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Great Britain

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I. INTRODUCTION

The dismal science has never been short of prophets of doom, so that it will be no surprise to discover that, in spite of the fact that in the last decade the British people have enjoyed a standard of living higher than any they had known previously, the Jeremiahs have wailed long and loud about the poor performance of the British economy. One has only to look at the course of the balance of payments to understand why this should be so, for there were six "crisis" years between 1947 and 1957.¹ Moreover, there can be no doubt that in postwar growth rates the United Kingdom does not show up very well in the international league,² so that I can only suppose that the U.K. was included among the countries in this survey in order to provide our hosts with solace, for we certainly cannot provide them with inspiration.

Limitations of space will not permit a detailed diagnosis here of the various afflictions from which the British economy is believed to suffer, but the one that is mentioned most often is that the level of investment is too low.³ However, since economic policy generally has been severely constrained by balance-of-payments considerations and

NOTE: For conversion purposes, 1 pound = \$2.80, or £0.357 = \$1.

¹ See M. F. G. Scott "The Balance of Payments Crises," in G. D. N. Worswick and P. H. Ady *The British Economy in the Nineteen-Fifties*, London, 1962.

² See *Economic Survey of the United Kingdom—March 1962*, OECD, Paris, Diagram 2, p. 12.

³ For a selection of such diagnoses, see *Fourth Report*, Council on Prices, Productivity and Incomes, London, July 1961, paras. 13 ff.; *Economic Survey of the United Kingdom—March 1962*; Tore Browaldh, "A Swedish View of Britain's Economy," *Three Banks Review*, June 1963; Robert Hall, "Changes in the Industrial Structure of Britain," *Lloyds Bank Review*, January 1963; and Duncan Burn, "Why Investment Has Fallen," *Lloyds Bank Review*, April 1963.

the demands for full employment, and the budget has been used as the major redistributive mechanism, it is hardly surprising that there has been little time, energy, or resources left for a long hard look at more distant prospects. And since "there has been no close consideration of the structure of taxation in relation to growth,"⁴ it is hardly surprising that the impact of tax policy upon growth prospects has been erratic and rather haphazard. There are now some signs that this state of affairs may soon be replaced by more purposive planning, but it should be fully realized at the outset that, when talking about tax policy in relation to growth in postwar Britain, the growth aspect of a given policy measure has usually been incidental to its main purpose.

The present tax structure⁵ is, of course, a legacy from a period when the fostering of growth was not an important consideration. It has, therefore, been argued that without a radical recasting of the entire structure, no significant progress will be possible. Some hint of the way the wind is blowing in this respect may be gleaned from the report of the National Economic Development Council quoted earlier:⁶

For a full examination of the impact on growth of taxation a study of systems abroad is also necessary. Continental countries have grown faster than the United Kingdom in recent years and their tax systems may have contributed to this. Although total taxes in the United Kingdom bear much the same relation to the national income, about a third, as in other industrial countries . . . the British system differs significantly from the continental system. Three of the differences are: first, most of the continental countries collect more of their taxes for social security purposes on the basis of payroll charges; second, these countries generally have a tax of the turnover type, or in the case of France a value-added type, covering a wider field than the British purchase tax; third, import duties are levied on food to protect agriculture in contrast to the British practice of free entry for most food products and the subsidising of home production.

Rather than speculate on possible future developments along these or other lines, it is my intention here to confine the discussion to

⁴ *Conditions Favourable to Faster Growth*, National Economic Development Council, London, 1963, para. 161.

⁵ For a bird's-eye view of the present tax structure, see *The British System of Taxation*, Central Office of Information Reference Pamphlet 10, London.

⁶ *Conditions Favourable to Faster Growth*, para. 163.

British experiences with certain specific tax measures which are believed to have had some significant (positive or negative) effects upon growth, usually through their influence on the amount or composition of private capital formation.

In Section II the differential taxation of distributed and undistributed profits is discussed. Then in Section III the various capital allowances granted for tax purposes are examined in some detail, for it is probably here that the British contribution is most distinctive, and, together with differential profits taxation, capital allowances have excited the most attention both in Britain and abroad. Section IV gives briefer consideration to the special problems surrounding innovation and risk-taking, and the tax measures bearing upon them. Work incentives are the main subject of Section V, and Section VI concludes with a general appraisal of the role of tax policy in promoting economic growth in postwar Britain.

II. DISTRIBUTED VERSUS UNDISTRIBUTED PROFITS

A. *The Law*⁷

The taxation of business profits is accomplished in two ways. Unincorporated businesses are subject to the income tax and the surtax on roughly the same basis as individuals. These two taxes together constitute a highly progressive tax (see Chart 1).⁸ In most branches of industry, however, the unincorporated segment is of minor importance, and consequently attention will here be concentrated mainly on companies.

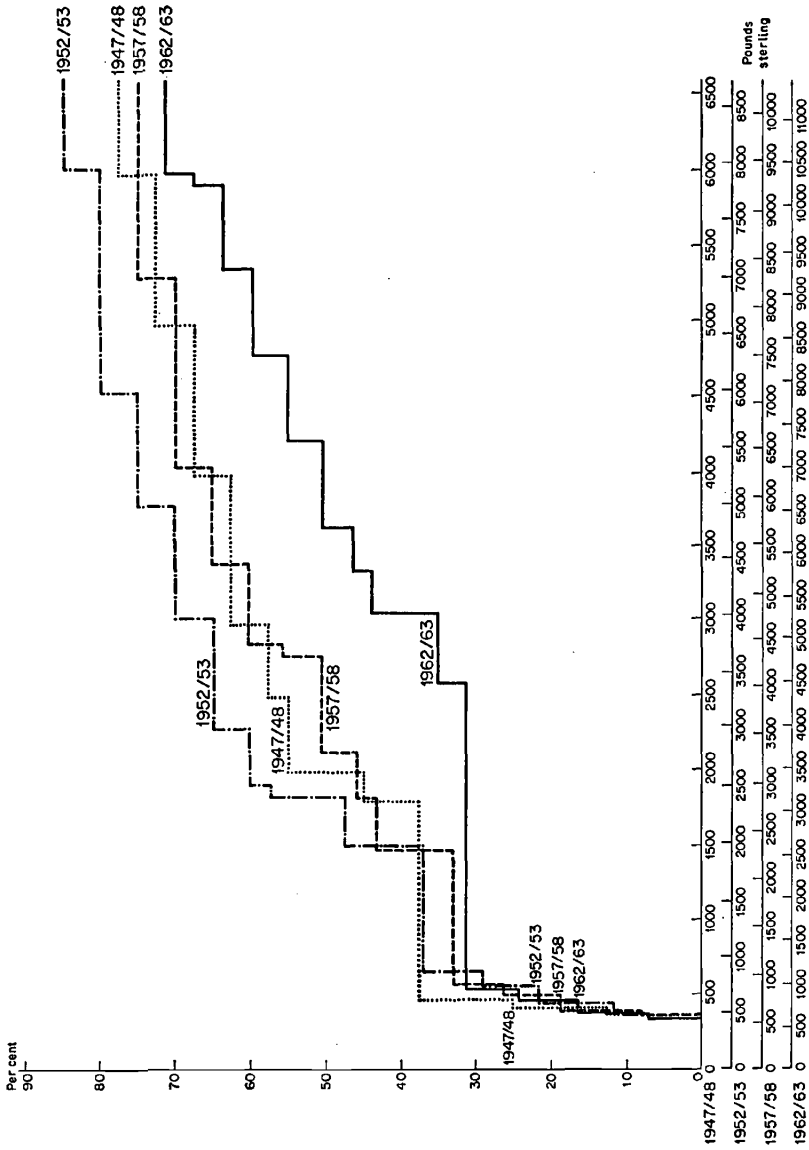
Companies are also subject to a two-tier system of taxation: the income tax (at the standard rate only) and also the profits tax. Subject to the three qualifications listed below, these two taxes jointly constitute a proportional tax on profits:

⁷ A further brief description of these taxes will be found in *Taxation in Western Europe*, Federation of British Industries, London. A comprehensive exposition is given in G. S. A. Wheatcroft, *The Law of Income Tax, Surtax and Profits Tax*, London, 1962.

⁸ For an analytical description, and a comparison with the United States, see A. R. Prest, *Public Finance in Theory and Practice*, London, 1960.

CHART 1

Marginal Rates of Tax on Equivalent Real Incomes, 1947/48, 1952/53, 1957/58, and 1962/63



1. The income tax (but not the profits tax) is regarded in principle as falling upon shareholders and is simply collected from companies as a matter of convenience. Thus, from gross dividends payable to shareholders, companies are required to deduct income tax at the standard rate, paying only the net amount, and retaining the balance.⁹ The profits tax, on the other hand, is regarded explicitly as a tax upon the company, and shareholders' tax assessments are not adjusted in any way to take account of payment of the profits tax by their companies. An adjustment is, however, made to ensure that profits remitted by one company to another ("franked investment income") do not bear the profits tax more than once.

2. If profits in any year are less than £2,000, the company is exempt from the profits tax; if profits are between £2,000 and £12,000, there is an "abatement" provision whereby a company is exempt from the profits tax on one-fifth of the amount by which profits fall short of £12,000. Neither of these provisions applies to the income tax.

3. Until 1958 the profits tax included a provision for "nondistribution relief," which had the effect of taxing undistributed profits at a substantially lower rate than distributed profits (see Table 1). To complement this, a "distribution charge" was levied if profits which had enjoyed the nondistribution relief were subsequently distributed, this charge having the effect of canceling the original relief. Neither of these provisions applied to the income tax.

It is this third complication that will be our chief concern in the following sections, together with the general role of self-finance in industrial growth in postwar Britain.

B. The Issues in Principle

In its *Final Report*,¹⁰ the Royal Commission on the Taxation of Profits and Income (hereafter referred to as the RCT) recommended that the differentiation between distributed and undistributed profits in the profits tax be replaced by a single-rate tax on all profits,

⁹ If the amount of tax due on the dividend receipts of any particular shareholder differs from the standard rate of income tax as deducted at source, an adjustment will be made accordingly in that taxpayer's personal assessment.

¹⁰ Cmd. 9474, London, 1955.

TABLE 1
Rates of Tax on Profits, 1946/47-1962/63
(per cent)

	Standard Rate of Income Tax	Profits Tax ^a		Total	
		Dis- tributed	Undis- tributed	Maximum Distribu- tion ^b	With No Distribu- tion
1946/47	9s 0d=45%				
1947/48	9s 0d=45	25%	10%	61%	50.5%
1948/49	9s 0d=45	25	10	61	50.5
1949/50	9s 0d=45	30	10	64	50.5
1950/51	9s 0d=45	30	10	64	50.5
1951/52	9s 0d=47.5	50	10	73	50.75
1952/53	9s 0d=47.5	22.5	2.5	64	50.0
1953/54	9s 0d=45	22.5	2.5	61	47.5
1954/55	9s 0d=45	22.5	2.5	61	47.5
1955/56	8s 6d=42.5	27.5	2.5	62	45.0
1956/57	8s 6d=42.5	30	3	63	45.5
1957/58	8s 6d=42.5	30	3	63	45.5
1958/59	8s 6d=42.5		10		52.0
1959/60	7s 9d=38.75		10		48.75
1960/61	7s 9d=38.75		12.5		51.25
1961/62	7s 9d=38.75		15		53.75
1962/63	7s 9d=38.75		15		53.75

SOURCE: Annual Reports of the Commissioners of H.M. Inland Revenue.

^a The timing of these changes frequently did not coincide with the beginning of a fiscal year so that the correspondence with the first column is only approximate.

^b Approximate. For an exposition of the method by which this is calculated, see Prest, *Public Finance*, pp. 164-165.

NOTE: Until January 1, 1952, profits tax liability was a deductible expense for income tax purposes; since that date, the computation of both taxes has taken no account of liability for the other.

and this recommendation was carried out in 1958. The chief consideration appears to have been the fact that as undistributed profits accumulate

each year of a company's life sees an accumulating amount of non-distribution relief, which will or may ultimately be the source of an additional tax charge upon the company. (para. 527)

This is a serious consideration for companies which have to produce for their shareholders an annual statement of accounts giving a true picture of their financial position, and which may feel the need from time to time to raise or borrow further capital from the outside public. . . . We do not feel that we can minimize the seriousness of this. (para. 529)

The RCT considered and rejected various arguments in favor of retaining the differential; the one of particular interest to us was dealt with as follows:

The tax is also linked with a longer-term objective of encouraging productive investment in the form of ploughed-back profits. Here again its foundations seem uncertain. It does not encourage companies to plough back profits, so much as to retain them. . . . The mere retention of profits cannot be rated as an economic advantage: on the contrary it would better serve the public interest that a company should be encouraged to distribute those profits which it cannot put to fruitful use, in order that there may be a chance that they may be invested effectively elsewhere. Nor is it advantageous for the economy that the level of dividends should be kept down. Whatever other considerations bear upon the problem, the market value of shares in industrial and commercial enterprises is artificially depressed and an obstacle placed in the way of raising new capital. (para. 536)

Although disagreeing on other grounds¹¹ with the recommended abolition of the differential, the Minority¹² did not

disagree with the Majority's view that the artificial encouragement of the retention of profits by companies is not necessarily an economic advantage. Beyond a certain point it does not in itself stimulate the rate of capital formation. . . . It does not ensure the best use of the community's savings. . . . It makes it more difficult for fast expanding firms to raise funds in the capital market, it strengthens the monopolistic tendencies in the economy, and it encourages wasteful expenditure on behalf of those firms who have more money than they can use and who are prevented (by custom and tradition as well as by the instruments of public control) from channelling their funds to the most profitable potential use. (Memorandum of Dissent, para. 103)

This unexpected identity of view does not imply that the change was regarded as uncontroversial,¹³ however, even if we restrict our

¹¹ The important role played by the differential in curtailing inflationary pressure, and a host of issues concerned with the tax treatment of capital gains. See also N. Kaldor, *An Expenditure Tax*, pp. 141-146.

¹² G. Woodcock, H. L. Bullock, and N. Kaldor.

¹³ See, for instance, T. Balogh, "Differential Profits Tax," *Economic Journal*, September 1958, pp. 528-537.

attention to the issues mentioned above and refrain from considering any of the broader implications of equity, anticyclical policy, etc.

