)

| Year | Non-Interest Bearing Debt[a] | Interest Bearing Debt | | Total Debt | Preferred Stock | Common Stock | Retained Earnings[d] | Total |
|---|---|---|---|---|---|---|---|---|
| | | Short-term[b] | Long-term[c] | | | | | |
| 1926 | 34.75% | 3.82% | 12.13% | 50.70% | 6.54% | 25.75% | 17.01% | 100% |
| 1927 | 33.87 | 3.48 | 13.13 | 50.48 | 6.19 | 25.76 | 17.57 | 100 |
| 1928 | 33.00 | 3.25 | 13.98 | 50.23 | 6.02 | 25.15 | 18.60 | 100 |
| 1929 | 32.39 | 2.98 | 13.89 | 49.26 | 5.88 | 25.47 | 19.39 | 100 |
| 1930 | 30.67 | 3.00 | 15.05 | 48.72 | 5.72 | 26.07 | 19.49 | 100 |
| 1931 | 28.68 | 3.38 | 16.22 | 48.28 | 6.48 | 26.91 | 18.33 | 100 |
| 1932 | 28.31 | 3.57 | 16.86 | 48.74 | 6.81 | 28.00 | 16.45 | 100 |
| 1933 | 27.87 | 3.73 | 17.11 | 48.71 | 6.86 | 27.62 | 16.81 | 100 |
| 1934 | 30.24 | 3.32 | 16.13 | 49.69 | 6.63 | 28.20 | 15.48 | 100 |
| 1935 | 30.94 | 3.27 | 16.33 | 50.54 | 6.40 | 27.11 | 15.95 | 100 |
| 1936 | 33.88 | 3.29 | 15.51 | 52.68 | 6.13 | 25.75 | 15.44 | 100 |
| 1937 | 33.63 | 3.43 | 16.26 | 53.32 | 6.05 | 25.49 | 15.14 | 100 |
| 1938 | 34.73 | 2.69 | 16.76 | 54.18 | 6.04 | 24.93 | 14.85 | 100 |
| 1939 | 36.67 | 2.62 | 16.10 | 55.39 | 5.61 | 23.95 | 15.05 | 100 |
| 1940 | 28.97 | 2.49 | 15.35 | 56.81 | 5.35 | 22.56 | 15.28 | 100 |
| 1941 | 40.85 | 2.71 | 14.55 | 58.11 | 4.76 | 21.03 | 16.10 | 100 |
| 1942 | 46.70 | 2.00 | 12.51 | 61.21 | 4.30 | 18.29 | 16.20 | 100 |
| 1943 | 49.64 | 1.74 | 11.23 | 62.61 | 3.87 | 16.55 | 16.97 | 100 |
| 1944 | 52.19 | 1.69 | 10.15 | 64.03 | 3.61 | 15.49 | 16.87 | 100 |
| 1945 | 54.08 | 1.87 | 9.27 | 65.22 | 3.35 | 14.66 | 16.77 | 100 |
| 1946 | 51.81 | 2.09 | 9.89 | 63.79 | 3.27 | 15.03 | 17.91 | 100 |
| 1947 | 51.07 | 2.29 | 10.13 | 63.49 | 3.03 | 14.65 | 18.83 | 100 |
| 1948 | 50.18 | 2.01 | 9.98 | 62.17 | 2.74 | 13.97 | 21.12 | 100 |
| 1949 | 48.13 | 2.17 | 11.38 | 61.68 | 2.83 | 14.52 | 20.97 | 100 |
| 1950 | 49.00 | 2.66 | 10.98 | 62.64 | 2.49 | 13.26 | 21.61 | 100 |

TABLE 15--Continued

| Year | Non-Interest Bearing Debt[a] | Interest Bearing Debt | | Total Debt | Preferred Stock | Common Stock | Retained Earnings[d] | Total |
|---|---|---|---|---|---|---|---|---|
| | | Short-term[b] | Long-term[c] | | | | | |
| 1951 | 48.87% | 2.97% | 11.25% | 63.09% | 2.41% | 12.79% | 21.71% | 100% |
| 1952 | 50.73 | 2.92 | 11.17 | 64.82 | 2.19 | 11.83 | 21.16 | 100 |
| 1953 | 51.01 | 2.81 | 11.37 | 65.19 | 2.08 | 11.57 | 21.16 | 100 |
| 1954 | 51.08 | 2.90 | 11.28 | 65.28 | 1.94 | 11.27 | 21.53 | 100 |
| 1955 | 51.13 | 3.42 | 11.07 | 65.62 | 1.78 | 10.90 | 21.70 | 100 |

Source:

Based on U.S., Internal Revenue Service, Statistics of Income [Part II], 1926-1955.

[a]Accounts payable, payroll, dividends payable, taxes payable and all other debts with a maturity of less than one year and for which no explicit interest is charged.

[b]Bonds, notes and mortgages with a maturity of less than one year.

[c]Bonds, notes and mortgages with a maturity of one year or more.

[d]Includes appropriated and unappropriated retained earnings.

TABLE 16

SOURCES OF FUNDS EXPRESSED AS A PERCENTAGE OF TOTAL EQUITIES FOR ALL CORPORATIONS FILING TAX RETURNS WITH BALANCE SHEETS ATTACHED 1935-1955
(CURRENT DOLLARS)

| Year | Non-Interest Bearing Debt[a] | Interest Bearing Debt | | Total Debt | Preferred Stock | Common Stock | Capital Adjustment | Retained Earnings[d] | Total |
|---|---|---|---|---|---|---|---|---|---|
| | | Short-term[b] | Long-term[c] | | | | | | |
| 1935 | 31.76% | 3.36% | 16.76% | 51.88% | 6.57% | 27.83% | -2.70% | 16.42% | 100% |
| 1936 | 34.63 | 3.37 | 15.36 | 53.86 | 6.27 | 26.33 | -2.17 | 15.71 | 100 |
| 1937 | 33.35 | 3.39 | 16.12 | 52.86 | 6.00 | 25.28 | 0.92 | 14.94 | 100 |
| 1938 | 34.35 | 2.67 | 16.57 | 53.59 | 5.97 | 24.65 | 0.86 | 14.93 | 100 |
| 1939 | 36.42 | 2.60 | 15.99 | 55.01 | 5.57 | 23.79 | 0.67 | 14.96 | 100 |
| 1940 | 38.02 | 2.43 | 14.97 | 55.42 | 5.21 | 22.00 | 2.52 | 14.85 | 100 |
| 1941 | 39.78 | 2.64 | 14.17 | 56.59 | 4.63 | 20.47 | 3.50 | 14.81 | 100 |
| 1942 | 44.53 | 1.91 | 11.93 | 58.37 | 4.10 | 17.43 | 6.03 | 14.07 | 100 |
| 1943 | 47.08 | 1.65 | 10.65 | 59.38 | 3.67 | 15.70 | 6.89 | 14.36 | 100 |
| 1944 | 49.84 | 1.61 | 9.69 | 61.14 | 3.45 | 14.79 | 6.55 | 14.07 | 100 |
| 1945 | 52.12 | 1.79 | 8.95 | 62.86 | 3.22 | 14.13 | 5.83 | 13.96 | 100 |
| 1946 | 49.54 | 2.00 | 9.46 | 61.00 | 3.12 | 14.37 | 8.16 | 13.35 | 100 |
| 1947 | 47.98 | 2.14 | 9.52 | 59.64 | 2.85 | 13.76 | 11.11 | 12.64 | 100 |
| 1948 | 47.11 | 1.87 | 9.37 | 58.35 | 2.57 | 13.11 | 12.20 | 13.77 | 100 |
| 1949 | 45.50 | 2.05 | 10.76 | 58.31 | 2.67 | 13.73 | 11.31 | 13.98 | 100 |
| 1950 | 46.81 | 2.53 | 10.49 | 59.83 | 2.38 | 12.66 | 11.17 | 13.96 | 100 |
| 1951 | 46.31 | 2.82 | 10.66 | 59.79 | 2.28 | 12.12 | 12.16 | 13.65 | 100 |
| 1952 | 48.58 | 2.79 | 10.70 | 62.07 | 2.10 | 11.32 | 10.97 | 13.54 | 100 |
| 1953 | 49.17 | 2.71 | 10.96 | 62.84 | 2.00 | 11.15 | 10.70 | 13.31 | 100 |
| 1954 | 49.56 | 2.80 | 10.94 | 63.30 | 1.88 | 10.93 | 10.26 | 13.63 | 100 |
| 1955 | 49.70 | 3.33 | 10.77 | 63.80 | 1.73 | 10.59 | 10.04 | 13.84 | 100 |

Source:

Based on U.S., Internal Revenue Service, Statistics of Income [Part II], 1935-1955 (Data adjusted for changes in the price level).

a, b, c, d--Defined as in Table 15.