The case against abolishing the differential has been put most succinctly by Streeten,¹⁴ who argued that a uniform profits tax, yielding the same revenue as a differential tax, would lead to an increase in profit distributions, and since part of the increased profit distribution would surely be spent on consumption, total savings would inevitably decline. Moreover, he did not believe that this would be offset by an improvement in the allocation of savings:

The view that distributed profits are invested more effectively rests on two unwarranted assumptions: first, that shareholders are better judges of investment opportunities than company directors; secondly, that the capital market is perfect. . . . In fact, directors of multi-product firms are normally in a better position to grasp the opportunities and risks of embarking on improved and new products than shareholders and their advisers, even if these are large financial institutions. Even if companies do not use their profits to branch out into new lines, they buy government securities and thus set funds free for investment by others. But more important . . . is the fact that the large companies which tend to benefit from the favoured treatment of retained profits, would also have the greater attraction for the shareholders' money in the capital market, only there would be less of it. . . .

Before examining in more detail those issues on which statistical material can be brought to bear, let us first consider two opposing views on the efficacy of market decision-making.

The most obvious heads of the argument seem to be the importance one attaches to the freedom of choice of the ultimate owners of capital, one's views about their comparative ability to judge the most profitable outlets for capital (including the outlet of holding it in cash form rather than financing capital formation) and the respective costs of working the machinery of the capital market and self-financing. . . . Here we shall be completely Draconian and simply state that we think the balance of the argument is quite clearly on the side of market decisions. The strongest apparent argument against this is . . . that the capital market machinery is likely to be more expensive to operate than self-financing, and particularly so for the smallsize firms. But this . . . points to the need for

¹⁴ P. Streeten, "Tax Policy for Investment," *Revista di Diritto Finanziario e Scienza delle Finanze*, Vol. XIX, 1960, pp. 133-35.

improving the machinery of the capital market rather than cutting down the flow of funds to it.¹⁵

But there are other imperfections in the capital market which are relevant here. "One is the source and channels of information in the system and the location of informed opinion. Another is the efficiency of the market mechanism under 'load,' i.e. how the number of decisions affects its behaviour. And another is the peculiar distortions to which the market is prone—mainly because of the nature and numbers of individual shareholders." Wright goes on to point out that:

1. Since a full appraisal of all projects is impossible, the best that most potential shareholders can hope for are recommendations from the press or other financial advisers;

2. Since property prospects are more calculable than those of manufacturing industry, the market shows a distinct bias in favour of investment in real estate;

3. As the number of transactions increases, the quality of advice deteriorates and decisions are more likely to be superficially based;

4. Speculative activity will be a distorting influence, and there is no objective basis for distinguishing between "informed risktaking" and "uninformed gambling."¹⁶

It is, therefore, not all clear where the balance of advantage lies.

C. *The Effects in Practice*

It is almost invariably a vain hope in economics to expect confrontation with available statistical evidence to settle any argument conclusively. The best that one can hope for is a tentative lead that one line of argument seems more plausible than another. This seems to be the situation here. The issues we have to try to resolve are: Has the substitution of a uniform profits tax for a differential one with approximately the same yield (1) caused a reduction in the volume of saving; (2) affected access to finance differently for different types of firms; (3) influenced the amount and composition of real private capital formation?

¹⁵ Prest, *Public Finance*, p. 337.

¹⁶ J. F. Wright, "The Capital Market and the Finance of Industry," in Worswick and Ady, *The British Economy*, p. 491.

The first and least disputable fact is that, since the change in the structure of the profits tax in 1958, the proportion of profit distributed has increased sharply. This is clearly so, whether one takes all nonfinancial companies (Table 2) or only those quoted on the stock exchange (Table 3), and there can be little doubt that this is more than a coincidence. As to the proportion of profits retained, for all nonfinancial companies the figure for 1961 was the lowest since 1952 (in which year taxation accounted for twice as much income as did profit distributions, whereas in 1961 profit distributions accounted for slightly more income than did taxation). For the quoted companies the proportion has also fallen, but not nearly so dramatically.¹⁷ This suggests that the greatest increases in distributions in the corporate sector have occurred among the unquoted private companies.

But this fall in corporate saving has been more than offset by the spectacular increase that has occurred in personal savings (including the gross saving of unincorporated businesses, i.e., before providing for depreciation and stock appreciation), from around 5 per cent of personal incomes between 1956 and 1959 to nearly 7 per cent in 1960 and 9 per cent in 1961.¹⁸ It remains a matter of speculation how far the increased personal savings have been made directly available to the corporate sector, but it is evident that the increase in personal savings is both absolutely and proportionately much greater than the increase in incomes arising from dividends, interest, and rents. Thus, whatever the reasons for the increase in personal savings, the increased profit distributions cannot have been the main source, although they may have had an incentive effect. The fact that the decline in corporate savings has been more than offset by an upsurge in personal savings does not in itself disprove Streeten's argument. All that one can say is that, for whatever reason, there has been no dearth of savings since the abolition of the differential profits tax.

But so far we have been dealing only in aggregates, and we must

¹⁷ See "Income and Finance of Quoted Companies, 1949-1960," *Economic Trends*, April 1962.

¹⁸ See *National Income and Expenditure, 1962*, London, 1962, Tables 2 and 25. Even allowing for the notorious unreliability of estimates of personal saving, this does seem a large enough shift to make it credible that a significant increase has occurred.

TABLE 2
 Appropriation Account of Companies Excluding Insurance, Banking, and Finance, 1951-61
 (million pounds)

	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961
1. Dividends and interest payments, gross: ^a											
Pounds	612	613	658	722	823	869	930	967	1090	1361	1497
Per cent	18.9	20.7	21.4	21.4	22.2	22.3	22.5	22.7	23.9	28.5	32.2
2. U.K. taxes on income plus taxes paid abroad and profits due abroad:											
Pounds	1351	1242	1190	1205	1274	1346	1351	1414	1293	1414	1394
Per cent	41.8	41.9	38.6	35.7	34.4	34.5	32.7	33.3	28.4	29.6	29.9
3. Gross saving:											
Pounds	1272	1109	1231	1448	1610	1681	1847	1871	2174	2004	1765
Per cent	39.3	37.4	40.0	42.9	43.4	43.1	44.7	44.0	47.7	41.9	37.9
4. Total income	3235	2964	3079	3375	3707	3896	4128	4252	4557	4779	4656

SOURCE: *National Income and Expenditure, 1962.*

^a Includes the tax deducted at source on such payments.

now turn to the second issue posed at the beginning of this section—the availability of finance for different types of firms. It is clear from Table 4 that companies as a group have been saving substantially larger sums than they needed to finance gross fixed capital formation at home, and between 1952 and 1959 more even than they needed to finance changes in the value of stocks (inventories) as well. There has, however, been a marked decline in both these savings-to-investment ratios from 1959 on. Unfortunately, the data for quoted companies are not strictly comparable with that for all companies, but it does show (Table 3) a similar decline in the importance of self-financing in relation to gross physical investment. It is not unusual, of course, for savings-to-investment ratios to fall during periods of high investment, but it is unusual for the savings-to-income ratio to fall at such times, and still more unusual for the absolute level of internally generated savings to fall.

The reaction of the quoted companies has been to go to the market for the extra funds needed for purchases of tangible fixed assets, and to rely on short-term credit to finance increases in inventories (Table 5).¹⁹ It is not so clear what the sources of finance have been for the unquoted private companies and unincorporated businesses. Indeed, our knowledge of this segment of the economy is sparse generally. The 1956 Oxford Survey of Small Businesses, which covered mainly private companies with less than 500 employees, many of which were “family firms,” indicated that (between 1954 and 1956 at any rate)

Out of a relatively small profit . . . private companies save a larger proportion than do public companies. They pay rather less tax and distribute smaller dividends. . . . These two characteristics are largely accounted for by the fact that in small, director-controlled firms, a higher proportion of profits is paid out as directors' remuneration. . . .

Private companies and unincorporated businesses depend very heavily on short and medium term outside borrowing. They rely a great deal on finance from the banks. . . . Trade credit is also more important—both as a source and use of funds . . . many small firms receive more credit than they give and finance part of their development by these means. Directors' loans . . . are frequently used . . . and although in weight they are rarely important they are frequently of great strategic significance. Hire purchase is a frequently used and important source of funds in small firms. . . .

¹⁹ *Ibid.*

TABLE 4
Physical Investment and Gross Current Saving by All Companies,^a 1951-61
(million pounds)

	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961
1. Gross fixed capital formation at home	627	630	671	782	964	1185	1357	1413	1444	1653	1846
2. Increase in value of inventories and work in progress	890	-85	21	253	471	396	317	42	196	646	344
3. Total	1517	545	692	1035	1435	1581	1674	1455	1640	2299	2190
4. Gross savings	1357	1201	1297	1460	1763	1784	1916	1990	2131	2111	1968
5. Line 4 as per cent of line 3	89.5	220.4	187.4	141.1	122.9	112.8	114.5	136.8	129.9	91.8	89.9
6. Line 4 as per cent of line 2	216.4	190.6	193.3	186.7	182.9	150.5	141.2	140.8	147.6	127.7	106.6

Source: *National Income and Expenditure, 1962*, Tables 26 and 28. breakdown available for physical investment by nonfinancial companies.
^a Including insurance, banking, and finance, since no separate panics.

TABLE 5
Sources and Uses of Funds, Quoted Companies, 1949-61

	Sources						Uses					
	New Issues		Self-Financing ^a		Short-Term Credit		Tangible Fixed Assets		Inventories		Other	
	Million Pounds	Per Cent	Million Pounds	Per Cent	Million Pounds	Per Cent	Million Pounds	Per Cent	Million Pounds	Per Cent	Million Pounds	Per Cent
1949	117	17.8	426	64.4	119	18.0	295	44.6	152	23.0	215	32.5
1950	159	17.3	508	55.5	248	27.1	265	28.9	293	32.0	358	39.1
1951	160	11.7	678	49.7	527	38.6	398	29.1	659	48.2	309	22.6
1952	145	23.4	508	82.0	-33	-5.3	395	63.8	33	5.3	191	30.8
1953	129	16.2	597	74.7	73	9.1	408	51.1	-2	-0.3	392	49.1
1954	175	16.5	645	60.9	338	22.5	433	40.9	235	22.2	391	37.0
1955	269	19.7	747	54.8	348	25.5	629	46.0	374	27.4	363	26.5
1956	282	20.4	777	56.2	323	23.4	823	59.6	346	25.1	212	15.4
1957	427	30.0	761	53.5	234	16.5	845	59.4	233	16.4	345	24.2
1958	255	25.2	692	68.3	56	5.5	700	69.3	-1	-0.1	311	30.8
1959	252	20.7	1008	59.3	340	20.0	709	41.7	84	4.9	906	53.4
1960	469	20.8	1100	49.0	680	30.2	855	38.0	635	28.2	759	33.7
1949-60	2939	20.2	8447	58.1	3163	21.7	6755	46.4	3041	20.9	4752	32.7
1960 ^b	445	20.1	1190	53.9	574	26.0	1012	45.8	579	26.2	618	28.0
1961 ^b	583	28.9	1029	50.1	406	20.1	1246	61.7	286	14.2	486	24.1

SOURCE: "Income and Finance of Quoted Companies 1949-1960," *Economic Trends*, April 1962.

^a Differs from gross retentions in Table 3 by (a) changes in future reserves and (b) other receipts on capital account.

^b Coverage not strictly comparable with the figures above; derived from "Income and Finance of Quoted Companies in 1961," *Board of Trade Journal*, December 7, 1962.

Within the sample, the heaviest dependence on short and medium term borrowing was in the smaller, rapidly growing firms. . . .²⁰

In the light of all this, it seems surprising that (by inference) recently profit distributions appear to have increased more markedly among this group than among the public companies. If this is so (and it is by no means established), the clue may lie in two aspects of the problem which cannot be ignored any longer, namely, the wide variations in behavior between large and small firms, and between growing firms and static or declining ones, within each of the groups we have so far been considering.

For the quoted public companies, the situation between 1949 and 1953 has been intensively analyzed in B. Tew and R. F. Henderson's *Studies in Company Finance*.²¹ Their findings were: (1) the larger firms saved a slightly higher, and distributed a slightly lower, proportion of their profits than did the smaller ones; (2) growing firms saved rather more, and distributed distinctly less, of their profits than did the static ones; (3) self-financing declined in relation to expenditure on tangible fixed assets both as size increased and as the rate of growth increased, but depreciation allowances constituted a much greater element in the savings of static firms than in growing ones; and (4) new loan and share capital was relatively more important as a source of funds for the large firms than for the small ones, but the differences were much greater between the static and the growing firms. Since the larger firms grew more rapidly than the smaller firms, the growth and the size differences are partly interrelated.

From an analysis of the accounts of those public companies analyzed by the Board of Trade in *Company Assets, Income and Finance, 1960*,²² for which data for all three years 1958-60 were avail-

²⁰ J. A. Bates, *The Financing of Small Business*, London, 1964, pp. 31-32. The findings of the Small Business Survey have been reported in the following: H. F. Lydall, "The Impact of the Credit Squeeze on Small and Medium-Sized Manufacturing Firms," *Economic Journal*, September 1957; J. A. Bates, "The Finance of Small Business," *Bulletin of the Oxford University Institute of Statistics*, May 1958; H. F. Lydall, "The Growth of Manufacturing Firms," *Bulletin of the Oxford University Institute of Statistics*, May 1959.

²¹ Cambridge, 1959, Tables A-1 and A-3, pp. 269 and 272-273.

²² London, 1962. Unfortunately, it has not been possible in the time available to pursue this analysis as far as I would have wished. For the results presented here, I

able, the following preliminary conclusions have emerged: First, a markedly higher proportion of larger companies has raised new capital than of the smaller ones (see Table 6, Part A). Second, the percentage share of self-financing in the increase in net assets is negatively correlated with the proportionate increase in net assets during this period, both for the larger companies (with net assets of at least £0.5 million) and for the smaller ones (net assets under £0.5 million). Both of these negative correlations are significant at the 5 per cent level (see Tables 7 and 8) and also for most industry groups when taken out and analyzed separately. This lends support to the contention that the greater the rate of growth, the smaller the role of self-finance in financing that growth.