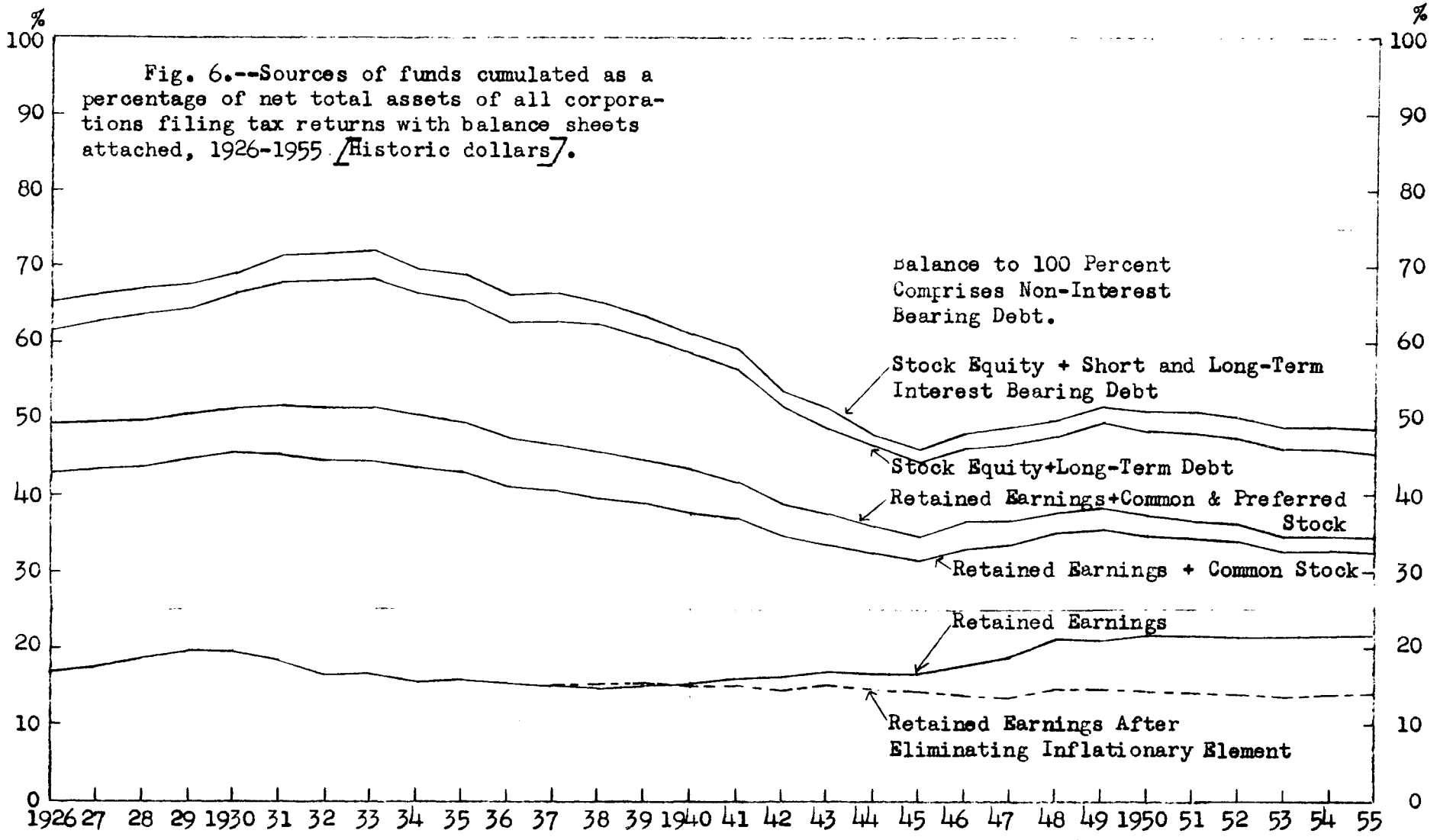



Fig. 6.--Sources of funds cumulated as a percentage of net total assets of all corporations filing tax returns with balance sheets attached, 1926-1955 [Historic dollars].

Source: Based on U.S., Internal Revenue Service, Statistics of Income [Part II], 1926-1955.

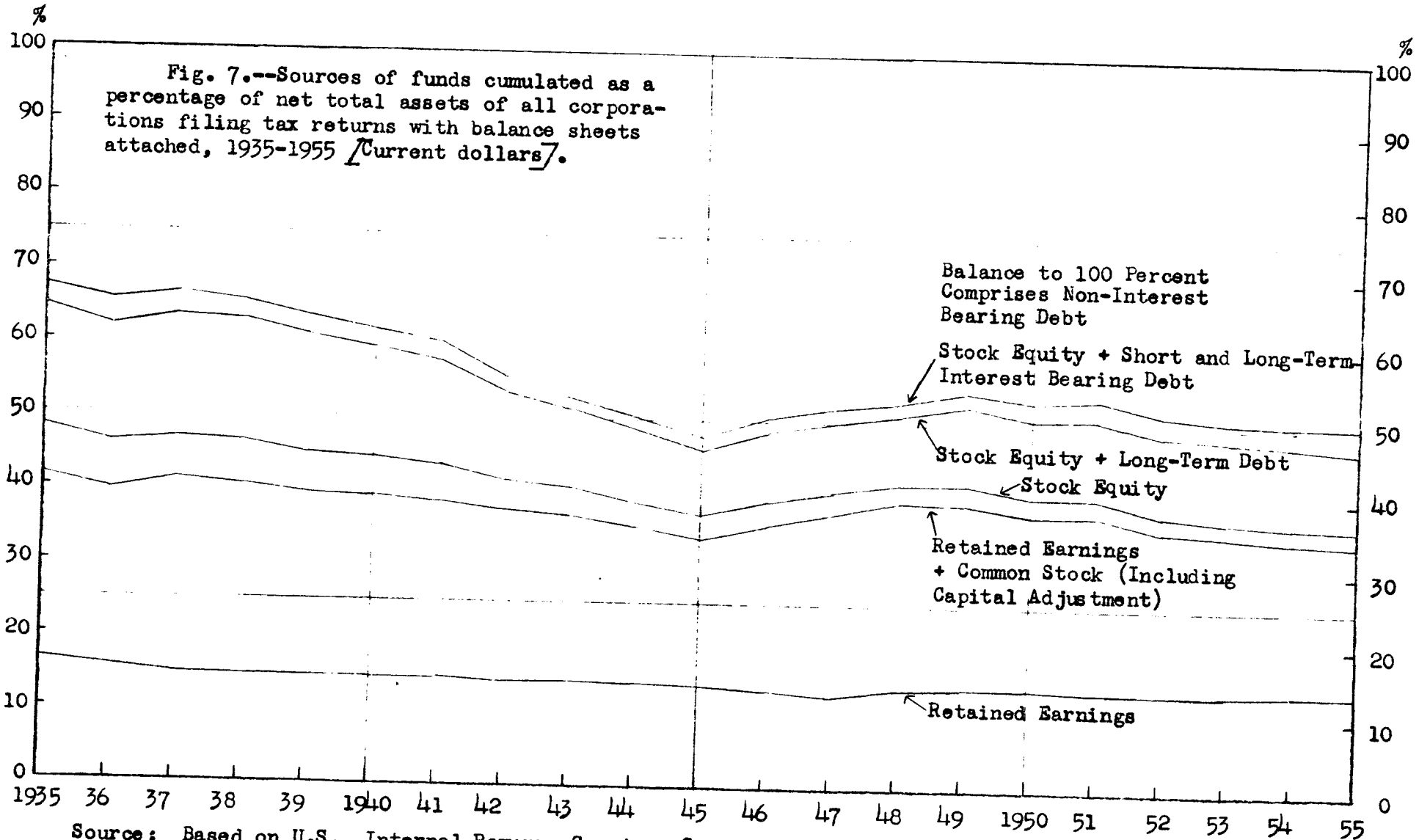



Fig. 7.--Sources of funds cumulated as a percentage of net total assets of all corporations filing tax returns with balance sheets attached, 1935-1955 [Current dollars].

Source: Based on U.S., Internal Revenue Service, Statistics of Income [Part II], 1935-1955.

preferred stock outstanding actually declined from $17.15 billion in 1926 to $15.80 billion in 1955 (a high point of $19.98 billion had been reached in 1934). This is reflected in a decline in the ratio of preferred stock outstanding from 6.54 percent of all sources in 1926 to 1.78 percent in 1955. There is little doubt that the pressure of higher taxes on common stock has been partly relieved by the curtailment of preferred stock financing. As a result, preferred stock is to all intents and purposes a source of funds no longer to be reckoned with.

Tables 15 and 16 also reveal that total debt, as a percentage of all assets has increased noticeably since 1926. Whereas until 1935 it comprised around 50 percent of all funds, from 1936 on it has gradually increased to a proportion of 65.62 percent in 1955, in historic dollars, and 63.80 percent in current dollars. Close inspection of the tables discloses that the largest single item in which an increase has been recorded is non-interest bearing debt. By 1955, it had reached the astonishing proportion of 51.13 percent of all assets in historic dollars and 49.70 percent in current dollars. There is absolutely no tax advantage to be gained through the use of non-interest bearing debt. The 40 percent increase in its relative importance in corporate financing since 1940 bears mute testimony to the wave of optimism that has swept the economy in the past two decades and the willingness of Americans to extend and to utilize short-term credit.[5]

Of all sources of funds, short-term credit has been of major importance in the years since 1935. Internal funds through the retention

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[5]An interesting 'popular' version of the extent to which debt has become an integral part of the American way of life is to be found in a recent issue of the Detroit Free Press. See Cynthia Lowry, "In Debt? So Are All of Us," Detroit Free Press, Sunday, April 12, 1959, p. 2C.

of earnings have been the second. The proportion of common stock reported has declined by 60 percent of its 1926 figure, preferred stock by more than 66 2/3 percent, short and long-term interest bearing debt by about 10 percent. All sources, except for preferred stock, record an over-all increase since 1936 when the dividend credit was repealed as Table 17, below, shows.

TABLE 17

SOURCES OF FUNDS AS REPORTED BY ALL CORPORATIONS FILING TAX RETURNS WITH BALANCE SHEETS ATTACHED, 1936-1955

| Sources of Funds | $ | % |
|---|---|---|
| Non-interest bearing debt[a] | +359.91 billion | 54.79 |
| Short-term interest bearing debt[b] | +20.46 billion | 3.11 |
| Long-term interest bearing debt[c] | +48.58 billion | 7.39 |
| Allowance for depreciation | +73.37 billion | 11.17 |
| Common stock | +14.10 billion | 2.15 |
| Retained earnings[d] | +144.25 billion | 21.96 |
| | 660.67 billion | 100.57 |
| Preferred stock (net decrease) | -3.73 billion | - .57 |
| | 656.94 billion | 100.00 |

Source and notes:

Based on U.S., Internal Revenue Service, Statistics of Income [Part II], 1935-1955.

[a]Includes accounts payable, dividends payable, taxes payable, payroll and all other debts with a maturity of less than one year and for which no explicit interest is charged.

[b]Includes bonds, notes and mortgages with a maturity of less than one year.

[c]Includes bonds, notes and mortgages with a maturity of one year or more.

[d]Includes appropriated and unappropriated retained earnings.

## Summary of Tax Effects on Corporate Financing

The seeming lack of influence of the federal tax system on corporate financial policy may be attributed to at least four factors: the relative availability of funds from various external sources, the over-all relationship between debt and equity, the extent of internal financing from retained earnings, and the stability of earnings. Outstanding among these has been the extraordinary absolute and relative increase in the proportion of short-term book credit relative to other sources of funds since 1936.

Related to this increase in short-term credit is the second observation that the corporate sector as a whole is fully "loaned up" anyway. While individual corporations are doubtless still in a position to improve their stockholders' earnings by a shift into debt, the aggregate corporate balance sheet has reached the stage of inflexibility. An increase in total debt above its proportion of 65.62 percent of total assets in 1955 would be dangerous and unsound finance.

The disproportionate percentage of bonds in new securities issues is accounted for by a third factor: the heavy reliance placed on retained earnings as a source of funds. Except in 1936 and 1937, the tax system has favored retention rather than distribution of earnings. As this aspect of financial policy is closely tied in with dividend policy, a discussion of tax effects on retained earnings will be postponed.

Capitalization is largely influenced by the stability of earnings of a business. Speculative ventures and those subject to seasonal or cyclical swings in revenues are less able to benefit from large amounts of debt in the balance sheet, except, perhaps, for convertible bonds. A fourth factor to be considered is, therefore, the relationship

between margin and turnover. To illustrate this point, assume that a hypothetical company at two different points in time has assets, in each period, totalling $5, on which management seeks to earn an 8 percent return. In period I, when the ratio of sales to aggregate investment is 1:5, the company has $1 in current assets and $4 in fixed assets. In period II, the ratio of sales to aggregate investment is 5:1, and the company has $3 in current assets for every $2 in fixed assets. The fixed assets in both periods have an estimated useful life of ten years, and are depreciated on a straight-line basis. Assume that the depreciation charges of 40 cents and 20 cents respectively are the only fixed costs. Further assume that in both periods long-term debt, the only debt outstanding, amounts to $2, bearing interest at 5 percent a year. Income taxes are ignored in the interests of simplicity.

Reduced to a common basis, the appropriate return-on-investment identity for each period will be as follows:

$$\text{Period I} = \frac{\$1}{\$5} \times \frac{\$1 - (40¢ + 20¢) - 10¢}{\$1}^{6}$$

$$= \frac{\$1}{\$5} \times \frac{40¢ - 10¢}{\$1}$$

$$\text{Period II} = \frac{\$25}{\$5} \times \frac{\$25 - (20¢ + \$24.40) - 10¢}{\$25}$$

$$= \frac{\$25}{\$5} \times \frac{40¢ - 10¢}{\$25}$$

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[6]The elements of this identity are as follows:

$$\text{Return on Investment} = \frac{\text{Sales}}{\text{Investment}} \times \frac{\text{Sales} - (\text{Fixed costs} + \text{Variable costs}) - \text{Interest charges}}{\text{Sales}}$$

Net income before interest is related to total investment, interest on 'non-interest bearing debt' being ignored. Net income after interest is related to stock equity, or owners' investment.

Earnings rates in both periods are the same:

| | |
|---|---|
| On total investment | $\frac{40¢}{\$5} = 8\%$ |
| To bondholders | $10¢ = 5\%$ |
| On owners' equity | $\frac{30¢}{\$3} = 10\%$ |

Thus, under the given conditions, the company is equally profitable in both periods, in terms of yield, and benefits from financial leverage by borrowing money at 5 percent and putting it to work at 8 percent. But period I was characterized by a high margin and low turnover; period II, by a low margin and high turnover. The significance of this distinction may be fully appreciated if a 1 percent decline in revenue is assumed, with no change in the other variables. The return on investment figures would then become:

Period I: $$\frac{99¢}{\$5} \times \frac{99¢ - (40¢ + 20¢) - 10¢}{99¢}$$

$$= \frac{99¢}{\$5} \times \frac{39¢ - 10¢}{99¢}$$

Period II: $$\frac{\$24.75}{\$5} \times \frac{\$24.75 - (20¢ + \$24.40) - 10¢}{\$24.75}$$

$$= \frac{\$24.75}{\$5} \times \frac{15¢ - 10¢}{\$24.75}$$

The rates of return are now:

| | Period I | Period II |
|---|---|---|
| On total investment | 7.8% | 3.0% |
| To bondholders | 5.0% | 5.0% |
| On owners' equity | 9.66% | 1.66% |

A one percent decline in revenue would thus reduce the return on total investment in period I by $2\frac{1}{2}$ percent and on owners' equity by 3.4 percent. But a one percent decline in revenue in period II would reduce the return on total investment by $62\frac{1}{2}$ percent of the

period I rate, and on owners' equity by 79.25 percent. Furthermore, in the second period, the company would no longer be able to generate sufficient earnings to repay the principal on its outstanding debt, while in period I its position would have remained relatively unaffected. It follows, therefore, that in the absence of any countervailing factor, a high turnover-low margin company is less favorably placed to take advantage of financial leverage than is a low turnover-high margin company.

There is, however, one additional consideration. In period I, the company's ability to restore its former rate of return on investment (40¢ on $5) depends, other things being equal, on its ability to reduce its variable costs by 1¢, or 5 percent of the original figure. In period II, on the other hand, direct costs have to be reduced by 25¢, or only 1 percent of the original figure, in order to restore the former earning power. Whatever the division between fixed and variable costs, the use of interest-bearing debt in period II, assuming that investment cannot be reduced and the debt repaid quickly enough to make an increase in turnover or elimination of interest charges of any significance, depends on the extent to which variable costs are amenable to control.

An infinite variety of combinations of turnover and earnings ratio, and fixed costs and variable costs, exists, with the majority of companies falling somewhere between the extremes presented. Finance companies, however, comprise a special group. Borrowing from one source to lend to others, they depend on a very high turnover to compensate for a low margin. Yet their balance sheets often disclose as much as $4 debt for every $1 owners' equity. Despite a variable revenue picture,

the high liquidity of their assets and the nature of their debt enable them to expose themselves to extreme leverage in the capital structure. In the event of a decline in revenues, they are able to scale down their assets, reduce their debt, and trim their interest charges in short order. Normal turnover and earnings ratio are thereby restored, and the desired rate of return on investment maintained.

Risk and profit are the twin pillars of our free enterprise system. All firms automatically expose themselves to business risk; the acceptance of financial risk is a matter of choice. Clearly, for the corporate sector in the aggregate, tax incentives have not been sufficiently strong to result in an unbalanced capital structure. The willingness of industry to expose itself to the risks inherent in long-term debt financing depends on factors unrelated to the tax system. Five of these are: stable revenues, a high degree of liquidity in its assets, the margin-turnover relation, flexible operating costs, and the availability of other sources of funds.[7]

The revenue picture has become more stable as we have increased our ability to dampen down seasonal and cyclical swings in business activity. But aggregate assets do not evidence any trend towards increasing liquidity. Between 1936 and 1955, cash and equivalents increased by $216.80 billion, inventories by $56.13 billion, and plant and equipment by $177.01 billion. Of an increase in cash and real assets amounting to $449.94 billion, over 50 percent went to inventories and fixed assets. There has been, if anything, a decrease in liquidity

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[7] A more complete analysis of capital structure by means of the return on investment identity can be found in Peter C. Briant, "The Return on Investment Concept," The Canadian Chartered Accountant, Vol. 71 (August, 1957), pp. 155-158 and Vol. 71 (September, 1957), pp. 266-268.

over the twenty year period.

It has been demonstrated that the lower the margin and the higher the turnover, the less likely is a firm to add to the proportion of long-term debt in its capital structure. An increased flexibility of operating costs will, however, offset this disadvantage. Since 1926, average post-tax margins for all corporations have been cut in half; turnover of assets has more than doubled. Thus, U. S. industry has moved from a low turnover-high margin operation to one marked by high turnover and low margin. Over the same period, unions have introduced an element of rigidity into direct operating costs. As a consequence of wage increases in excess of productivity increases, capital (a fixed charge) has fairly consistently replaced labor. Thus, the whole industrial and financial climate militates against long-term debt as a source of funds.