Third, as the obverse of this, the greater the rate of increase in net assets, the larger the proportion of companies which have been net issuers of new capital (see Table 6, Part B). Moreover, for these companies the percentage share of the actual amount of new capital in the increase in net assets is positively correlated with the proportionate increase in net assets (see Tables 7 and 8), though in the case of the smaller companies, the correlation is not statistically significant.²³ We may therefore say that, for the larger firms at least, the greater the rate of growth, the greater the role of new capital.

Fourth, there is a strong and statistically significant negative correlation between the percentage share of new capital in the increase in net assets and the income-to-asset ratio, for both the larger and the smaller companies (Tables 7 and 8). In other words, the lower the rate of return on capital employed, the larger the role of new capital as a source of finance.

Fifth, among the firms which did offer new issues, there is no statistically discernible correlation between the percentage share of new capital in the increase in net assets and the actual size of net assets, either for the larger or the smaller firms.²⁴ Thus although size ap-

am indebted to the Board of Trade for permission to use the data tapes containing the standardized accounting material prepared for their published analysis, and to my colleague in the Mathematics Department at Exeter University, Brian Housley, who prepared and ran the programs by which the data were processed.

²³ $+0.056$ as against ± 0.225 for significance at the 5 per cent level.

²⁴ For the eighty smaller companies the correlation coefficient is -0.005 , and for the 649 larger ones it is $+0.030$.

TABLE 6

Number of Public Quoted Companies Raising Funds from Market, 1958-60

PART A: BY SIZE OF COMPANY

Size of Net Assets (million £)	Number of Companies with Net New Capital Issues			Positive as Per Cent of Total
	Positive	Zero	Negative	
25 and over	63	9	23	66.3
10 to 25	83	27	24	61.9
5 to 10	79	61	44	42.9
2.5 to 5	122	121	54	41.1
1 to 2.5	203	292	103	33.9
0.5 to 1	112	341	67	21.5
Under 0.5	84	485	99	12.6
Total	746	1336	414	29.8

PART B: BY RATE OF GROWTH

Number of Companies with
Net New Capital Issues

Change in Net Assets (1958 = 100)	Positive		Zero		Negative		Total		Positive as Per Cent of Total	
	A	B	A	B	A	B	A	B	A	B
	200 and over	60	13	3	1	1	0	64	14	93.8
170 to 200	81	5	8	3	2	0	91	8	89.0	63.3
150 to 170	86	12	24	12	4	3	114	27	75.5	44.4
140 to 150	88	11	28	11	6	0	122	22	72.1	50.0
130 to 140	84	8	76	26	22	4	182	38	46.0	21.1
120 to 130	119	10	149	51	40	8	308	69	38.6	14.5
110 to 120	90	13	269	114	83	15	442	142	20.4	9.2
100 to 110	38	8	217	154	95	19	350	181	10.9	4.4

A = large companies. B = small companies.

NOTE: Excludes 155 large and 167 small companies with no in-

crease in net assets. For coverage, see *Company Assets, Income and Finance, 1960*.

TABLE 7
Financing of Increase in Net Assets by Large Quoted Companies

Industry	Coefficient of Correlation Between Percentage Share of Self-Financing in Increase in Net Assets and Increase in Net Assets	Coefficient of Correlation Between Percentage Share of New Capital in Increase in Net Assets and	
		Increase in Net Assets	Income-to-Asset Ratio
21. Food	-.389*	+.229	-.414*
23. Drink	-.537*	+.429*	-.249
26. Chemicals	-.576*	+.542*	-.097
31. Metal Manuf.	-.253*	+.261	-.050
33. Nonelectr. eng.	-.451*	+.060	-.359*
36. Electr. eng.	-.371*	+.042	-.590*
38. Vehicles	-.452*	+.352	-.249
39. Other metal goods	-.490*	+.625*	-.360
41. Textiles	-.153*	+.340*	-.364*
46. Bricks, pottery, etc.	-.318*	+.429*	-.172
48. Paper, printing, etc.	-.559*	+.447*	-.440*
50. Construction	-.417*	+.281	-.203
81. Wholesale distrib.	-.404*	+.455*	-.261
82. Retail distrib.	-.372*	+.089	-.450*
88. Misc. services	-.290*	+.439*	-.097
21-24. Food, drink, tobacco	-.375*	+.327*	-.250*
31-39. Metal manuf. and engineering	-.370*	+.157*	-.354*
41-49. Other manuf.	-.115*	+.229*	-.291*
21-49. All manuf.	-.168*	+.184*	-.305*
50-88. Construction, distrib. and services	-.348*	+.250*	-.318*
21-88. All industries	-.184*	+.200*	-.306*
No. of companies analyzed	1673 ^a	646 ^b	648 ^c

NOTE: Figures for individual industries are given only where at least twenty observations are available. Excluded industries are, however, included in the relevant aggregates lower in the table. For coverage, definitions, and classification by industry, see *Company Assets, Income and Finance, 1960*, pp. iii-vi.

^a Excludes 155 companies with no increase in net assets.

^b Excludes 155 companies with no increase in net assets, and, of the remainder, 253 with negative new capital and 774 with zero new capital.

^c Excludes 12 companies with negative or zero income, 313 with net new capital negative, 845 with zero net new capital, and, of the remainder, 10 with no increase in net assets.

* Significant at the 5 per cent level.

TABLE 8
Financing of Increase in Net Assets by Small Quoted Companies

Industry	Coefficient of Correlation Between Percentage Share of Self-Financing in Increase in Net Assets and Increase in Net Assets	Coefficient of Correlation Between Percentage Share of New Capital in Increase in Net Assets and	
		Increase in Net Assets	Income-to-Asset Ratio
21. Food	-.462*		
26. Chemicals	-.440		
33. Nonelect. Eng.	-.329*		
39. Other metal goods	-.246		
41. Textiles	-.545*		
46. Bricks, pottery, etc.	-.464*		
48. Paper, printing, etc.	-.257		
49. Other manuf.	-.601*		
81. Wholesale distrib.	-.217		
82. Retail distrib.	-.300		
88. Misc. services	-.323		
21-24. Food, drink, tobacco	-.455*		
31-39. Metal manuf. and engineering	-.233*	+.031	-.632*
41-49. Other manuf.	-.284*		
21-49. All manuf.	-.257*	+.167	-.395*
50-88. Construction, distrib., and services	-.235*	+.019	-.357
21-88. All industries	-.172*	+.056	-.376*
No. of companies analyzed	501 ^a	80 ^{ab}	79 ^{abc}

NOTE: Figures for individual industries are given only where at least twenty observations are available. Excluded industries are, however, included in the relevant aggregates lower in the table. For coverage, see *Company Assets, Income and Finance, 1960*, pp. iii-vi.

^a Excludes 167 companies with no increase in net assets.

^b Of those companies with a positive increase in net assets, excludes 49 with negative new capital, and 372 with zero net capital.

^c Of those companies with a positive increase in net assets and positive net new capital, excludes 1 with negative income.

* Significant at the 5 per cent level.

pears to be a relevant factor in determining whether new capital is issued or not, it does not seem to affect the relative role of new capital in financing growth among those companies which do go to the market. For the smaller private firms the picture which emerges is summed up by Bates thus: "Self-financed firms tend on the whole . . . to be the larger, slower growing, highly liquid firms in the sample, and are more likely to be family firms. Inasmuch as conclusions can be drawn from this data, the likelihood is therefore that self-financing in this sense is indicative of a cautious and rather static type of firm."²⁵

There is some corroboration for this in the finding that, for 85 per cent of the firms, finance was not the effective constraint²⁶ although it appears to be relatively more important for the growing firms than for the others.²⁷ Similarly, efforts to overcome financial difficulties often seem to have been almost perfunctory.²⁸

A similar phenomenon has also been noted among public quoted companies. Barna concluded from his investigation of firms in the electrical industry and in food processing that, although his inquiry "was in fact directed to public companies and a few ambitious private companies, and excluded the type of small firm uninterested in growth,"²⁹ he nevertheless found that:

The amounts of liquid resources and of bank borrowing . . . appear to reflect the character of the firm rather than its economic position. Persistent high liquidity may indicate conservative management. Firms with high liquidity may have grown slowly, because of unwillingness or incapacity of management. All in all it appears that firms which want to grow and had the ability to make a profit, also had the ability or opportunity to raise finance . . . a management which has proved able in other respects also proved ingenious in raising money. . . .³⁰

²⁵ Bates, *Financing of Small Business*, p. 57. He qualifies this conclusion in those cases where, because of the "lumpiness" of investment in relation to savings, funds are being accumulated in anticipation of some major capital outlays.

²⁶ See Lydall in *Bulletin of the Oxford University Institute of Statistics*, May 1959.

²⁷ See also A. S. Mackintosh, *The Development of Firms*, Cambridge, 1963, esp. Chap. V.

²⁸ See Bates, *Financing of Small Business*.

²⁹ T. Barna, *Investment and Growth Policies in British Industrial Firms*, N.I.E.S.R. Occasional Paper XX, London, 1962, p. 38.

³⁰ *Ibid.*, p. 20.

Carter and Williams³¹ reached similar conclusions:

Out of 138 firms for which information exists, lack of finance was a definite hindrance . . . in nineteen However, of the nineteen . . . ten were technically very progressive, and thirteen were in fact rapidly expanding, which suggests that the problem affects some of those who might be leaders in the application of science and technology. Yet even among the nineteen the difficulty was not always that the money could not be obtained, but that the firm would not stomach the conditions for obtaining it.

It does, therefore, seem unlikely that any firm "hell-bent on growth" would have been led, by the abolition of the differential profits tax, to increase its profit distributions, unless it saw such increased distributions as a sprat to catch a mackerel, i.e., unless it contemplated going to the market for funds.³² Thus the (inferentially) increased profit distributions among private firms are presumably concentrated among the static firms with excess liquidity. Whether these liquid funds, when distributed, are more likely to find their way via the capital market into the hands of more go-ahead firms than would have been the case otherwise is a moot point.

This brings us to the third of the questions posed earlier—the extent and nature of worthwhile physical investment that is frustrated by sheer inability to obtain financing. From the evidence considered thus far, it appears unlikely that this could have been a real problem in most cases. The most experienced of British authorities in this field recently observed: "If it be asked where, in the range of size and age, the difficulty is mostly located, it may be suggested that it is experienced most of all in two places—the new and rapidly growing venture, which is probably quite small—a net worth of perhaps £5,000 to £20,000—and the £150,000 to £250,000 company which needs additional resources which are heavy in relation to its

³¹ C. F. Carter and B. R. Williams, *Industry and Technical Progress*, London, 1957, p. 140.

³² The abolition of the differential may, however, have shifted the balance of power between management and shareholders in profit distribution. Carter and Williams, for instance, report that "One company was prepared to admit to us that it had no developments held up for lack of finance, and that the bitter complaints about high taxation in its annual report were meant to justify to the shareholders a failure to increase the dividend" (*ibid.*, p. 148).

net worth."³³ Similarly, Carter and Williams reported that their inquiries indicated that in the view of potential lenders "the main problem is . . . the lack of credit-worthy borrowers with good ideas awaiting exploitation" except that "a few classes of borrower may find unreasonable difficulty, in particular: (a) those wanting sums between, say, £10,000 and £30,000 who may have difficulty in getting so much from a bank or private lenders, and yet be too small to be of much interest to the City institutions; (b) those wanting money for three to seven years, i.e. for a period rather long for a bank loan, but too short to be counted as 'permanent' finance."³⁴

Thus in spite of the setting up of special organizations to make capital available to the smaller, newer, and more rapidly growing firms, acute financial difficulties do seem to remain for a very small minority, although one suspects that the importance of this has been greatly exaggerated.

Whatever the terms of borrowing, there is likely to be a fringe of unsatisfied borrowers whose optimism about their own projects is not fully shared by potential lenders. Indeed, for the health of the economic system it is desirable that there should always be a queue of projects that can be undertaken when resources become available. The fact that the visible members of the queue are mostly small firms does not prove that there is a bias against them. For in large firms the central management will already have sorted out the positive proposals produced from below, and the excess demand for finance will be felt inside and not outside the firm.³⁵

At this point, then, we should turn to the role of depreciation allowances, and especially initial allowances and investment allowances, since these confer their benefits specifically upon those firms that are undertaking physical investment and take no account of "creditworthiness," the size or age of the firm, or its financial structure, although they do depend for their effectiveness upon there being sufficient taxable profits against which they can be set.

³³ Lord Piercy (Chairman of the Industrial and Commercial Finance Corporation) in a Memorandum submitted to the Radcliffe Committee on the Working of the Monetary System, published in *Principal Memoranda of Evidence*, London, 1960, Vol. 3, p. 195.

³⁴ *Industry and Technical Progress*, pp. 144-145.

³⁵ Wright in Worswick and Ady, *The British Economy*, p. 499.

III. CAPITAL ALLOWANCES

A. The Law

In the tax treatment of capital expenditures, both incorporated and unincorporated business are treated alike. Actual capital expenditures (apart from repairs and maintenance) are not a deductible expense for tax purposes.³⁶ In their place, a depreciation allowance is granted, which is based on the original cost of the asset and its estimated life and calculated normally by the reducing-balance method, although for certain classes of asset the straight-line method is used.³⁷ Such allowances are granted for industrial (but not commercial) buildings, plant and machinery, vehicles, ships, scientific research assets, patents, and mineral deposits worked abroad. The allowance is granted in full in the fiscal year in which the asset is brought into use and ceases when the original cost of the asset has been exhausted or when it is disposed of, whichever is earlier. If the realization price obtained for an asset exceeds its written-down value for tax purposes, the excess depreciation allowances previously granted are recovered by the imposition of a "balancing charge." If the realization price is lower than the written-down value for tax purposes, the deficiency in depreciation allowances is made good by the grant of a "balancing allowance." Allowances may be claimed for tax purposes irrespective of the depreciation provisions (if any) that are made in the commercial accounts of the business. If depre-

³⁶ Except for certain classes of assets which are dealt with on a "renewals" basis, e.g., cutlery in the catering trades or loose tools in manufacturing, which are written off against revenue as replaced.