When these trends are considered in conjunction with the availability of short-term credit, the failure of the corporate sector to take greater advantage than it has of the deductibility of bond interest in computing taxable net income is not surprising. Tax pressure is evidenced, however, in the declining importance of preferred stock. But it would be difficult to justify the elimination of the bond interest deduction on the basis of its alleged discriminatory effects alone.[8]

The only basis on which repeal of the bond interest deduction can be justified is that there is no logical cause for treating bonds differently from other sources of long-term capital. To allow a preferred dividend deduction would neutralize the choice of bonds versus preferred stock and provide some relief for common stock. But this

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[8]Please refer back to footnote 4.

step would still discriminate against venture capital, the life-blood of our economic system. To carry the argument to its logical conclusion indicates that, if equity in taxation is of primary concern, common stock dividends should also be deductible. Earnings retained in the hands of a corporation would then be subject to a special tax. But such a step may conflict with growth requirements in the economy, for, as the statistics show, retained earnings have become an increasingly important source of funds. A dividend deductibility provision may stimulate a higher pay-out of funds that would not find their way back into the corporate sector for investment in real assets. Some way needs to be found, nonetheless, to neutralize a piece of legislation, which, despite its apparent lack of effect on corporate financial policy, flies in the face of fairness and cannot be defended on logical grounds.

Tax Effects on Dividend Policy

Dividend payments are taxed once in the hands of the corporation and again, through the personal income tax, in the hands of the recipient. But this impact of the tax system on the earnings of common stockholders that gives rise to the "double taxation" of dividends, may be tempered by the retention of earnings. The retention and reinvestment of earnings in projects promising capital gains, which are taxed at a maximum rate of 25 percent, will obviously minimize an individual's total tax bill. In view of this, it might be expected that dividends as a proportion of after-tax earnings of stockholders have declined over the years. This view is strengthened by the statistical fact that retained earnings have been the second largest source of corporate funds since 1926.

Table 18 has been prepared to show cash dividends as a percentage of stockholder earnings for the whole corporate sector in historic dollars for the years 1926-1955 and also in current dollars from 1935-1955. From the data in historic dollars, there is evidence that the dividend pay-out by the corporate sector since 1942 has been far below the level of the 1920's. In no year since 1940, in fact, has the proportion of stockholder earnings paid out as dividends exceeded 70 percent. This, in part, reflects the paucity of corporations that have reported tax losses in the last two decades in contrast to the proportion in the years prior to 1940. (The clearest evidence of this bias in the figures is to be seen in the years from 1930-1938.) But of greater importance has been the impact of inflation on corporate dividend policy. The figures since 1942, on the basis of adjusted dollars, indicate that the proportion of earnings retained each year is about the same now as it was between 1926 and 1929 inclusive. If anything has led to a relatively smaller dividend pay-out since World War II it has been, no the so-called "double taxation" of dividends, but a recognition by corporation managers that reported earnings contain an inflationary element.

This view is supported when retained earnings as a percent of total assets in historic dollars are reduced by that portion of retained earnings which has been kept on hand to provide for the replacement of assets at inflated prices. The relevant data is shown in Table 19.[9] Column (4) of Table 19 leaves little doubt that even in the absence of adjusted statements from their accountants, corporation managers have been well aware of the need to retain additional earnings during a

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[9] See, also, Figure 6.

period of inflation, if capital is to be maintained intact. After eliminating the portion of retained earnings that represents additional depreciation on assets in prevailing dollars and the portion of inventory investment occasioned by rising prices, the percentage of assets financed through retained earnings has remained remarkably stable over the twenty years since 1935. It has never exceeded 15.90 percent of total assets and has never fallen below 13.47 percent.

TABLE 18

CASH DIVIDENDS AS A PERCENTAGE OF THE EARNINGS OF STOCKHOLDERS FOR ALL CORPORATIONS FILING TAX RETURNS WITH BALANCE SHEETS ATTACHED, 1926-1955

| Year | Historic $'s | Current $'s | Year | Historic $'s | Current $'s |
|---|---|---|---|---|---|
| 1926 | 72% | | 1941 | 69% | 98% |
| 1927 | 85 | | 1942 | 49 | 61 |
| 1928 | 74 | | 1943 | 46 | 55 |
| 1929 | 78 | | 1944 | 51 | 60 |
| 1930 | 208 | | 1945 | 57 | 72 |
| 1931 | 693 | | 1946 | 46 | 78 |
| 1932 | 102 | | 1947 | 41 | 70 |
| 1933 | 292 | | 1948 | 41 | 56 |
| 1934 | 195 | | 1949 | 51 | 56 |
| 1935 | 123 | 120% | 1950 | 45 | 67 |
| 1936 | 111 | 118 | 1951 | 52 | 70 |
| 1937 | 111 | 111 | 1952 | 57 | 69 |
| 1938 | 146 | 113 | 1953 | 58 | 79 |
| 1939 | 94 | 106 | 1954 | 60 | 77 |
| 1940 | 87 | 90 | 1955 | 52 | 70 |

Source:

Based on U.S., Internal Revenue Service, Statistics of Income [Part II], 1926-1955. Adjustments made as indicated in the text.

When allowance is made for the capital gain stemming from the revaluation of plant and equipment, the picture is one of even greater stability. In 1926, retained earnings were 17.01 percent of total

TABLE 19

RETAINED EARNINGS AS A PERCENTAGE OF TOTAL ASSETS IN HISTORIC DOLLARS AFTER ADJUSTMENT FOR INFLATION: ALL CORPORATIONS FILING TAX RETURNS WITH BALANCE SHEETS ATTACHED, 1935-1955

| Year (1) | R/E[a] (2) | $\Delta d+\Delta V$[b] (3) | RE-$(\Delta d+\Delta V)$[c] (4) | $\Delta d+\Delta V+\Delta k$[d] (5) | R/E-$(\Delta d+\Delta V)+\Delta k$[e] (6) |
|---|---|---|---|---|---|
| 1935 | 15.95% | + .05% | 15.90% | -2.53% | 13.42% |
| 1936 | 15.44 | - .07 | 15.37 | -2.27 | 13.17 |
| 1937 | 15.14 | - .07 | 15.07 | +0.78 | 15.92 |
| 1938 | 14.85 | + .25 | 15.10 | +1.37 | 16.22 |
| 1939 | 15.05 | + .02 | 15.07 | +0.72 | 15.77 |
| 1940 | 15.28 | - .05 | 15.23 | +2.46 | 17.74 |
| 1941 | 16.10 | - .89 | 15.21 | +1.81 | 17.94 |
| 1942 | 16.20 | -1.43 | 14.77 | +3.46 | 19.66 |
| 1943 | 16.97 | -1.83 | 15.14 | +3.61 | 20.58 |
| 1944 | 16.87 | -2.13 | 14.74 | +2.61 | 19.48 |
| 1945 | 16.77 | -2.52 | 14.25 | +1.02 | 17.79 |
| 1946 | 17.91 | -3.94 | 13.97 | +0.65 | 18.56 |
| 1947 | 18.83 | -5.36 | 13.47 | +1.10 | 19.93 |
| 1948 | 21.12 | -6.47 | 14.65 | +0.05 | 21.17 |
| 1949 | 20.97 | -6.20 | 14.77 | -0.43 | 20.54 |
| 1950 | 21.61 | -7.07 | 14.54 | -2.38 | 19.23 |
| 1951 | 21.71 | -7.44 | 14.27 | -1.90 | 19.81 |
| 1952 | 21.16 | -7.13 | 14.03 | -2.69 | 18.47 |
| 1953 | 21.16 | -7.44 | 13.72 | -3.66 | 17.50 |
| 1954 | 21.53 | -7.58 | 13.95 | -4.49 | 17.04 |
| 1955 | 21.70 | -7.55 | 14.15 | -4.69 | 17.01 |

Source and notes:

Based on U.S., Internal Revenue Service, Statistics of Income [Part II], 1935-1955.

[a]Retained earnings as a percentage of total assets in historic dollars as shown in Table 15.

[b]Depreciation ($\Delta d$) and inventory valuation adjustments ($\Delta V$) as a percentage of total assets in historic dollars.

[c]Retained earnings, after adjustment, as a percentage of total assets in historic dollars.

[d]Depreciation and inventory valuation adjustments and inflation adjustment to book value of plant and equipment ($\Delta k$) as a percentage of total assets in historic dollars.

[e]Retained earnings, after adjustment, and capital adjustment as a percentage of total assets in historic dollars.

assets;[10] in 1955 they were still 17.01 percent, as adjusted. In all, it can be argued that the federal tax system has had no discernible effect on corporate dividend policy in the aggregate. The relative increase in retained earnings, based on the reported figures before adjustment, is to be associated with the inflation that has plagued the economy since 1940.

## Conclusion

The statistical evidence in this chapter has shown that, for the entire corporate sector, there is little foundation in fact for the view that the corporation income tax has encouraged an excessive use of long-term debt. Some individual companies have doubtless been induced to resort to interest-bearing debt because of the tax advantages involved. But as many other companies must have scaled down the proportion of debt in their balance sheets since 1926. When divergent trends are weighed out, there is irrefutable proof that the tax system plays only a minor role in corporate financial policy. The analysis of dividend policy also leads to the same conclusion. Of the taxes in the federal system, inflation seems to have influenced the thinking of financial managers to a greater extent than has the corporation income tax.

The outstanding characteristic of the years since 1935 has been the increase in book credit. Together with the rise of the productivity of capital, non-explicit interest bearing debt has been the major factor at work responsible for the stability of the yield on stock equity over three decades in which corporation tax rates edged ever upwards.

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[10] See Table 15, p. 119.

# CHAPTER VIII

## SUMMARY AND CONCLUSIONS

This study has examined the federal corporate income tax as an instrument of tax policy. Other problems related to federal fiscal requirements were also touched upon in Chapters I and III, but were specifically excluded as subjects of special study. These include: the over-all level of tax receipts in relation to the net national product; the diminishing share of state and municipal tax receipts relative to the share going to the federal government; and the place of taxes other than the corporation income tax in the federal tax structure. Neither have we been concerned with such technical aspects of tax legislation as depreciation allowances and loss write-offs. Our special project has been to evaluate, in fairly broad terms, the compatibility of a tax on corporate income in a predominantly free enterprise economy. We shall now summarize the major conclusions that may be formed on the basis of this examination.

The standards against which a tax system can be evaluated have been well developed over the years. These were summarized in Chapter II. In terms of these standards, the federal corporate income tax is most difficult to appraise. The personal income tax is full of defects, but these are primarily associated with the highly progressive rates. While reform of the personal tax structure is, in practice, a formidable task, the theorist has no great difficulty in pointing to the problem areas. Any expression of opinion on other than administrative aspects

of the corporation tax, however, has to rest on some assumption as to its incidence.

Chapters IV and V argued that, in general, it may be concluded that the initial incidence of the tax is on stockholders. In the long-run, on the other hand, it was concluded that the tax is shifted through a reduction in output leading to an increase in product prices. This reduction in output is, itself, effected by a cut-back in corporate investment.

In a stationary economy, the process of shifting would take some time. But the shift would be more rapid in a growing economy, where demand is increasing. In both cases, however, investment in inventories may be adjusted fairly quickly so that some shifting may occur more quickly than is generally believed.

The empirical data of Chapter VI lends factual support to the view that no over-all shifting occurs in the short-run. In some competitive industries, concurrent action by producers to add the tax directly to prices may result in successful shifting in a very short period of time. Quasi-monopolists who are not charging all the traffic will bear may also be induced to add some of the tax into their prices. Regulated utilities also represent a special case where the governing authorities authorize rate increases to pass on the corporation income tax. But for the corporate sector as a whole, the evidence overwhelmingly demonstrates that in the short-run an inverse relationship between changes in tax rates and changes in rates of return on stock equity exists.

Over a longer period of time, however, the stability of rates of return favors the proponents of the shifting hypothesis. The form

of the shifting process appears to be that corporate investment, in the face of technological developments which result in a decrease in the ratio of capital to output, would have increased by more than it has were it not for the tax. In the absence of an econometric study, it is difficult to say much about the timing involved in the shifting process. But it is clear that increases in demand and in the productivity of capital facilitate shifting. Therefore, since 1939 at any rate, it is probable that shifting has occurred without much delay.

On the surface, the stability of yield would seem to indicate that stockholders have not suffered by the tax on corporate income in the long-run. If stability of rates of return is taken to be the indicia of incidence, such an assertion would be true. But the very process of shifting, following upon the initial absorption of the tax in the short-run, reduces corporate investment. The absolute returns to capital are, therefore, less than they would otherwise have been. In this sense, it may be argued that the incidence of the tax is on stockholders even in the long-run. At the same time, the higher product prices resulting from the shifting process mean that consumers also suffer. This should be regarded, perhaps, not as indicative of the incidence of the tax, but as an effect of the tax resulting from the incidence being on stockholders.

From the equity viewpoint, critics of progressive taxation may find some solace from the fact that the corporation income tax seems to be, in effect, a regressive sales tax. In this respect, it serves to modify the progressiveness of the personal income tax, the major element in the federal tax structure.

Despite this effect, however, it is concluded that even a

shifted corporation income tax is incompatible with the need for growth in the American economy because of its effect on incentives. By striking at corporate income, the tax raises the profitability requirements of investment undertakings and thereby imposes a barrier to new investment in the corporate sector. As a result of this lack of neutrality in the decision-making process, it hampers the replacement of capital equipment, the improvement and expansion of existing facilities, and the formation of new enterprises. The corporate income tax, therefore, extends the economic life of old facilities and relieves them of some of the competitive pressures that would otherwise be present. In sum, it retards the introduction of innovations leading to cost reduction and product improvement, and reduces the effectiveness of competition, the disciplinary force in our economic system.

Any tax, of course, removes a certain amount of purchasing power from the market system, and thus restricts the production of goods and services in the private sector of the economy in order to free resources for the needs of the public sector. But in the corporate income tax we have, on the basis of theory and according to the factual evidence, a tax that actively discriminates against business investment. The private sector is left with no option but to free resources from the production of capital goods in order to meet the demands of the public sector. Were the tax receipts now collected through the corporate income tax levied, instead, through the personal income tax, the private sector would be left free to decide whether to meet its tax obligations by restricting its expenditures on consumption goods or on investment goods. As things stand at present, corporate income taxation precludes this choice.

This lack of neutrality of the corporation tax suggests three conclusions. In the first place, the shifting process itself leads to a relative decline in corporate investment. While alternative taxes, such as the excise tax and the personal income tax may have the same effect, it is by no means so certain. Consumers may prefer to meet their tax bills by reducing their consumption expenditures. The direct influence of the tax on corporate investment leads to the second observation that it is an inflationary tax. Some reduction in consumption demand and some increase in corporate investment would, in the long-run, weaken the inflationary pressures in the economy through the greater supply of goods associated with an enlarged productive capacity. Finally, the corporation tax is inimical with the desire for individual freedom of producers and consumers that is a feature of the market-oriented economy. The ideal of a good society where each individual is left as free as possible to pursue his own ends is more readily approached in a growing economy than in one that is stationary or declining. By restricting corporate investment, the corporation income tax runs counter to this ideal. It is further incompatible with the desire for individual freedom inasmuch, as previously indicated, it forces the private sector to meet some of its tax bill by a reduction in investment. More in keeping with the ideals of a free society would be a personal income tax which would leave consumers free to choose whether their taxes should be met out of consumption expenditures or out of savings.

It is not the purpose of this study to make policy recommendations. On the other hand, it is not, perhaps, inappropriate, to assert that something needs to be done to lower the corporation income tax.

Here is a tax that burdens both investors and consumers, and does not seem to add to the progressivity of the tax structure as its proponents assume. It is neutral in its effects on corporate financial and dividend policies, as Chapter VII revealed, but it is not neutral in its effect on incentives to invest and take risks. Should there be any chance of tax reduction in the future, a first candidate for consideration should be the corporation tax. Such a reduction can be achieved through a reduction in the nominal rate from the present 52 percent. It should also be possible to allow more liberal depreciation charges. There is also room for an extension of the loss write-off provision to allow an unlimited loss-offset. In the absence of over-all tax reduction, some of the tax load could be shifted to the personal income tax, provided the progressiveness of the rates in that tax were mitigated. Certainly, we need more corporate capital formation if we are to increase our rate of growth and thereby enhance the freedom of our people in their capacities as producers, consumers, and investors.

## APPENDIX

## THE ADJUSTMENT OF ACCOUNTS TO CURRENT DOLLARS

In order to eliminate the effects of inflation in the analysis of financial relationships over time, Chapters VI and VII showed margins, turnover, yields, etc. calculated from statements in current dollars between 1935 and 1955. It is axiomatic that some such adjustment is needed if "true" rates of return are to be computed, particularly for the years since the start of World War II.

The most widely accepted method of adjustment is to convert all statements to common dollars.[1] Annual results since 1935 may, for example, be reported in terms of 1955 dollars. This is the preferred treatment where absolutes are to be compared over the years. Thus, it would be helpful to have all sales reported in dollars of the same purchasing power. But for this study, common dollar accounting was needlessly complex. The sole objective was to reflate the accounts so that all the items in the financial statements of any one year would be reported in the dollars of that year. It was only necessary, therefore, to correct for the effects of the declining purchasing power of money on the inventory and plant and equipment accounts.[2] This

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[1] See, for example, William A. Paton and William A. Paton, Jr., Corporation Accounts and Statements (New York: The Macmillan Company, 1955), Chap. XIX. Perry Mason, Price-Level Changes and Financial Statements--Basic Concepts and Methods (Columbus, Ohio: American Accounting Association, 1956).

[2] Some may argue that the gain to shareholders from the decline in the real burden of long-term debt should also be recognized. But as the change in long-term debt relative to total stock equity was so

appendix explains the methods and procedures adopted to achieve this end.

## The Inventory Valuation Adjustment

During a period of sustained inflation, additional investment in inventory may merely reflect a greater dollar investment, with no change in inventory in real terms. The Department of Commerce estimates the extent of this inflationary element for all corporations, and by industrial sub-groups, and publishes its figures in the Survey of Current Business.[3] The valuation adjustment to inventory from year to year was, therefore, a simple matter.

## The Plant and Equipment and Depreciation Adjustment

### The Price Index

For the purpose of these adjustments, a deflator ($Z_t$) of prices of capital goods was needed. Such a deflator was not available in ready-made form back to 1920,[4] but simple operations on three measures provided a satisfactory estimate.