³⁷ In general, the basic allowances for wear and tear are determined by finding the percentage which, if applied annually by the reducing-balance method, would reduce the value of the asset to one-tenth of its original cost over its estimated life. These rates may, however, be adjusted by negotiation in cases where exceptional wear and tear can be shown. In all cases, the actual allowances for wear and tear is five-fourths of the "basic" (or negotiated) rate. In some cases (e.g., ships) the straight-line method is used, in which case the basic rate is nine-tenths of the reciprocal of the estimated life of the asset. As before, this is subject to renegotiation, and the actual rate is obtained by multiplying the "basic" rate by five-fourths.

TABLE 9
Specimen Rates of Wear and Tear Allowances^a
(per cent)

Motor cars and lorries	20	Iron and steel machinery and plant	7.5
Accounting machines	10	Light metal castings machinery and plant	10
Electric furnaces	12.5	Precision machinery or plant	12.5
Electric motors, dynamos, etc.	7.5	Printing and binding machines	7.5
Engines, boilers, and shafting	5	Plastics manufacture, machinery and plant:	
Clothing processing machinery	10	Single-shift working	10
Drop forging machinery and plant	7.5	Double-shift working	12.5
Steam power plant and shafting	5	Treble-shift working	15
Sawmilling machinery and plant	10		

SOURCE: *Income Tax Wear and Tear Allowances for Machinery or Plant—List of Percentage Rates*, London, 1953.

^a "Basic" percentage rates applies under the reducing-balance method up to November 1962.

ciation allowances for tax purposes cannot be fully utilized in any year because of insufficiency of taxable profits, they can be carried forward and offset against future profits without any time limit. Specimen rates of "wear and tear" allowances, in force until November 1962, on various types of plant and machinery are presented in Table 9. Substantial increases in these rates took effect after November 1962.

In addition to the above-mentioned annual allowances on buildings and wear and tear allowances on plant and machinery, there are two further provisions—the initial allowance and the investment allowance—both of which accelerate the normal depreciation allowance for tax purposes for the classes of assets which qualify for them. Under the initial allowance, a firm may claim a specified extra proportion of the cost of certain classes of assets in the first year, but this supplementary allowance is deducted from the written-down value for tax purposes, and so reduces the sum on which

subsequent depreciation allowances are calculated. The sum of the initial allowance and the ordinary depreciation allowances may not exceed the original cost of the asset. The investment allowance, on the other hand, also permits a firm to claim a specified extra proportion of the cost of certain classes of assets in the first year, but this supplementary allowance is not taken into account in the calculation of subsequent depreciation allowances. It is, therefore, possible with investment allowances to write off for tax purposes a sum greater than the original cost of the asset. The various rates at which initial and investment allowances have been granted, and the classes of assets affected, are presented in Table 10).

B. Liquidity Aspects

Capital allowances play a dual role in relation to investment decisions. They constitute a means by which part of the profits of a firm accrues tax free, thus enhancing the prospective rate of return on an investment. Consideration of this profitability aspect will be deferred until Section C below. Here we shall consider depreciation allowances as a source of funds, exempt from taxation, available for financing current investment.

A great deal of the dispute about the liquidity aspect of depreciation allowances has been concerned with their alleged inadequacy as a source of funds to finance replacement of capital during a period of rising prices. Specifically, it is adherence to original cost as the basis for the calculation that is usually attacked, the argument being that the need to set aside additional (taxed) funds has retarded the rate of re-equipment and modernization and, in extreme cases, led to "erosion of capital." In their *Final Report*, the RCT rejected these assertions on two broad grounds: First, they felt "unable to accept the statistical exercises as establishing that over a specified period industrial capital has been eroded by taxation," although they did think it probable that a shortage of financial resources would be "of increasing weight in the years ahead."⁸⁸ Secondly, accepting the fact that depreciation funds accumulated on the basis of historical costs would not be adequate to finance re-

⁸⁸ Paras. 338 and 339.

TABLE 10
Rates of Initial and Investment Allowances for Income Tax, 1946/47-1959/60^a
(per cent)

	1946/47-1949/50-1948/49		1953/54		1955/56		1957/58	1958/59	1959/60
	1946/47	1949/50-1948/49	1953/54	1954/55	To	From	(from Apr. 9, 1957)	(from Apr. 15, 1958)	(from Apr. 7, 1959, to Nov. 4, 1960)
<i>Initial Allowances</i>									
New industrial bldgs.	10	10	10	—	—	10	10	15	5
New mining works			40	40 ^b	40 ^b	40	40	40	20
Dredging	—	—	—	—	—	—	10 ^c	15	5
Insulation of industrial and agricultural buildings	10	10	10	—	—	—	—	15 ^b	5
Fuel-saving plant			20	—	—	—	—	30 ^b	10
New ships			40	— ^d	— ^d	— ^d	— ^d	—	—
Ordinary motor cars, second-hand plant, and ships	20	40	20	20	20	20	20	30	30 ^e
Other new plant and machinery	—	—	20	—	—	20	20	30	10

*Investment Allowances on
New Assets*

Industrial bldgs., agri-cultural and forestry bldgs. and works	—	—	—	10	10	—	—	10
Mining works	—	—	—	20 ^b	20 ^b	—	—	20
Dredging	—	—	—	—	—	—	—	10
Insulation of industrial and agr. bldgs.	—	—	—	10	10	10	10	10
Fuel-saving plant	—	—	—	20	20	20	20 ^b	20
Scientific research as-sets ^f	—	—	—	20	20	20	20	40
Ships	—	—	—	20	20	20	40	40
Other plant and ma-chinery ^g	—	—	—	20	20	—	—	20

^a Year of expenditure.

^b Either the initial allowance or the investment allowance may be claimed but not both.

^c Relates to expenditure in the basic period for 1956/57 assessments.

^d Expenditure on the construction of new ships ordered before April 11, 1951, continued to qualify for an initial allowance of 40 per cent if the investment allowance was not claimed.

^e For cars costing more than £2,000 acquired after April 16,

1961, the capital allowances are calculated by reference to £2,000 only.

^f Expenditure on new assets for scientific research has never qualified for the initial allowance as such, but from 1949/50 the annual allowances in the first year have been increased from 20 to 60 per cent and those in the next four years reduced from 20 to 10 per cent.

^g Including new plant and machinery on the renewals basis but excluding ordinary motor cars.

placement expenditures when prices are rising, the RCT observed that "it does not follow from this that a company will not be in a position to effect the replacement without going outside for new money. That will depend on . . . (a) the level of tax, (b) the amount of the company's past reserves, (c) the amount of profits currently retained, itself partly dependent on such matters as the company's capital structure and its past distribution policy."³⁹ Moreover, the RCT considered that, although it was not their prime purpose, the initial and investment allowances do "incidentally alleviate the position of the trader who faces the problem of replacement at a time of inflation, so far as his problem is concerned with the kind of asset that is covered by the allowance."⁴⁰ The difficulty here, of course, is that the allowances are not available for all classes of assets, nor at all times on those classes of assets for which they are usually granted (see Table 10).

A later official inquiry into this same problem found that, during the period 1950-56, ordinary depreciation allowances granted for tax purposes amounted to 72 per cent of estimated capital consumption. Had these allowances been adjusted to the assumption that there had been no initial allowances, the proportion would have risen to 85 per cent, while if initial and investment allowances were taken into account, total tax allowances for depreciation exceeded estimated capital consumption by about 10 per cent.⁴¹ Using still more recent official figures (Table 11) it appears that these proportions have risen in recent years.

Once more, of course, the broad aggregates conceal considerable variations from one type of firm to another and also between industries. Part of the latter variations are caused by the differences in treatment accorded to different types of assets. Nonindustrial buildings are the most clear-cut example, since they qualify for no depreciation allowances of any kind whatever.

In Section IIC above we considered the actual depreciation provisions made by firms in their own accounts and treated such provisions as part of the firms' gross saving or self-financing. Here we

³⁹ *Ibid.*, para. 341.

⁴⁰ *Ibid.*, para. 371.

⁴¹ *Second Report*, Council on Prices, Productivity and Incomes, London, 1958, Appendix.

TABLE 11
Statutory Depreciation Allowances in Relation to Estimated Capital Consumption, 1951-61

Estimated Capital Consumption		Statutory Depreciation Allowances (other than initial and investment allowances)				All Depreciation Allowances			
Persons (£m)	Companies (£m)	Persons		Companies		Persons		Companies	
		Million Pounds of Col. 1 (3)	Per Cent of Col. 1 (4)	Million Pounds (5)	Per Cent of Col. 2 (6)	Million Pounds of Col. 1 (7)	Per Cent of Col. 1 (8)	Million Pounds of Col. 2 (9)	Per Cent (10)
1951	156	62	39.7	254	70.6	109	69.9	492	136.7
1952	162	66	40.7	287	70.5	75	46.3	398	97.8
1953	164	76	46.3	303	69.0	97	59.1	407	92.7
1954	172	86	50.0	364	76.5	118	68.6	521	109.5
1955	182	98	53.8	420	78.7	135	74.2	625	117.0
1956	188	105	55.9	500	83.6	141	75.0	727	121.6
1957	194	112	57.7	569	85.6	148	76.3	838	126.0
1958	208	123	59.1	626	87.2	178	85.6	973	135.5
1959	218	126	57.8	670	89.6	194	89.0	1069	142.9
1960	234	136	58.1	713	90.6	210	89.7	1163	147.8
1961	250	148	59.2	792	92.6	226	90.4	1289	150.8

SOURCE: *National Income and Expenditure, 1962*, Table 62 and Appendix Table, p. 86.
NOTE: The total allowances for professional persons (never amounting to more than £17 million in any one year) have been allocated between initial and investment allowances and other allowances in the same ratio as those for other sole traders and partnerships in each year.
* Excluding dwellings.

TABLE 12
 Statutory Depreciation Allowances in Relation to
 Gross True Income for Tax Purposes
 (Schedule D Only)

Assess- ments Made in Fiscal Year	Gross True Income		Capital Allowances		Capital Allowances as Per Cent of Gross True Income	
	Persons (£) (1)	Com- panies (£) (2)	Persons (£) (3)	Com- panies (£) (4)	Persons (5)	Com- panies (6)
1950/51	1058	1791	93	407	8.8	22.7
1951/52	1110	2125	103	507	9.3	23.9
1952/53	1165	2451	107	591	9.2	24.1
1953/54	1199	2423	84	473	7.0	19.5
1954/55	1266	2617	96	503	7.6	19.2
1955/56	1333	2980	109	581	8.2	19.5
1956/57	1401	3320	129	673	9.2	20.3
1957/58	1468	3285	137	767	9.3	23.3
1958/59	1557	3330	143	856	9.2	25.7
1959/60	1617	3470	166	944	10.3	27.2
1960/61	1696	3787	186	1050	11.0	27.7

SOURCE: Annual Reports of the Commissioners of H.M. Inland Revenue. Gross true income for tax purposes is the aggregate income brought under the review of the Inland Revenue Department, after allowance has been made for losses and deduction of certain items, such as interest payments, national insurance contributions, management expenses, etc., but before deduction of allowances for repairs and capital allowances.

need to look instead at the capital allowances granted for tax purposes, in relation to both taxable income and gross capital expenditures.

Taking the relationship to taxable income first, Table 12 shows quite clearly that since 1954/55 the proportion of income accruing tax-free in this way has been increasing, although the absolute level of this proportion is much smaller for unincorporated than for incorporated businesses. The full range of variations between industry groups in the fiscal year 1960/61 is displayed in Table 13. From

TABLE 13

Statutory Depreciation Allowances in Relation to Gross True Income
Assessed for Tax Purposes, in 1960-67, by Trade Group^a

	Gross True Income (£m)		Capital Allowances (£m)		Capital Allowances as Per Cent of Gross True Income	
	P (1)	C & LA (2)	P (3)	C & LA (4)	P (5)	C & LA (6)
Extractive ^b	272	53	77	25	28.3	47.2
Food, drink, and tobacco	16	333	3	75	16.6	22.5
Chemicals and allied trades	1	292	°	103	25.0	35.3
Iron and steel	1	206	°	87	11.1	42.2
Nonferrous metals	1	58	°	18	16.7	31.0
Electrical Eng. and electric goods	4	165	1	50	12.2	30.3
Vehicles	3	189	1	58	26.9	30.7
Other engineering ^d	13	314	2	76	13.6	24.2
Other metal goods	9	107	1	26	9.0	24.3
Textiles, leather, and clothing	18	232	1	63	7.6	27.2
Other manu- facturing	23	318	3	94	11.9	29.6
Building and contract.	132	120	12	40	9.1	33.3
Shipping	°	105	°	98	75.0	93.3
Other transport and comm. (excl. RR)	53	122	18	73	34.0	59.8
Wholesale distrib.	54	266	7	57	12.3	21.4
Retail distrib.	346	271	30	68	8.7	25.1
Ins. bkg. finance	51	78	2	11	3.3	14.1
Professional services	289	10	15	2	5.2	19.4
Other services ^e	223	169	15	37	6.7	21.9
Total ^f	1,696	4,016	186	1,093	11.0	27.2

SOURCE: Annual Reports of Commissioners of H.M. Inland Revenue.

P = persons.

C & LA = companies and local authorities.

^a Excluding nationalized industries.

^b Agriculture, horticulture, forestry, fishing, mining, and quarrying (other than coal).

^c Less than £500,000.

^d Including shipbuilding.

^e Including entertainment and sport.

^f Including undertakings abroad not included above.

this it is clear that even in relatively labor-intensive activities like retail distribution, in which buildings do not qualify for capital allowances, about a fifth of income can be obtained tax-free through statutory depreciation allowances, while in the shipping industry the major portion of income becomes exempt from tax in this way.

Turning to the relationship between statutory depreciation allowances and gross fixed capital formation (excluding dwellings), Table 14 shows that since 1951 for companies the proportion has usually fallen between about 60 and 70 per cent, and for persons between 45 and 65 per cent. The fluctuations have been almost entirely due to the variations in initial and investment allowances, the impact of the other allowances being relatively stable. As one might expect, changes in gross fixed capital formation from year to year have been greater than changes in allowances, so that in times of sharply rising investment the proportion has fallen, while a fall in investment has raised the proportion. A corollary of this is that rapidly growing, high-investment industries like chemicals can only obtain about 50 per cent of the funds they need from tax-exempt depreciation allowances, while relatively static industries like textiles, leather, and clothing get 70 or 80 per cent in this way.