Solomon Fabricant has prepared an index of the prices of business capital goods for the years preceding 1929.[5] For the years since 1929, a simple average of the index of prices of new construction,

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slight over the period in question, there was little point in adding to the complexity of the calculations--the conclusions of the study would not have been different.

[3] U.S., Department of Commerce, Office of Business Economics, Survey of Current Business (Washington: U.S. Government Printing Office).

[4] The reader will see in the pages that follow that, although adjusted figures were prepared only for the years 1935-1955, it was necessary to have data going back to 1920.

[5] Solomon Fabricant, Capital Consumption and Adjustment (New York: National Bureau of Economic Research, Inc., 1938), pp. 178-179.

other than farm or residential, and of the index of prices of producers' durable equipment was used.[6] (Equal weights were indicated because both indexes were highly correlated.)

Fabricant's index was joined with the average of the two reflators taken from the Economic Report of the President by multiplying the former index by 0.47. This makes both indexes agree for the year 1929. Continuing this procedure through 1935, when both indexes overlap, it can be seen (in Table 20) that there is a close agreement between the two. Table 20 estimates the $Z_t$ series, according to the procedures outlined, from 1920 to 1955.

The Reflation Index for Plant and Equipment and Depreciation

To adjust the accounts of a single company, it is customary to apply the appropriate price index to the figures as reported in the financial statements. But Statistics of Income [Part II] does not give data on purchases of depreciable assets, or on sales and retirements. Further, in many years, the fixed asset accounts are shown net of accumulated depreciation allowances.

Instead of correcting the accounts presented in Statistics of Income by use of the price index, it was decided to compute two reflation indexes from other data and then apply these to the actual depreciable assets and depreciation figures reported by the Internal Revenue Service.

The procedure to obtain an appropriate plant and equipment and depreciation reflator is as follows. Consider a hypothetical company whose investment in every year since 1919 has been exactly equal to the

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[6] Economic Report of The President: Transmitted to the Congress, January 20, 1959, Table D-5, "Implicit Price Deflators for Gross National Product, 1929-1958," p. 144.

TABLE 20

PRICE INDEX OF DEPRECIABLE ASSETS, U.S. ECONOMY, 1920-1955

| Year | Fabricant's Index of Prices of Capital Goods (1929=100) | | President's Report | | Index 1920-1955 |
|---|---|---|---|---|---|
| | As Given | (x0.47) | New Construction Other Than Residential or Farm | Producers' Durable Equipment | |
| (1) | (2) | (3) | (4) | (5) | (6) |
| 1920 | 130.2 | 61.2 | | | 61.2 |
| 1921 | 102.4 | 48.1 | | | 48.1 |
| 1922 | 93.0 | 43.7 | | | 43.7 |
| 1923 | 103.5 | 48.6 | | | 48.6 |
| 1924 | 101.4 | 47.7 | | | 47.7 |
| 1925 | 99.5 | 46.8 | | | 46.8 |
| 1926 | 99.4 | 46.7 | | | 46.7 |
| 1927 | 99.2 | 46.6 | | | 46.6 |
| 1928 | 98.0 | 46.1 | | | 46.1 |
| 1929 | 100.0 | 47.0 | 41.6 | 52.5 | 47.0 |
| 1930 | 95.7 | 45.0 | 39.7 | 50.5 | 45.1 |
| 1931 | 88.7 | 41.7 | 36.2 | 47.9 | 42.0 |
| 1932 | 82.1 | 38.6 | 31.7 | 45.5 | 38.6 |
| 1933 | 80.5 | 37.8 | 31.9 | 43.1 | 37.5 |
| 1934 | 87.2 | 41.0 | 33.4 | 45.9 | 39.6 |
| 1935 | 88.4 | 41.5 | 35.4 | 45.6 | 40.5 |
| 1936 | | | 35.2 | 45.4 | 40.3 |
| 1937 | | | 39.9 | 48.7 | 44.3 |
| 1938 | | | 39.1 | 50.2 | 44.6 |
| 1939 | | | 38.4 | 49.4 | 43.9 |
| 1940 | | | 39.1 | 50.6 | 44.8 |
| 1941 | | | 42.2 | 54.0 | 48.1 |
| 1942 | | | 47.6 | 58.5 | 53.0 |
| 1943 | | | 54.0 | 58.4 | 56.2 |
| 1944 | | | 56.3 | 59.3 | 57.8 |
| 1945 | | | 56.9 | 60.0 | 58.4 |
| 1946 | | | 62.6 | 66.7 | 64.6 |
| 1947 | | | 74.8 | 76.8 | 75.8 |
| 1948 | | | 83.1 | 83.1 | 83.1 |
| 1949 | | | 82.6 | 87.0 | 84.8 |
| 1950 | | | 85.1 | 89.0 | 87.0 |
| 1951 | | | 93.1 | 96.8 | 94.9 |
| 1952 | | | 96.5 | 97.5 | 97.0 |
| 1953 | | | 98.9 | 99.0 | 98.9 |
| 1954 | | | 100.0 | 100.0 | 100.0 |
| 1955 | | | 103.2 | 102.6 | 102.9 |

Sources:

Column 2--Fabricant, Capital Consumption and Adjustment, Table 32, pp. 178-179.

Columns 4 & 5--Economic Report of The President: Transmitted to the Congress, January 20, 1959, Table D-5, p. 144.

Column 6--1920-1928, based on Fabricant's figures.
1929-1955, an average of columns 4 & 5.

investment in non-farm plant and producers' durable equipment for the whole of the United States. Reliable data exists for such a series since 1929.[7] As for data prior to 1929, Kuznets' and Fabricant's estimates of non-residential construction and producers' durable equipment,[8] when corrected to exclude farm construction and equipment (by multiplying by 0.812), gives a series which, in the 1930's, is very close to the series in the Economic Report of the President. A combined series representing an average for the whole country is shown in Table 21.

The figures in column 5 of Table 21 show annual aggregate investment in non-farm producers' plant and equipment in historic dollars. Column 6 shows what the investment would amount to if it were recorded in 1954 dollars. Investment in 1942, for instance, is reported to have been $5.3 billion, in dollars of that year. The price index in 1942, from Table 20, was 53.0. Accordingly, an investment of $5.3 billion in 1942 dollars was equivalent to an investment of $10 billion in 1954 dollars.

We now have gross annual investment in producers' plant and equipment both in historic dollars and in 1954 dollars for the period 1919-1958.

To arrive at the net investment that would be recorded in any one year, and at the annual depreciation charge, it was necessary to make some estimate as to the length of life of the diverse aggregation

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[7] Economic Report of the President: Transmitted to the Congress, January 20, 1959, Table D-8, "Investment in Non-farm Producer Plant and Equipment," 1929-1958, p. 149.

[8] Cited by Carl Shoup, Principles of National Income Analysis (Boston-New York: Houghton & Mifflin Company, 1947), Table 25, p. 175.

TABLE 21

INVESTMENT IN NON-FARM PLANT AND PRODUCERS' DURABLE EQUIPMENT, 1920-1955

| Year | Investment in Private Nonresid. Constr. & Producer Durable Equipment in Billions of $'s | | Investment in Nonfarm Producers' Plant & Equipment in Billions of $'s | Hypothetical Company with Gross Investment in Billions of $'s | Hypothetical Company with Gross Investment in Billions of Current $'s (1954 = 100) |
|---|---|---|---|---|---|
| | Total | The Same Multiplied by 0.812 | | | |
| (1) | (2) | (3) | (4) | (5) | (6) |
| 1920 | $ 9.1 | $7.4 | | $ 7.4 | $12.1 |
| 1921 | 6.2 | 5.0 | | 5.0 | 10.5 |
| 1922 | 6.4 | 5.2 | | 5.2 | 11.9 |
| 1923 | 8.8 | 7.2 | | 7.2 | 14.7 |
| 1924 | 8.5 | 6.9 | | 6.9 | 14.5 |
| 1925 | 9.4 | 7.6 | | 7.6 | 16.3 |
| 1926 | 10.4 | 8.4 | | 8.4 | 18.1 |
| 1927 | 10.0 | 8.1 | | 8.1 | 17.4 |
| 1928 | 10.3 | 8.4 | | 8.4 | 18.1 |
| 1929 | 11.7 | 9.5 | $ 9.5 | 9.5 | 20.2 |
| 1930 | 9.3 | 7.6 | 7.4 | 7.4 | 16.4 |
| 1931 | 5.8 | 4.7 | 4.5 | 4.5 | 10.7 |
| 1932 | 3.1 | 2.5 | 2.5 | 2.5 | 6.5 |
| 1933 | 2.9 | 2.4 | 2.3 | 2.3 | 6.1 |
| 1934 | 3.8 | 3.2 | 3.0 | 3.0 | 7.6 |
| 1935 | 4.8 | 3.9 | 3.8 | 3.8 | 9.4 |
| 1936 | 6.2 | 5.0 | 5.1 | 5.1 | 12.7 |
| 1937 | 7.8 | 6.3 | 6.6 | 6.6 | 14.9 |
| 1938 | 5.7 | 4.6 | 4.7 | 4.7 | 10.5 |
| 1939 | | | 5.3 | 5.3 | 12.1 |
| 1940 | | | 7.0 | 7.0 | 15.6 |
| 1941 | | | 8.7 | 8.7 | 18.1 |
| 1942 | | | 5.3 | 5.3 | 10.0 |