It will be recalled from the data on public quoted companies analyzed earlier that the lower the income-to-asset ratio, the greater the rate of growth of net assets, and (with some qualifications) the larger the company, then the greater will be the role of new capital. If we look now at the self-financing of these same companies, as measured by its ratio to income (instead of to the increase in net assets), then for the larger firms we find the following correlations for that ratio (Table 15):

1. There is no significant over-all correlation with size (as measured by the logarithm of net assets), although some of the industry groups do have statistically significant correlation coefficients, all of which are positive:

2. There is a barely significant negative correlation with the income-to-asset ratio, although some of the industries show a significant positive correlation.

3. There is no significant over-all correlation with the percentage share of new capital in the increase in net assets; and of those in-

TABLE 14

Statutory Depreciation Allowances in Relation to Gross Fixed Investment,^a 1951-61

Year	Gross Fixed Capital Formation ^a		Initial and Investment Allowances				Other Depreciation Allowances				Total Allowances				
	(£m)	(2)	Persons (£m)	Companies (5)	Per Cent of Pounds Col. 1	Companies (6)	Persons (7)	Per Cent of Pounds Col. 1	Companies (9)	Per Cent of Pounds Col. 2	Persons (11)	Per Cent of Pounds Col. 1	Companies (13)	Per Cent of Pounds Col. 2	(14)
1951	211	626	47	238	22.3	38.0	62	29.4	254	40.6	109	51.7	492	78.6	78.6
1952	205	628	19	111	9.3	17.7	66	32.2	287	45.7	85	41.5	398	63.4	63.4
1953	204	667	21	104	10.3	15.6	76	37.3	303	45.4	97	47.5	407	61.0	61.0
1954	242	777	32	157	13.2	20.2	86	35.5	364	46.8	118	48.8	521	67.1	67.1
1955	273	958	37	205	13.6	21.4	98	35.9	420	43.8	135	49.5	625	65.2	65.2
1956	245	1180	36	227	14.7	19.2	105	42.9	500	42.4	141	57.6	727	61.6	61.6
1957	249	1351	36	269	14.5	19.9	112	45.0	569	42.1	148	59.4	838	62.0	62.0
1958	292	1405	55	347	18.8	24.7	123	42.1	626	44.6	178	61.0	973	69.3	69.3
1959	315	1433	68	399	21.6	27.8	126	40.0	670	46.8	194	61.6	1069	74.6	74.6
1960	334	1642	74	450	22.2	27.4	136	40.7	713	43.4	210	62.9	1163	70.8	70.8
1961	358	1834	78	497	21.8	27.1	148	41.3	792	43.2	226	63.1	1289	70.3	70.3

SOURCE: *National Income and Expenditure, 1962*, Table 53 and Appendix Table, p. 86.

NOTE: In the totals for persons, the allowances for professional persons (never greater than £17m) have been divided between initial and investment allowances and other depreciation al-

lowances in the same proportions as those for other sole traders and partnerships, since details of the former breakdown are not given in the published tables.

^a Excluding dwellings.

TABLE 15
Degree of Profit Retention by Large Quoted Companies

Industry	Coefficient of Correlation Between Ratio of Self-Financing to Income and		
	Log of Net Assets	Income-to- Asset Ratio	Percentage Share of New Capital in Increase in Net Assets
21. Food	-.109	-.323*	-.044
23. Drink	+.104	+.134	-.292
26. Chemicals	+.198	-.290*	-.397*
31. Metal Manuf.	+.415*	-.220*	-.350
33. Nonelectr. eng.	+.135	-.102	+.602*
36. Electr. eng.	+.060	-.088	+.004
38. Vehicles	+.324*	+.249*	-.313
39. Other metal goods	+.001	-.171	-.549*
41. Textiles	+.009	+.034	-.276
46. Bricks, pottery, etc.	-.067	-.397*	+.223
48. Paper, printing, etc.	+.022	-.307*	-.172
50. Construction	+.175	-.302*	-.428
81. Wholesale distrib.	+.229*	+.186*	-.034
82. Retail distrib.	-.084	+.151	-.177
88. Misc. services	+.232*	+.247*	-.297
21-24. Food, drink, tobacco	-.074	-.189*	-.149
31-39. Metal manuf. and engineering	+.204*	-.103*	+.153*
41-49. Other manuf.	+.049	+.061	-.028
21-49. All manuf.	+.003	-.051	+.030
50-88. Construction, distrib., and services	+.098*	+.118*	-.216*
21-88. All industries	+.013	-.038*	-.075
No. of companies analyzed	1816 ^a	1816 ^a	648 ^b

NOTE: Figures for individual industries are given only where at least twenty observations are available. The excluded industries are, however, included in the aggregated groups in the last six lines. For coverage, definitions, and classification by industry, see *Company Assets, Income and Finance 1960*, pp. iii-vi.

^a Excludes 12 companies with negative or zero income.

^b Excludes 313 companies with negative net new capital, 845 with zero new capital, and, of the remainder, 10 with no increase in net assets.

* Significant at the 5 per cent level.

dustries which show a significant correlation, some are negative and some positive. Thus, for the larger companies, the degree of profit retention does not seem to vary systematically with any of these variables.

The story is much the same for the smaller companies (Table 16). There is a significant, but small, positive correlation between size and the ratio of self-financing to income, and between this ratio and the income-to-asset ratio. This latter result is interesting since the sign of the coefficient is the opposite of that for the larger companies. Again, however, wide variations exist from industry to industry, and without further detailed analysis it would be dangerous to give this too much weight.⁴² Nor does there seem to be much evidence supporting the hypothesis that the firms which rely most on new capital (as measured by the percentage share of new capital in the increase in net assets) are those which are also plowing back the most (i.e., have the highest ratio of self-financing to income). For the smaller companies, this latter correlation coefficient is positive but not statistically significant, just as it was negative but not statistically significant for the larger companies.

Initial allowances are usually characterized in their effects as "an interest-free loan," and investment allowances as "a concealed subsidy." The RCT in its *Final Report* regarded initial allowances as not merely a loan, because (1) "the remission given by the Revenue is reclaimable only against future tax," (2) "the allowance is available to a business. . . regardless of its borrowing powers," and (3) it is "something more than temporary accommodation where the business that receives it is a continuing concern," for, as long as they are in force, "the allowances for new expenditure, as they come in, constitute a revolving credit in the taxpayer's account with the Revenue."⁴³ Or, as Prest puts the matter, rather more forcefully, initial allowances constitute "a free gift if insufficient income is earned to repay them, a larger gift if the business continues to grow, and a growing gift if the business grows at an increasing rate."⁴⁴ Investment allowances are much more obviously an outright

⁴² This is not the only unfinished part of this work, for there is also the relationship between self-finance as a percentage of income and the rate of increase of net assets to be investigated.

⁴³ Para. 428.

⁴⁴ Prest, *Public Finance*, p. 318.

TABLE 16
Degree of Profit Retention by Smaller Quoted Companies

Industry	Coefficient of Correlation Between Ratio of Self-Financing to Income and		
	Log of Net Assets	Income-to- Asset Ratio	Percentage Share of New Capital in Increase in Net Assets
21. Food	+ .406*	-.109	
26. Chemicals	+ .172	+ .370	
31. Metal manuf.	-.322	-.384	
33. Nonelectr. eng.	-.108	+ .315*	
39. Other metal goods	+ .217	-.039	
41. Textiles	+ .159	-.030	
46. Bricks, pottery, etc.	-.292	+ .119	
48. Paper, printing, etc.	+ .229	-.658*	
49. Other manuf.	+ .008	-.036	
81. Wholesale distrib.	+ .179	+ .144	
82. Retail distrib.	+ .399	+ .639*	
88. Misc. services	+ .119	+ .091	
21-24. Food, drink, tobacco	+ .203	-.113	
31-39. Metal manuf. and engineering	+ .054	-.006	+ .546*
41-49. Other manuf.	+ .084	-.048	
21-49. All manuf.	+ .062	+ .053	+ .127
50-58. Construction, distrib., and services	+ .113	+ .122	-.077
21-88. All industries	+ .092*	+ .079*	+ .076
No. of companies analyzed	626 ^a	626 ^a	79 ^b

NOTE: Figures for individual industries are given only where at least twenty observations are available. Excluded industries are, however, included in the relevant aggregates lower in the table. For coverage, definitions, and classification by industry, see *Company Assets, Income and Finance, 1960*, pp. iii-vi.

^a Excludes 42 companies with negative or zero income.

^b Excludes 485 companies with zero new capital, 99 with negative new capital, and, of the remainder, 1 with zero or negative income.

* Significant at the 5 per cent level.

tax remission, irrecoverable once granted, no matter what the subsequent pattern of growth or decline in the firms' fortunes.

Both of these allowances have the advantage of providing the tax

relief early in the life of the asset. Even so it is claimed that the relief is not prompt enough, because business taxation in the U.K. operates on a preceding-year basis, i.e., the trading profits upon which tax is paid in any fiscal year will be those accruing in the firm's own accounting year which ended in the preceding fiscal year.⁴⁵ This means a delay of eighteen months or so between the incurring of expenditures and the gaining of tax relief, which means that the liquidity effect of the allowances may be delayed too long to help a firm in a really tight spot.

Nevertheless, because of characteristic 2 above, initial (and investment) allowances might be expected to be particularly valuable to firms experiencing difficulties in obtaining external finance, and characteristic 3 would make them especially important to rapidly growing firms. Unfortunately there is a great dearth of systematic empirical evidence on this point. The Federation of British Industries found that out of 1595 firms polled in 1957, 23 per cent said that, since 1951, investment decisions had been materially affected by favorable changes in investment and initial allowances, while 14 per cent had been so affected by unfavorable changes, and these proportions varied little between firms of different sizes.⁴⁶ Unfortunately no breakdown was made by growth rates. In an as yet unpublished survey of management accounting techniques in southeastern Hampshire carried out by H. Hart and D. F. Prusmann of Southampton University in 1963, it was found that 42 out of 116 respondents giving a definite answer (i.e., 36 per cent) stated that they had found that investment allowances acted as an inducement to replace or add to plant. If divisions and branches of firms are excluded from the analysis, there are 31 out of 91 (34 per cent) reporting such a response. Breaking these down into size groups, we find 6 out of 29 (21 per cent) of those employing 21 to 100 people, 17 out of 48 (35 per cent) of those employing 101 to 500, and 8 out of 14 of those employing over 500 people reporting a positive response. Again, no information is available on growth rates. A survey of factors affecting productivity growth generally, covering 142 businesses in southwest England, recently carried out by D. C. Cor-

⁴⁵ Thus profits earned in the accounting year ended on June 30, 1963, will be the basis for the tax assessment in the fiscal year starting April 6, 1964.

⁴⁶ *Principal Memoranda of Evidence*, Vol. 2, pp. 118-121.

ner of Exeter University included a section on financial aspects. This confirmed that the firms which are most susceptible to these allowances are those which have had difficulty in obtaining finance and have been deterred by high interest rates (see Table 17, Parts A and B). Independent firms were more susceptible (24 per cent) than subsidiaries (15 per cent), while of the independents the larger ones were more influenced (40 per cent) than the smaller ones (19 per cent) (Table 17, Part C). The only size and growth indicator available was the number employed, which, though the pertinent variable in relation to the main purpose of the survey, is not the most suitable in the context of capital finance. Nevertheless, the growing firms in each size group were more influenced by the allowances than were the static or declining ones (39 against 11 per cent).

However, none of these results enables us to establish at all firmly the relative importance of the liquidity and profitability aspects of the allowances, and informed observers are divided on this issue. On one side of the fence we find Dow, who says: "Econometric analysis suggests that the flow of liquid funds is crucial in determining the pace of investment. Generally the government has no way of changing firms' liquidity. But the initial allowance did just that, and on a considerable scale." To this he adds, in a footnote: "This general conclusion is perhaps supported by econometric investigations which tend to show that variations in profits are associated with variations in investment of about equal magnitude. Profits are probably chiefly to be regarded as a source of funds, though they also give some indication of the profitability of the new investment."⁴⁷

On the other side of the fence we find Barna:

The fact that liquidity is not related to growth or, if it is, is inversely related to it, may help in interpreting the relation of profits to growth. Profits may be taken to represent either a flow of liquid funds or profitability on capital employed with a suggestion that this profitability will be maintained in the future. The findings on financial behaviour tend to support the view that the latter aspect of profits is important.

The most important relationship established here, that between longer-

⁴⁷ J. C. R. Dow, "The Economic Effects of Monetary Policy," *Principal Memoranda of Evidence*, Vol. 3, p. 92.

TABLE 17

Preliminary Results of Survey of 142 Extractive and Manufacturing
Businesses in Southwest England

PART A: RESPONSES TO FAVORABLE CHANGES IN INITIAL AND/OR INVESTMENT
ALLOWANCES COMPARED WITH OTHER FINANCIAL CHARACTERISTICS

	Responsive to Allowances	
	Yes (27)	No (103)
Projects abandoned and/or postponed because of high interest rates:		
1. Yes	6	15
2. No	21	86
Line 1 as per cent of lines 1+2	22	15
Projects abandoned and/or postponed because of difficulty in obtaining financing:		
3. Yes	11	22
4. No	15	80
Line 3 as per cent of lines 3+4	42	22
Projects abandoned and/or postponed because of tax changes:		
5. Yes	7	5
6. No	19	96
Line 5 as per cent of lines 5+6	27	5
New plant and equipment required to yield "X" per cent per annum:		
7. Yes	9	37
8. No	16	60
Line 7 as per cent of lines 7+8	36	38
New plant and equipment required to pay for itself in so many years:		
9. Yes	19	73
10. No	8	24
Line 9 as per cent of lines 9+10	70	75

NOTE: Subtotals may not add to over-all total because relevant information is not available for particular firms.

(continued)

PART B: LIQUIDITY VS. PROFITABILITY ASPECTS OF ALLOWANCES

	Firms Affected by Difficulty in Obtaining Financing	
	Yes	No
Firms affected by high interest rates:		
	Yes	15
	No	17
		6
		90

NOTE: Excludes all firms not stating response to allowances (12).

Hypotheses

- The 15 firms affected by both interest and finance should be responsive to the allowances in both their aspects.
- The 6 firms affected by high interest rates but not finance will be responsive to allowances primarily in their profitability aspect.
- The 17 firms affected by financial difficulties but not high interest rates will be responsive to allowances primarily in their liquidity aspect.
- The 90 firms not affected by either will not be particularly responsive to the allowances.

Analysis

FIRMS AFFECTED BY DIFFICULTY IN OBTAINING FINANCE						
Yes				No		
Responsive to Allowances		Col. 1 as Per Cent of Cols.		Responsive to Allowances		Col. 4 as Per Cent of Cols.
Yes	No	1+2		Yes	No	4+5
(1)	(2)	(3)		(4)	(5)	(6)
Firms affected by high interest rates:						
Yes	4	11	27	2	4	33
No	7	10	41	14	76	16

(continued)

PART C: RESPONSIVENESS OF FIRMS BY SIZE AND GROWTH OF LABOR FORCE

Responsive to Allowances	Independent Firms	Subsidiary Firms	All Firms
SIZE OF LABOR FORCE: UNDER 100			
1. Not stated	2	4	6
2. Yes	9	4	13
3. No	38	11	49
4. Line 2 as per cent of lines 2+3	19	27	21
SIZE OF LABOR FORCE: 100-500			
5. Not stated	2	1	3
6. Yes	7	3	10
7. No	19	18	37
8. Line 6 as per cent of lines 6+7	23	14	21
SIZE OF LABOR FORCE: 500 AND OVER			
9. Not stated	1	2	3
10. Yes	4	0	4
11. No	6	11	17
12. Line 10 as per cent of lines 10+11	40	0	19
SIZE OF LABOR FORCE: TOTAL			
13. Not stated	5	7	12
14. Yes	20	7	27
15. No	63	40	103
16. Line 14 as per cent of lines 14+15	24	15	21

(continued)

Responsive to Allowances	Independent Firms	Subsidiary Firms	All Firms
GROWTH OF LABOR FORCE: ^a UNDER - 10%			
1. Not stated	1	3	4
2. Yes	0	1	1
3. No	15	7	22
4. Line 2 as per cent of lines 2+3	0	13	5
GROWTH OF LABOR FORCE: ^a - 10 TO + 10%			
5. Not stated	1	1	2
6. Yes	4	3	7
7. No	19	8	27
8. Line 6 as per cent of lines 6+7	17	27	21
GROWTH OF LABOR FORCE: ^a 10 TO 30%			
9. Not stated	1	1	2
10. Yes	9	0	9
11. No	12	7	19
12. Line 10 as per cent of lines 10+11	43	0	32
GROWTH OF LABOR FORCE: ^a 30% AND OVER			
13. Not stated	2	1	3
14. Yes	6	2	8
15. No	11	12	23
16. Line 14 as per cent of lines 14+15	35	14	26
GROWTH OF LABOR FORCE: ^a TOTAL			
17. Not stated	5	6	11
18. Yes	19	6	25
19. No	57	34	91
20. Line 18 as per cent of lines 18+19	25	15	22
GROWTH OF LABOR FORCE: ^a NOT STATED			
21.	7	7	14

NOTE: Neither growth rate nor responsiveness to allowances stated for one subsidiary (not shown here).

^a From 1956 to 1963.

(continued)

Independent Firms						
Responsive to Allowances	Declining	Static	Growing Slowly	Growing Rapidly	Total	Growth Rate Not Stated
SIZE OF LABOR FORCE: UNDER 100						
1. Not stated					2	
2. Yes	0	2	4	3	9	0
3. No	13	10	6	8	37	1
4. Line 2 as per cent of lines 2+3	0	17	40	27	20	
SIZE OF LABOR FORCE: 100-500						
5. Not stated					2	
6. Yes	0	1	3	2	6	1
7. No	2	7	4	2	15	4
8. Line 6 as per cent of lines 6+7	0	13	43	50	29	
SIZE OF LABOR FORCE: 500 AND OVER						
9. Not stated					1	
10. Yes	0	1	2	1	4	0
11. No	0	2	2	1	5	1
12. Line 10 as per cent of lines 10+11	0	33	50	50	44	
SIZE OF LABOR FORCE: TOTAL						
13. Not stated	1	1	1	2	5	0
14. Yes	0	4	9	6	19	1
15. No	15	19	12	11	57	6
16. Line 14 as per cent of lines 14+15	0	17	23	35	25	

term rate of growth and longer-term rate of profit, is a statistical relationship which may be interpreted in various ways. . . .

The observations of this study as a whole tend to support the view that the relationship between profits and growth is not a causal one, but rather that both growth and profitability are reflections of the character of the firm.⁴⁸

⁴⁸ Barna, *Investment and Growth Policies*, p. 20.

This seems, therefore, the point at which to consider the profitability aspect of capital allowances.

C. Profitability Aspects

1. THE ISSUES IN PRINCIPLE

In one respect the effects of capital allowances upon prospective profitability are a relatively simple matter to discuss, for it requires no great mathematical skill, though a great deal of application, to work out the effects of various devices upon the rate of return on investment, according to any or all of a wide range of alternative formulae, and there is no dearth of such calculations. It will surprise no one that as the assumptions are varied, so generally are the results. The difficulty lies in knowing which of the alternatives are the more important empirically.

The criterion favored by the sophisticated is the maximization of the present value of the expected net returns from the investment (after all associated costs except depreciation have been deducted). Because of the discounting procedure involved, this has the advantage of being sensitive to changes in the time pattern of net returns and depreciation allowances, as well as to changes in their amount.

Using this type of approach and comparing the effects of setting the rates of investment allowance, initial allowance, and cheap loans in such a way that they confer equivalent benefits upon an average firm, Black has shown that "investment allowances will be less favourable than initial allowances or cheap loans for firms making longer lived investments than the average." Similarly, a firm with a higher than average subjective interest rate, r , "will find initial allowances most to its advantage and cheap loans least so." These findings lead him to the following conclusion:

It has sometimes been suggested that investment allowances are the best method of the three because they discriminate in favour of firms which are growing fast; but there is no reason to believe this. If a rapid rate of expansion leaves a firm short of ready money, and this is reflected in a high value of r relative to the average firm, then if rates of initial and investment allowances are fixed so as to make them equivalent for the average firm, it is initial allowances which discriminate in favour of the rapidly growing firm. Investment allowances, as seen above, discriminate

not in favour of the firm which is growing fastest, but in favour of the firm which turns its capital over fastest; and there is no reason why the public interest should require the encouragement of relatively short-lived investments.⁴⁹

A different frame of reference can be adopted comparing initial and investment allowances, on the one hand, and reductions in the tax rate, on the other, and postulating that changes in allowances and changes in tax rates are to be so adjusted as to keep the tax yield constant for the particular firm under consideration; if attention is then directed to proportional increases in the present value of investments which the firm regards as "marginal" (i.e., the discounted value equals the initial cost before taking the tax concessions into account), then we could in principle isolate the discriminatory effects of the various tax measures on the profitability of a particular project, without the issue being complicated by differences in the over-all tax liability between one measure and another.

Here there is an important distinction to be made between a firm considering one investment project in isolation and a firm considering a whole stream of investment projects through time. Taking the single investment first, it will be found that if the investor's discount rate is greater than that of the tax authorities (which one would expect to be the normal case, since the discount rate represents the opportunity cost of the funds involved), then the various forms of accelerated depreciation will confer greater benefits than equal-yield tax rate reductions will. The relative superiority of accelerated depreciation will be greater the higher the investor's discount rate relative to that of the tax authorities, the larger the tax concession (in spite of the fact that the tax rate reduction is also increased to maintain equivalence in terms of lost tax revenues), and the longer the normal life of the asset (i.e., the period over which it would have been written off under a straight-line system in the absence of the depreciation acceleration).

If the firm imposes a short pay-off period requirement, i.e., con-

⁴⁹ J. Black, "Investment Allowances, Initial Allowances and Cheap Loans as Means of Encouraging Investment," *Review of Economic Studies*, 1959, pp. 44-47.

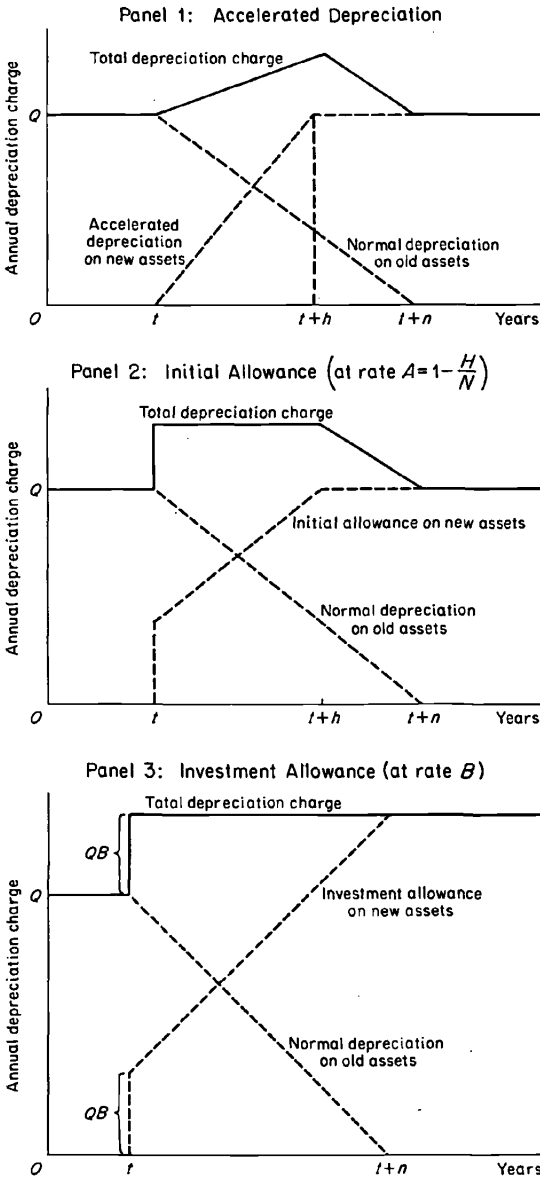
siders only the net revenues accruing during the first few years and ignores the later ones, but within this short pay-off period still uses the present-value technique, then the relative superiority of the various accelerated depreciation provisions over the tax rate reduction are greatly enhanced.⁵⁰ In such circumstances the concentration of benefits in the early years is so important that accelerated depreciation will generally still be superior to a tax rate reduction even when the investor's discount rate is lower than that of the tax authorities.

These conclusions would require modification if the returns from the investment were expected to be very low in the early years but high later, instead of being constant as has been assumed here, or if tax rates were expected to be higher in the future, or if taxable incomes were insufficient to enable full advantage to be taken of the depreciation concessions.

When investment is regarded as a continuing stream of expenditures through time, we are led to make a further crucial distinction—between the “transitional” and the “post-transitional” effects of the various depreciation concessions. Panels 1 through 3 in Chart 2 show the effects upon the time path of total depreciation allowances of an increase in ordinary annual allowances, initial allowances, and investment allowances. While each concession has its own characteristic time shape during the transitional phase (from t to $t + n$), the post-transitional effects of the first two are nil, since the annual depreciation charge reverts to its preconcession level (although this does not mean that the relief obtained during the transitional phase is subsequently lost). Only the investment allowance gives continuing relief.

⁵⁰ It is therefore surprising that the survey results reported in Table 17, Part A, indicate that there is no significant difference between firms affected by these allowances and firms not affected, in the type of investment criteria used. Hart and Prusmann, on the other hand, found that out of thirty-four respondents computing a “pay-back period” to determine whether replacement of plant will be profitable in a financial sense, twenty (59 per cent) reported a positive response to investment allowance while only thirteen out of forty-four (30 per cent) did so amongst those computing an average rate of return (with or without discounting). This compares with thirteen out of fifty-eight (22 per cent) responding positively to investment allowances amongst those employing other criteria or reporting none at all.

CHART 2
Effects of Changes in Depreciation Provisions on Annual Depreciation Charges



When the investment stream is growing through time and only the post-transitional effects are considered, the depreciation concessions favor such firms more than tax rate reductions do, while the latter favor firms making high profits, whether their investment streams are growing or declining.

In principle, therefore, one would expect each of these allowances to exert a powerful incentive effect on those capital expenditures qualifying for them.

2. THE EFFECTS IN PRACTICE

It is, nevertheless, often asserted that these allowances are severely circumscribed in their effectiveness. The RCT, for instance, in its *final report* argued:

When large-scale capital expenditure is in question it must be quite usual for a period of three or four years to elapse between the decision to proceed and the making of the bulk of the expenditure. Plans of this sort have to be decided upon and carried through independently of the impact of such allowances. For it is in their nature that they should be regarded as temporary and variable, and therefore cannot be counted on as a permanent part of the tax structure. Their stimulus might be very different if the tax relief could be made dependent upon the decision to invest, instead of waiting upon the investment itself. . . .

The case is different for small-scale expenditure which can be undertaken at short notice. Here the encouragement is obvious, particularly for the smaller concern. . . . Theoretically, the inducement could be increased if the allowance system were avowedly introduced for a limited period only. . . . On the other hand we should not be too ready to assume that a stimulus of this sort favours the best economic planning of resources . . . it is quite likely to give more impetus to short-term expenditure in ready-made improvements than to longer-term and more fundamental planning.⁵¹

Against this view it has been argued recently⁵² that much investment is of a kind that can be accelerated. Routine replacement of plant and equipment can be speeded up, even by firms which are at the same time engaged in inflexible long-term projects. . . . Two conditions must, however, be satisfied: investment will be accelerated only if firms can get the equipment and if they are willing and able to handle more rapid investment. . . . It is possible that firms might make a "special effort" in the period of the allowances without reducing their

⁵¹ Paras. 422 and 423.