TABLE 21--Continued

| Year | Investment in Private Nonresid. Constr. & Producer Durable Equipment in Billions of $'s | | Investment in Nonfarm Producers' Plant & Equipment in Billions of $'s | Hypothetical Company with Gross Investment in Billions of $'s | Hypothetical Company with Gross Investment in Billions of Current $'s (1954 = 100) |
|---|---|---|---|---|---|
| | Total | The Same Multiplied by 0.812 | | | |
| (1) | (2) | (3) | (4) | (5) | (6) |
| 1943 | | | 4.6 | 4.6 | 8.2 |
| 1944 | | | 6.3 | 6.3 | 10.9 |
| 1945 | | | 9.3 | 9.3 | 15.9 |
| 1946 | | | 14.8 | 14.8 | 22.9 |
| 1947 | | | 20.7 | 20.7 | 27.3 |
| 1948 | | | 23.3 | 23.3 | 28.0 |
| 1949 | | | 21.0 | 21.0 | 24.8 |
| 1950 | | | 23.4 | 23.4 | 26.9 |
| 1951 | | | 27.4 | 27.4 | 28.9 |
| 1952 | | | 28.1 | 28.1 | 29.0 |
| 1953 | | | 30.2 | 30.2 | 30.5 |
| 1954 | | | 29.5 | 29.5 | 29.5 |
| 1955 | | | 33.4 | 33.4 | 32.5 |

Source:

Column (1)--Data by Kuznets and Fabricant, as given in Carl Shoup, Principles of National Income Analysis, Table 25, p. 75.

Column (4)--Economic Report of the President: Transmitted to the Congress, January 20, 1959, Table D-8, p. 149.

of assets in this group, and in the corporate sector. Fabricant's study on the distribution of depreciable assets in firms in the period 1913-1935 shows an annual recoupment period of nearly 20 years.[9] There is evidence, however, that since 1940 the time composition of capital goods has changed leading to an average recoupment period of less than 20 years. Many companies, for example, increased their rates of depreciation in the 1940's and 1950's. Part of this increase is related to the pervasiveness of the philosophy of "purposeful obsolescence." Further impetus to a more rapid write-off of assets has been given by the use of accelerated depreciation for tax purposes during World War II and the Korean War. Since 1954, the use of some form of accelerated depreciation in computing taxable net income has become commonplace even in 'quasi' peace-time.

The Klein-Goldberger models,[10] and the models subsequently used in the Michigan Conference on the Economic Outlook,[11] use regression functions explaining depreciation with slopes that suggest less than 10 years as the average life of depreciable assets.

As Fabricant's distribution refers to pre-war periods and the Klein-Goldberger models to post-war periods, it seemed reasonable to use an average of both estimates for a study ranging from 1935 to 1955. A 10 year recoupment period seemed too short for pre-war years; the

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[9] Fabricant, Capital Consumption and Adjustment, passim.

[10] L. R. Klein and A. S. Goldberger, An Econometric Model of the United States, 1929-1952 (Amsterdam: North-Holland Publishing Co., 1955), pp. 52, 58, 91, 97.

[11] Daniel B. Suits, "A Statistical Model of Economic Activity as Applied to 1958," in Fifth Annual Conference on the Economic Outlook (Ann Arbor: University of Michigan, 1957), pp. 40-50. See also the reports on earlier conferences in this series.

20 year period suggested by Fabricant, too long for post-war years. Thus, 15 years served as a recoupment period that was not too biased.

Other evidence that this estimate was not unreasonable was obtained by relating actual annual depreciation charges as reported in Statistics of Income [Part II] to gross investment in long-term assets. The shortest period of time so indicated as the average length of life for all long-term corporate investment in real assets was 14 years; the longest, 17 years. Bulletin F also indicates that this estimate is a fair average.[12] Figures cited by Paton also support the assumption.[13]

Assume, now, that the hypothetical company, following the investment pattern in Table 21, records its assets at their historic cost and computes its straight-line depreciation on the basis of a 15 year recoupment period. Its annual depreciation charge and its annual net investment in plant and equipment may be expressed algebraically in the following way:

$$1(a) \quad D_t = \sum_{s=0}^{14} \frac{I_{t-s}}{15}, \text{ and}$$

$$1(b) \quad K_t = \sum_{s=0}^{13} \frac{I_{t-s}}{15} \cdot (14 - s).$$

where $D_t$ = the annual depreciation charge

$K_t$ = accumulated net investment in plant and equipment at any time 't'

t = the current year (e.g., 1935, 1936, 1937. . .1955)

I = annual investment in plant and equipment

To illustrate: the depreciation charge in 1935 would be the algebraic

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[12] U.S., Treasury Department, Bulletin F (Revised January, 1942; Washington: U.S. Government Printing Office, 1942).

[13] William A. Paton, Essentials of Accounting (Revised Edition; New York: The Macmillan Company, 1949), p. 564.

sum of 1/15 of the annual investment in 1935 and each of the preceding 14 years. Similarly, accumulated net investment at the end of 1935 is the sum of $\frac{14}{15}$ of 1935 investment, $\frac{13}{15}$ of 1934 investment, and so on. The annual figures, so computed, are shown in columns 2 and 4 of Table 22.

TABLE 22

ANNUAL DEPRECIATION CHARGES AND NET INVESTED CAPITAL OF A HYPOTHETICAL COMPANY WHOSE GROSS INVESTMENT IS THE SAME AS THE INVESTMENT IN NON-FARM PLANT AND PRODUCERS' DURABLE EQUIPMENT FOR THE ENTIRE UNITED STATES, 1935-1955 (IN BILLIONS OF $'S)

| Year | Annual Depreciation on Historic Cost ($D_t$) | Annual Depreciation in Current $'s ($D'_t$) | Net Capital in Historic $'s ($K_t$) | Net Capital in Current $'s ($K'_t$) |
|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) |
| 1935 | $ 5.9887 | $ 5.3561 | $ 37.0040 | $ 34.1008 |
| 1936 | 5.9933 | 5.3887 | 36.1107 | 33.6499 |
| 1937 | 6.0867 | 6.0121 | 36.6240 | 37.5710 |
| 1938 | 5.9233 | 5.9287 | 35.4007 | 36.5966 |
| 1939 | 5.8167 | 5.7656 | 34.8440 | 35.5566 |
| 1940 | 5.7747 | 5.8636 | 36.1093 | 39.0220 |
| 1941 | 5.7920 | 6.2960 | 39.0173 | 42.5825 |
| 1942 | 5.6040 | 6.6750 | 38.7133 | 45.5455 |
| 1943 | 5.3533 | 6.7052 | 37.9600 | 46.1902 |
| 1944 | 5.1400 | 6.5373 | 39.1200 | 47.2680 |
| 1945 | 5.2667 | 6.5863 | 43.1533 | 50.4723 |
| 1946 | 5.9533 | 7.8108 | 52.0000 | 62.8199 |
| 1947 | 7.1667 | 10.2177 | 65.5333 | 84.1935 |
| 1948 | 8.5667 | 12.4153 | 80.2667 | 103.1867 |
| 1949 | 9.7667 | 13.6410 | 91.5000 | 112.6567 |
| 1950 | 11.0733 | 15.0107 | 103.8267 | 123.9687 |
| 1951 | 12.5600 | 17.3997 | 118.6667 | 145.2259 |
| 1952 | 13.9933 | 18.6947 | 132.7733 | 157.8450 |
| 1953 | 15.6933 | 20.3794 | 147.2800 | 170.7574 |
| 1954 | 17.3067 | 21.7678 | 159.4733 | 180.3888 |
| 1955 | 19.0667 | 23.5539 | 173.8067 | 195.4662 |

Source:

Data in Table 21, columns 5 and 6, adjusted as explained in the text.

Were this company to reflate its capital each year and to compute its depreciation charge on a current dollar basis, its net depreciable assets at the end of any year, and its annual depreciation charge, would be:

$$2(a) \quad D'_t = \frac{Z_t}{15} \sum_{s=o}^{14} \frac{I_{t-s}}{Z_{t-s}} \text{ , and}$$

$$2(b) \quad K'_t = \frac{Z_t}{15} \sum_{s=o}^{13} \frac{I_{t-s}}{Z_{t-s}} \cdot (14 - s)$$

where $D'_t$ = the annual depreciation charge in current dollars.

$K'_t$ = accumulated net investment in plant and equipment in current dollars.

$Z_t$ = the capital goods price index (Table 20).

Multiplying by the capital goods index in each year converts the data to the dollars prevailing in that year. The figures so obtained are shown in columns 3 and 5 of Table 22.

We now have two series, the first of which represents net depreciable assets and the annual depreciation charge on a historic dollar basis from 1935-1955; the second, the first series corrected for inflation. A reflation factor for depreciation and for depreciable assets can now be computed by dividing the 2a and 2b series by the 1a and 1b series (or, in Table 22: column 3 by column 2, and column 5 by column 3). Let us call these factors $r_t$ for the depreciation series and $S_t$ for the depreciable assets series. Then:

$$3(a) \quad r_t = \frac{D'_t}{D_t} \text{ , and}$$

$$3(b) \quad S_t = \frac{K'_t}{K_t}$$

The appropriate reflation factors are shown in Table 23 for all years from 1935 to 1955. They may be applied to the plant and equipment

TABLE 23

REFLATION FACTORS FOR CONVERTING ANNUAL DEPRECIATION CHARGES AND NET INVESTED CAPITAL OF CORPORATIONS TO CURRENT DOLLARS FROM 1935-1955

| Year | Depreciation Charge Reflator ($r_t$) | Net Capital Asset Reflator ($s_t$) |
|---|---|---|
| (1) | (2) | (3) |
| 1935 | 0.89437 | 0.92154 |
| 1936 | 0.89912 | 0.93185 |
| 1937 | 0.98774 | 1.02585 |
| 1938 | 1.00091 | 1.03378 |
| 1939 | 0.99121 | 1.01928 |
| 1940 | 1.01539 | 1.08066 |
| 1941 | 1.08701 | 1.09137 |
| 1942 | 1.19111 | 1.17648 |
| 1943 | 1.25253 | 1.21681 |
| 1944 | 1.27184 | 1.20828 |
| 1945 | 1.25055 | 1.16960 |
| 1946 | 1.31201 | 1.20807 |
| 1947 | 1.42511 | 1.28474 |
| 1948 | 1.44925 | 1.28554 |
| 1949 | 1.39668 | 1.23122 |
| 1950 | 1.35557 | 1.19399 |
| 1951 | 1.38532 | 1.22381 |
| 1952 | 1.33597 | 1.18883 |
| 1953 | 1.29860 | 1.15940 |
| 1954 | 1.25777 | 1.13115 |
| 1955 | 1.23534 | 1.12461 |

accounts of other companies, and were so applied in this study to the aggregate accounts of the corporate sector. Errors will arise only in the case that an individual company has a rate of growth (or decline) very different from that of the whole economy or a depreciation rate significantly different from the national average. As previously indicated,[14] the data in this study supports an assumption of an average 15 year life of assets. The pattern of investment in the

[14] See page 151.

corporate sector is also closely related to that of the whole economy. The amplitude of the swings is not as great as in the hypothetical company, but the direction and rate of change is almost the same. This is to be expected since corporate investment comprises a large part of total investment.

## The Adjustment to Net Income

Table 24 shows the total adjustment to corporate net income from 1935 to 1955. Column 5 of the table also presents the cumulative overstatement of corporate taxable net income since 1940. Notice that changes between 1935 and 1939 were almost completely compensatory. But from 1940 to 1955, corporate taxable net income was overstated, according to these estimates, by $66.436 billion. Of this sum, $25.074 billion represents overstatement of inventories; $41.362 billion, understatement of depreciation charges.

## The Adjustment to Balance Sheet Accounts

The adjustments to accounts on the aggregate corporate balance sheet are reflected in Table 25. Column 2 shows the gross annual under or over-statement of depreciable assets; column 3, the adjustment required to the undepreciated capital cost of plant and equipment when depreciation is recorded on a prevailing dollar cost basis; column 4, the net adjustment to depreciable assets each year. Corresponding adjustments to owners' equity are shown in columns 5, 6 and 7. The gross corrections to depreciable assets, ($\Delta k + \Sigma \Delta d$) and the inventory valuation adjustment, are recorded as a separate 'capital adjustment' item in column 5, while the annual correction to net income for the inventory valuation adjustment and depreciation charge are cumulated

TABLE 24

ADJUSTMENT TO CORPORATE AGGREGATE NET TAXABLE INCOME FOR INVENTORY VALUATION AND DEPRECIATION CHARGES IN CURRENT DOLLARS 1935-1955 (IN BILLIONS OF DOLLARS)

| Year | Inventory Valuation Adjustment | Depreciation Adjustment | Total Change in Net Income + = increase - = decrease | Cumulative Overstatement of Net Income 1940-1955 |
|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) |
| 1935 | $-0.227 | $+0.381 | $+0.154 | $+0.154 |
| 1936 | -0.738 | +0.358 | -0.380 | -0.226 |
| 1937 | -0.031 | +0.044 | +0.013 | -0.213 |
| 1938 | +0.963 | NIL | +0.963 | +0.750 |
| 1939 | -0.714 | +0.034 | -0.680 | +0.070 |
| 1940 | -0.200 | -0.061 | -0.261 | -0.191 |
| 1941 | -2.471 | -0.372 | -2.843 | -3.034 |
| 1942 | -1.204 | -0.917 | -2.121 | -5.155 |
| 1943 | -0.773 | -1.179 | -1.952 | -7.107 |
| 1944 | -0.287 | -1.511 | -1.798 | -8.905 |
| 1945 | -0.564 | -1.636 | -2.200 | -11.105 |
| 1946 | -5.263 | -1.551 | -6.814 | -17.919 |
| 1947 | -5.899 | -2.712 | -8.611 | -26.530 |
| 1948 | -2.150 | -3.567 | -5.717 | -32.247 |
| 1949 | +1.943 | -3.380 | -1.437 | -33.684 |
| 1950 | -4.864 | -3.371 | -8.235 | -41.919 |
| 1951 | -1.260 | -4.265 | -5.525 | -47.444 |
| 1952 | +0.967 | -4.176 | -3.209 | -50.653 |
| 1953 | -0.997 | -4.234 | -5.231 | -55.884 |
| 1954 | -0.314 | -4.055 | -4.369 | -60.253 |
| 1955 | -1.738 | -4.375 | -6.113 | -66.366 |
| | $-25.821 | $-40.545 | $-66.366 | |

Sources:

Column (2) - 1935-1951--National Income, 1954 Edition: A Supplement to The Survey of Current Business, Table 23, pp. 194-195.

1952-1955--Survey of Current Business, Vol. 36 (July, 1956), Table 23, p. 18.

Column (3)--Column (2) of Table 23 applied to data from Statistics of Income [Part II], 1935-1955.

TABLE 25

ADJUSTMENT TO BALANCE SHEET ACCOUNTS, 1935-1955
(IN BILLIONS OF DOLLARS)

| Year | To Net Plant and Equipment | | | To Capital Adjustment A/C | To Retained Earnings[e] | Net Adjustment to Stock Equity[f] |
|---|---|---|---|---|---|---|
| | $\Delta k + \Sigma \Delta d$[a] | $\Sigma \Delta d$[b] | $\Delta k$[c] | | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| 1935 | $-8.261 | $+0.381 | $-7.88 | $-8.034 | $+0.154 | $-7.88 |
| 1936 | -7.409 | +0.739 | -6.67 | -6.444 | -0.226 | -6.67 |
| 1937 | +1.807 | +0.783 | +2.59 | +2.803 | -0.213 | +2.59 |
| 1938 | +2.567 | +0.783 | +3.35 | +2.600 | +0.750 | +3.35 |
| 1939 | +1.313 | +0.817 | +2.13 | +2.060 | +0.070 | +2.13 |
| 1940 | +7.324 | +0.756 | +8.08 | +8.271 | -0.191 | +8.08 |
| 1941 | +8.816 | +0.384 | +9.20 | +12.234 | -3.034 | +9.20 |
| 1942 | +18.143 | -0.533 | +17.61 | +22.765 | -5.155 | +17.61 |
| 1943 | +22.902 | -1.712 | +21.19 | +28.297 | -7.107 | +21.19 |
| 1944 | +23.033 | -3.223 | +19.81 | +28.715 | -8.905 | +19.81 |
| 1945 | +20.469 | -4.859 | +15.61 | +26.715 | -11.105 | +15.61 |
| 1946 | +27.280 | -6.410 | +20.87 | +38.789 | -17.919 | +20.87 |
| 1947 | +41.072 | -9.122 | +31.95 | +58.480 | -26.530 | +31.95 |
| 1948 | +45.199 | -12.689 | +32.51 | +64.757 | -32.247 | +32.51 |
| 1949 | +47.429 | -16.069 | +31.36 | +65.044 | -33.684 | +31.36 |
| 1950 | +47.510 | -19.440 | +28.07 | +69.989 | -41.919 | +28.07 |
| 1951 | +59.365 | -23.705 | +35.66 | +83.104 | -47.444 | +35.66 |
| 1952 | +59.901 | -27.881 | +32.02 | +82.673 | -50.653 | +32.02 |
| 1953 | +60.905 | -32.115 | +28.79 | +84.574 | -55.884 | +28.79 |
| 1954 | +61.060 | -36.170 | +24.89 | +85.143 | -60.253 | +24.89 |
| 1955 | +65.985 | -40.545 | +25.44 | +91.806 | -66.366 | +25.44 |

Sources and notes:

Columns (3) and (6)--Table 24, p. 156

Column (4)--Calculated by applying column (3) of Table 23 to data from Statistics of Income [Part II], 1935-1955.

[a] $\Delta k + \Sigma \Delta d$ = increase (+) or decrease (-) in gross fixed assets resulting from the adjustment for inflation.

[b] $\Delta d$ = cumulative increase (+) or decrease (-) to net fixed assets resulting from the depreciation adjustment.

[c] $\Delta k$ = increase (+) or decrease (-) in net fixed assets, and is the net of columns (2) and (3).

[d] The capital adjustment account comprises the adjustment to gross fixed assets and the inventory valuation adjustment.

TABLE 25--Continued

[e]See column (5) of Table 24.

[f]Adjustment to stock equity is the net of columns (5) and (6).

to retained earnings in column 6. The net effect on stock equity of all three adjustments (depreciable assets, inventory, and depreciation) is reported in column 7.

It is interesting to note that there is a net addition to depreciable assets (in column 4) in every year from 1937 to 1955 inclusive. There is, in consequence, a positive addition to corporate stock equity during these years. In 1935 and 1936, the correction for inflation results in a net reduction to total stock equity.

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