⁵² Mackintosh, *Development of Firms*, pp. 141-144.

efforts in other directions or at other times. . . . A period of yet more rapid development, though initially thought of and intended to be short, will cause some upward shift in firms' ideas of "normal" rates of development. It will also give firms experience of higher rates of development and it will induce improvements of techniques for dealing with rapid change. The change of atmosphere and improvement of technique are not wholly lost when the temporary incentive of the allowance is removed. There must be a fairly strong "ratchet" effect.

It is sometimes suggested that if it is to encourage a higher rate of investment in the long run, the investment allowance should be permanent and constant. I . . . argue . . . that this is not so. . . .

There is one proviso. For the incentive effect to be strong, it is essential that the allowance should remain available for long enough for understanding to spread and for firms to have the opportunity to act deliberately to obtain more benefit. . . . If such an assurance cannot be given verbally, it has to be established by the record.

There are several other factors, besides the uncertainty generated by frequent changes in the rates and coverage of the allowances, which tend to make businessmen less sensitive to them. In the first place, it appears that many firms make their investment decisions by rules of thumb which are based on book values rather than on written-down values for tax purposes and which may not be able to reflect changes in the timing of tax outlays.⁵³ Secondly, "best practice" among accountants tends to stress the temporary nature of the benefits accruing from initial allowances. This inculcates an extremely cautious attitude which may result in such funds being earmarked only for highly liquid uses. But it also suggests that no real increase in profitability results from the granting of the allowance, for what is given now will shortly be taken back again. When it comes to investment allowances the relief gained tends to be divorced from the making of the capital expenditure, which is undoubtedly correct from a flow-of-funds viewpoint, but, if allied to inadequate investment criteria, may well severely weaken the impact of the allowance.

In the light of all this, it is perhaps not surprising that the stock answer of businessmen, when asked about the effects of initial and investment allowances, is to dismiss them as having little or no

⁵³ See A. S. Ashton, "Investment Planning in Private Enterprise," *Lloyds Bank Review*, October 1962, esp. pp. 24-26.

effect on investment decisions.⁵⁴ Yet it appears from the (admittedly scanty) evidence presented earlier that, in spite of all these qualifications, as many as one-fifth of firms have been influenced by these allowances at one time or another.

It would seem desirable, however, to make them more selective in their operation, and the RCT⁵⁵ did consider that discrimination by more narrowly defined asset classes might be feasible.⁵⁶ Already special treatment is accorded to fuel-saving plant and insulation of industrial and agricultural buildings, and further differentiation along these lines would make the allowances rather less of a blunt instrument than they are at present. In this respect it is encouraging to note that one thing about which observers appear to be unanimous is that the investment allowance does encourage the smaller firms to buy new rather than second-hand plant and equipment (the latter qualifying only for initial allowances).

The report of the National Economic Development Council is, however, cautious about the role of investment allowances (as it is, indeed, about the role of tax policy generally) in its program for growth. It points to the possibility of regional differentiation⁵⁷ of such allowances and accepts that "there may at times be a case for other kinds of differentiation." It also argues that if the "interval between increasing expenditure on investment and benefiting from the allowances . . . could be reduced the effectiveness of the allowances would be increased." But on the broader issues, it is forced to admit that:

It is an open question whether special encouragements to investment are needed permanently as long-term means of sustaining growth. . . . It seems desirable to increase industry's confidence in investment allowances by

⁵⁴ See for instance the material quoted by Richard M. Bird, "Countercyclical Variations of Depreciation Allowances in the United Kingdom," *National Tax Journal*, March 1963, pp. 52-54.

⁵⁵ *Final Report*, para. 426.

⁵⁶ Many unintended beneficiaries have enjoyed the allowances, e.g., firms renting out consumer durables and hotels for bedding, cutlery, and crockery.

⁵⁷ Subsequently, in the 1963 Budget, the Chancellor of the Exchequer introduced "free write-offs" (or 100 per cent initial allowances) on certain kinds of capital expenditure in specified areas of high unemployment. In this paper I have set aside the regional aspects of development programs, not because they are unimportant, but because they raise more additional issues than I could encompass within the space allotted.

giving such assurance as is constitutionally possible that they will not be reduced without, say, two or three years' notice. With frequent variation they lose much of their effect because a business planning its investment cannot be sure what allowances will be in force when the expenditure is incurred.⁵⁸

D. General Conclusions

The two headings, liquidity and profitability, under which the effects of capital allowances have been discussed, correspond, respectively, to the familiar income effects and substitution effects of economic theory, and it will help to draw the threads together if this is borne in mind.

The profitability (or incentive) or substitution effects of these allowances may prove to be inoperative in practice for three main reasons: first, because of a faulty appraisal of the situation by businessmen (although this may lead to oversensitivity as well as undersensitivity)⁵⁹; secondly, because they are not large enough to overcome the subjective and objective costs of reorganizing investment plans; and thirdly, because the investments for which they are granted would have been undertaken even in their absence. In this last case, although the profitability aspect produced no change in behavior, the liquidity (or income) effect is still present (as it is not in the first two cases), and the tax relief accruing because of the allowances will constitute a "windfall" which may be applied in various ways by the firm.

To the extent that these additional funds are used for invest-

⁵⁸ *Conditions Favourable to Faster Growth*, paras. 173, 172, and 171.

⁵⁹ ". . . mechanical explanations of the behaviour of businessmen are dangerous. A reduction in taxation might alter the climate of opinion so that business *thinks* it has a greater incentive to invest, even though it is difficult to trace the exact reasons for the opinion. Thus the introduction of the investment allowance in the Budget of 1954, with a good deal of official propaganda in favour of more capital expenditure in industry, appears to have been part cause of the 1955-6 investment boom, whose embarrassing dimensions caused the withdrawal of the investment allowances in February 1956. Our Accountants' Group stressed the important psychological effect of the allowance, which was viewed as a subsidy to investment, whereas the initial allowance . . . was regarded as a tax-free loan liable to repayment. To many firms the evidence of official approval for investment was important. The psychological effect was fully confirmed by the case-studies." Carter and Williams, *Industry and Technical Progress*, p. 150.

ment, this investment may include assets which do not themselves attract initial or investment allowances (or indeed any kind of capital allowances at all). Since the number of firms benefiting from the tax reliefs generated by these allowances appears to be substantially greater than the number directly influenced by them (whether for liquidity or profitability reasons), it would seem to be of the utmost importance to discover the income elasticity of firms' demand for different types of capital goods (as well as for capital goods as opposed to other uses of funds)⁶⁰; for it appears *prima facie* that this is going to be more important in assessing the quantitative effects of these allowances than the corresponding price elasticities of demand.

IV. TECHNICAL PROGRESS, INNOVATION, AND RISK-TAKING

Most of the foregoing analysis has been concerned with the effects of taxation upon gross capital formation in industry generally. But a key role in economic growth is usually assigned to one particular kind of physical investment, namely, that related to research and development and the introduction of improved techniques. In taxation policy, this is usually treated as part of the general problem of risk-taking, which may be affected by taxation through people's willingness to undertake risky projects and through their ability to do so.

Although it is commonly assumed that taxation adversely affects the willingness to take risks, in principle there is no *a priori* reason why this should be so, and if the tax treatment of losses and fluctuating incomes were sufficiently generous, there may even be an incentive rather than a disincentive effect, for then taxation acts as a cushion against possible losses, as well as a reducer of rewards. If the incidence of the tax structure generally is such as to fall particularly heavily upon those who supply risk capital, then again adverse effects might be expected if shortage of finance is a constrain-

⁶⁰ A rough and ready exercise of this kind, on a very small scale, was attempted by Mackintosh in *Development of Firms*, pp. 125-128.

ing factor upon the more venturesome. We have seen that the taxation of income generally may have some bias in this direction, though it is easy to exaggerate it.

There are, however, some additional features of the tax structure which deserve special attention in this context. Clearly, the tax treatment of expenditures on scientific research will be of considerable significance for the financing of the initial (and most unpredictable) stage in fostering technical progress. As for the willingness to take risks, the importance of the tax treatment of losses and fluctuating incomes has already been mentioned, while death duties and capital gains taxation are frequently brought into the discussion, both in relation to the willingness to take risks and in their special impact on the sources of risk capital.

Before looking at each of these measures in turn, we must emphasize that it is by no means clear what the sources of risk capital are in a complex economy with a highly developed capital market. Historically, the private individual backing his fancy may well have been all-important, but the diminished role of this source of finance in relation to financial intermediaries of one sort or another must not be taken as implying necessarily that the well is drying up. Wright makes an observation, in this connection, which is very pertinent to the problems discussed earlier:

Externally raised capital has to be serviced, for even if it is equity capital the firm's reputation is seriously damaged if it reduces its rate of dividend. . . . This may deter directors from using external funds on projects where there is appreciable risk and returns will take some time to mature. . . . In a sense internal funds go to build up the real "risk capital" of the company, and greater distribution of profits would diminish this supply of risk-bearing funds.⁶¹

A. The Law

1. EXPENDITURES ON SCIENTIFIC RESEARCH

Current expenditure on scientific research can be deducted in full in computing taxable profits, provided that it is related to the trade in question or to the welfare of the workers in it. This is so whether the research is carried on by the firm itself, a research association, a

⁶¹ Wright in Worswick and Ady, *The British Economy*, p. 490.

university, or a research institute. Expenditure on capital assets used in scientific research could, until 1949, be written off at a rate of 20 per cent per annum, but from 1949 on 60 per cent could be written off in the first year and 10 per cent in each of the four succeeding years. Among the latest changes in depreciation provisions was one permitting scientific research assets to be written off entirely in the first year. Scientific research assets have also qualified for investment allowances at a rate of 20 per cent continuously since 1954 (see Table 10).

2. LOSSES AND FLUCTUATING INCOME

If the computation of profits for tax purposes results in the declaration of a loss on the year's trading, the taxpayer must stand that loss, unless he is entitled to claim relief under one of the following provisions:⁶²

a. If the person incurring the loss has other income in the year of assessment or in the next succeeding year, the loss may be deducted from such other income.

b. The loss may be carried forward indefinitely and set off against any future profits which may arise in the trade in which it was incurred.

c. If one of two associated companies makes a loss, the other may by agreement make a "subvention payment" to it, not greater in amount than the loss in question, this subvention payment then being deductible from the other company's profits for tax purposes.

d. If the taxpayer goes out of business, a "terminal loss" may be carried back and set off against the profits of the last three actual years of trading (but this is the only circumstance in which a loss can be carried back).

If the amount of profit is insufficient to absorb all the capital allowances to which a taxpayer is entitled, then the claiming of such allowances also produces what is, in effect, a loss for tax purposes. If

⁶²The position is, in fact, rather more complicated than is indicated here because of various provisions intended to prevent the claiming of relief for losses from becoming a tax avoidance device, especially in connection with "bond-washing," "dividend-stripping," and "tax-loss farming." On these and other such devices, see Carl S. Shoup, "Tax Tension and the British Fiscal System," *National Tax Journal*, March 1961, pp. 1-40.

such is the case, then the unused balance of such allowances will be treated substantially as a loss and dealt with as above.

There are no provisions of any consequence here⁶³ for the averaging of fluctuating incomes as such (i.e., apart from such fluctuations as may involve the making of losses, as described above). However, for companies with profits continually in excess of £12,000 per annum, fluctuations from year to year will not affect the over-all tax liability except insofar as changes are made in tax rates.

3. DEATH DUTIES

An estate duty is levied on the aggregate net value of all property, movable or immovable, either situated in Great Britain or owned by a deceased domiciled in Great Britain,⁶⁴ which passes or is deemed to pass on the death of its owner. Gifts *inter vivos* made within five years of death (or one year in the case of gifts for public or charitable purposes) are usually treated as part of the estate.⁶⁵ The rates of duty are highly progressive. Various special reliefs are granted to meet particular hardships, but there are two detailed aspects of the duty which are of interest here:

a. If a company is controlled by five persons or less and, within five years of his death, a deceased has in any way transferred to the company any of his assets and, furthermore, he had within five years of his death received any benefits from the company, the company will be liable to estate duty on the proportion of the company's assets which relate to the benefits enjoyed by the deceased. "Benefits" are very widely defined.

b. The rates of duty are reduced to 55 per cent of what they would normally be at each point in the scale, in the case of the agricultural value of agricultural property, and, since 1954, also in the case of industrial properties occupied for, and machinery and plant

⁶³ There is a provision which shields surtax payers from the effects of "lumpy" payment of accumulated dividends; and another which permits authors, in certain circumstances, to spread over more than one year any lump sums received in payment for copyright and to have royalties spread backward over the period during which the work giving rise to them was being carried on.

⁶⁴ Before 1962 immovable property abroad was not liable to duty.

⁶⁵ The proportion of such gifts added back into the estate is one-fifth for those made four to five years prior to death, two-fifths of those made in the subsequent year, three-fifths of those made in the next year, and so on.

used for, the purposes of any business which passes or is deemed to pass (in which an interest passes or is deemed to pass) upon the death of its owner.

4. CAPITAL GAINS

In principle, the distinction to be drawn here is between those gains (or losses) that result from the sale of capital assets which are part of the taxpayers' stock-in-trade and those that arise from the sale of capital assets which are not. The former are treated as trading profits (or losses) and taxed as income in the ordinary way, while the latter are exempt from tax (with the exception of certain short-term gains, as set out below). The taxation or nontaxation of capital gains, therefore, turns upon whether or not the gain arose out of a transaction upon which a "badge of trade" can be pinned. Six such badges have been identified,⁶⁶ but since none of them is (in

⁶⁶ "The general line of enquiry that has been favoured by appeal Commissioners and encouraged by the Courts is to see whether a transaction that is said to have given rise to a taxable profit bears any of the 'badges of trade.' This seems to us the right line, and it has the advantage that it bases itself on objective tests of what is a trading adventure instead of concerning itself directly with the unravelling of motive. At the same time we have noticed that there has been some lack of uniformity in the treatment of different cases according to the tribunals before which they have been brought. This seems to us unfortunate and, for the sake of clarity, we have drawn up and set out below a summary of what we regard as the major relevant considerations that bear upon the identification of these 'badges of trade.'

"(1) *The subject matter of the realization.* While almost any form of property can be acquired to be dealt in, . . . property which does not yield to its owner an income or personal enjoyment merely by virtue of its ownership is more likely to have been acquired with the object of a deal than property that does.

"(2) *The length of the period of ownership.* Generally speaking, property meant to be dealt in is realized within a short time after acquisition. But there are many exceptions to this as a universal rule.

"(3) *The frequency or number of similar transactions by the same person.* If realizations of the same sort of property occur in succession over a period of years or there are several such realizations at about the same date a presumption arises that there has been dealing in respect of each.

"(4) *Supplementary work on or in connection with the property realized.* If the property is worked up in any way during the ownership so as to bring it into a more marketable condition; or if any special exertions are made to find or attract purchasers, such as the opening of an office or large-scale advertising, there is some evidence of dealing. . . .

"(5) *The circumstances that were responsible for the realization.* There may be some explanation, such as a sudden emergency or opportunity calling for

a logical sense) either necessary or sufficient to settle the issue one way or the other and in practice each case is usually treated on its merits, the application of this part of the tax law is fraught with a high degree of uncertainty.

The exception to all this arose out of the 1962 Budget, which defined a new category of income for tax purposes, called "short-term gains." Broadly speaking, these are gains arising from the disposal of nontrading assets which have been held for less than six months, or three years in the case of land. Owner-occupied dwellings are exempt. Should a capital loss arise in circumstances in which, if it had been a gain, it would have been treated as a short-term gain for tax purposes, then such a short-term loss can be offset only against short-term capital gains, arising in the same year or any subsequent year.

B. Evaluation

It is usually asserted that the combined effects of these various measures is to produce a drag upon economic progress by favoring the large, established, diversified, and rather conservative companies, as against the small, new, venturesome, family-type businesses. The tax treatment of losses and fluctuating income certainly does support this contention to some extent. On the other hand, the possibility of evening out (positive) fluctuations in income by a careful timing of the claiming of statutory depreciation allowances is open to all firms, though the more heavily capitalized obviously have more scope for this kind of maneuver. The exemption and abatement provisions of the profits tax⁶⁷ actually favor the companies with the smaller profits, which usually means the smaller ones. The statutory depreciation allowances obviously confer less benefit upon

ready money, that negates the idea that any plan of dealing prompted the original purchase.

"(6) *Motive*. There are cases in which the purpose of the transaction of purchase and sale is clearly discernible. Motive is never irrelevant in any of these cases. What is desirable is that it should be realized clearly that it can be inferred from surrounding circumstances in absence of direct evidence of the seller's intentions and even, if necessary, in the face of his own evidence."

(*Final Report, RCT*, para. 116.)

⁶⁷ See item 2 under Section IIA above.

firms with low marginal tax rates, however, than upon those paying higher rates. Death duties do undoubtedly impinge heavily upon the capital resources of some unincorporated family businesses, but whether on this account they should receive further concessions in the levying of estate duty is a question to which we shall return shortly. What must also be borne in mind here, as an offsetting influence, is the exemption from taxation of many kinds of long-term capital gain, including those realized by selling out as a going concern a business which the proprietors have built up themselves. This is widely believed (by both advocates and opponents of a more comprehensive system of taxing capital gains) to be a means by which the rewards of growth accrue tax-free to the more enterprising. The amount of trade, business, and professional assets falling liable to the estate duty in any one year is only about 1 or 2 per cent of the total gross capital value of estates.

When it comes to technical, rather than financial, progress, the inducements offered by the tax provisions on expenditures on scientific research could hardly be more generous. Clearly, they are of greater benefit, in terms of actual tax remissions, to firms paying the higher marginal rates of tax, but they may be needed still more desperately by the others.

The most comprehensive investigation into the effects of taxation policy upon technical progress was that conducted by Carter and Williams, which has been referred to several times already. They considered and rejected various arguments purporting to show that taxation had impeded the adoption of new methods. After concluding that in general companies were not short of finance, that capital allowances were adequate, and that the tax treatment of scientific research expenditures was reasonably generous, they went on:

About death duties we take a different view. . . . The essential point is that estate duty is a large tax . . . which has to be met in cash. In consequence, if the control of a family over a business is to be maintained, money must continually be withdrawn and held idle in order to meet estate duty without the sale of a controlling interest in the business. Alternatively, time and ingenuity must be employed in arranging to reduce the estate of gifts *inter vivos*, or the business must be disposed of during the lifetime of the main proprietor. The former, commonly carrying with it an early transfer of control to the next generation, often

leads to family difficulty and the loss of the ability and experience of elder directors; while the early disposal of the business implies that short-term developments, yielding a quick return and expected to improve the chances of a good sale or flotation of the concern, will be favoured rather than slow-yielding developments. . . .

The net effect of all these difficulties is . . . inimical to the development of the business (including the improvement of its technical equipment) and may prevent far-sighted planning. . . . The danger is particularly acute in some declining industries, in need of technical improvement, which are dominated by small family firms.

If it could be assumed as universally true that the family firm is unprogressive, and that the assumption of control by larger firms would speed up technical progress, these harmful effects of estate duties would not be a matter for concern. But the case-studies show that no such universal generalization is valid. We conclude that there is a likelihood that the weight of estate duties is a hindrance to the adoption in certain forms of improvements in product or process, in which those firms might have been pioneers.⁶⁸

A close reading of the reported case studies leads one to discount this rather hopeful (though guarded) view of the progressive role of this type of firm,⁶⁹ and in any case one does not have to show that there are no progressive family firms in order to justify the proposition that to merge them with larger concerns may be advantageous to economic growth. It is a matter of judging the relative progressiveness of the two types of concern at that particular stage in the life of the family business. Moreover, Barna concluded from his investigations that, more than anything else, "the growth of the firm is greatly influenced by the personal characteristics and attitudes of management. Hence greater progress in the firm, and in the economy, is attainable by an improved social selection of management

⁶⁸ Carter and Williams, *Industry and Technical Progress*, pp. 152-153.

⁶⁹ With reference to the cutlery industry, for example, we read: "Family succession without outside experience has bred a parochial approach." "We have seen a striking difference between the 'closed' firms and firms which have in management positions men with . . . experience outside the industry. We found these 'outsiders' both in new firms and in a few of the family firms. . . . We have also examined four examples of able outsiders introduced into conservative family firms. . . . In two cases the outsiders were frustrated by the lack of receptivity . . . and left after a very short period. . . . In the other two cases technologists were introduced, and made a substantial difference to the technical methods used by the firm." (*Ibid.*, pp. 215-216.) See also the firm in the paper industry reported in *ibid.*, pp. 234-235.

and by development of those characteristics of management which make for success in business."⁷⁰ There is no evidence that family succession is one of these. Here we come up against the whole complex of problems associated with the quality of enterprise in large firms compared with small ones and in diversified firms compared with specialized ones, a cross classification which more often than not overlaps. The apparent economies of scale in research, and in the deployment of resources generally (both human and material), favor the large diversified firms against the small specialized ones, and it is into this latter category that family business usually fall. For all these reasons, the stress laid by Carter and Williams upon the adverse effects of death duties seems to me to be excessive and ill-supported by the evidence they themselves adduce.

V. OTHER ASPECTS OF THE TAX STRUCTURE

There are many other taxes which could have been considered in detail here had space permitted. Indirect taxes have been omitted entirely from the analysis, although quantitatively they are no less important than direct taxes. But if the attention paid to direct taxes in relation to growth has in the past been scant, that paid to indirect taxes has been virtually nil. Some fairly obvious effects have been noted, although they have not been examined with any great rigor or comprehensiveness.

Those indirect taxes which are levied on capital expenditures (i.e., part of local property taxes and stamp duties) will obviously act as a countervailing influence to the capital allowances which are granted through the direct tax system. Some other indirect taxes fall on current productive inputs, e.g., the duties on gasoline and fuel oils and the National Insurance Contributions (which are a sort of payroll tax). These will also influence the factor mix, and hence the growth potential of the economy. This is a consideration which is stressed in the Political and Economic Planning Report, *Growth in the British Economy*:

Social charges are properly a cost of labour, yet social services have been financed primarily out of general taxation, rather than by taxes which

⁷⁰ Barna, *Investment and Growth Policies*, p. 59.

reveal the real social cost of labour. This has the effect of weighting the economy in favour of the use of labour and against the use of more capital, and this is an influence tending to prevent industry from making use of all the worthwhile opportunities for saving labour that exist.⁷¹

The bulk of indirect taxes are, however, levied on consumer goods, especially tobacco, alcohol, and consumer durables. These will influence the pattern of growth selectively and, to the extent that they fall more on industries with the greatest growth potential (e.g., radio, electrical and motor vehicles), may reduce the over-all growth that is desired, which I will not attempt to deal with here. These consumer goods taxes have also been regarded by some as a disincentive to work effort and by others as an incentive. The alleged disincentive effects of taxation on the supply of effort are a perennial subject of attention at all levels of discussion, and at least one observer has given first priority, in gearing British direct taxes more directly to stimulate economic growth, to an "increase in inequality of incomes functional for development, especially a softening of the income tax progression in the middle income ranges. . . ."⁷² Yet such evidence as we have suggests that the over-all effects of personal direct taxation have not been very great in either direction.

An official survey, carried out for the RCT among some 1400 operative and supervisory grades paid on time rates or piece rates and with opportunities for overtime work, found, in the first place, that the majority of those interviewed had an insufficiently accurate knowledge of the system to be in a position to adapt their behavior sensibly to its impact even if they had desired to do so. Only 217 (15 per cent of the total) even *claimed* to know approximately the rate of tax they were paying and roughly how much more they could earn before moving into the next tax bracket. Of these, 76 (5 per cent of the total) thought that extra earnings were not worthwhile if it meant going into the next tax bracket, but of these 76 only 21 were actually right in their claimed knowledge to within 5 shillings of the amount of tax paid and to within 20 shillings of the margin-

⁷¹ London, 1960, p. 136.

⁷² U. K. Hicks, "Direct Taxation and Economic Growth," *Oxford Economic Papers*, September 1956, p. 317.

al earnings range. When the actual number of hours worked was tested, these 76 did not differ significantly from the rest. Further results of this survey all tend to discount the role of taxation as a deterrent to work effort. The survey did, however, find "that there was a tendency for those who *said* most emphatically that income tax was a deterrent to productivity to work less than average hours—but this attitude was not associated with the way they were affected by income tax. It seems to be an emotional attitude independent of fact."⁷³

Break followed this up with a survey of a professional group of 306 solicitors and accountants, self-employed on their own account or in partnership, the majority of whom faced marginal tax rates of more than 50 per cent. He found a short-period tax disincentive among 18 per cent of the total, a short-period incentive effect among 6 per cent of the total, and an incentive influence at retirement among 52 per cent of those (150) over 45 (the others were not asked), which meant that some kind of influence was exerted by taxation in 42 per cent of all cases. Break then reduces his material by rejecting those whose responses are "vague" or "questionable," and he ends up with forty definite disincentive cases and thirty-one definite incentive cases. These he rates for "economic significance" according to whether the effect was mentioned on the respondent's own initiative, the number of times it had been experienced in the recent past, and the respondent's own estimation of its importance. From all this, Break concluded:

The chorus of complaints, vehement and eloquent, against "penal" taxation, echoed by the great majority of respondents interviewed . . . was surprisingly infrequently translated into action. It was almost a commonplace for respondents to state categorically that taxes were removing all their incentives; but when the facts were assembled, about as many were actually working harder as were working less.⁷⁴

He did, however, also find some interesting relationships between tax effects and other variables; namely, those with significant amounts of income from property were more subject to disincen-

⁷³ *Second Report*, RCT, Cmd 9105, London, 1954, Appendix, para. 7.

⁷⁴ G. F. Break, "Income Taxes and Incentives to Work; An Empirical Study," *American Economic Review*, September 1957, p. 548.

tives than others, all of the disincentive cases occurred among those with light fixed commitments, and the disincentive cases were not working less on the average than those unaffected by taxes but the incentive cases were working more than the unaffected.

Thus, in spite of the fact that both these surveys were conducted among groups chosen particularly because they might have been expected to be sensitive to tax influences, nothing very startling emerges by way of net disincentive effects. As another survey puts it:

No doubt many works managers and supervisors can testify to difficulties in persuading operatives to work overtime, where the excuse given is that additional income tax makes overtime unattractive. These excuses may be rationalizations. An operative who, consciously or unconsciously, decides not to do overtime for some reason which does not impress his supervisor, can fall back upon income tax as his excuse. Income tax is a popular scapegoat for many things, and dislike of it is a socially acceptable attitude. The popularity of this view is therefore understandable, but the truth of a proposition cannot be judged by the number of people who subscribe to it.⁷⁵

On the whole, the empirical data (though far from conclusive) seems to bear out what one would expect on theoretical grounds, namely, that where the income effect is reinforced by the existence of heavy fixed commitments the incentive effect predominates, but where income is large in relation to such outgoings people are more sensitive to marginal tax rates and disincentive effects predominate. But for the vast majority, neither effect is significant on balance.

The relation of these findings to the role of indirect taxes has been demonstrated in principle by Corlett and Hague.⁷⁶ Taxes levied on goods which are complementary to leisure will not only have the usual income effect but will also have a substitution effect on the price of leisure plus the goods needed to enjoy it, which will tend to offset the disincentive effects of direct taxes in isolation. Since consumer durables are likely to be among such complementary goods, the indirect taxes levied upon them have probably had such incentive effects. This presumption is strengthened by the finding of the RCT survey that a large proportion of the respon-

⁷⁵ L. Buck and S. Shimmin, "Is Taxation a Deterrent?" *Westminster Bank Review*, August 1959, p. 18.

⁷⁶ W. J. Corlett and D. C. Hague, "Complementarity and the Excess Burden of Taxation," *Review of Economic Studies*, No. 54, 1953-54, pp. 21-31.

dents regarded high prices as an incentive, and there can be little doubt that the taxes on consumer durables were passed on to consumers in this form.

VI. CONCLUSIONS AND PROSPECTS

To the extent that tax policy in postwar Britain has been directed at all deliberately toward the promotion of economic growth, it has been concerned mainly with raising the level of capital formation in private industry. There have been two interwoven strands in this policy, the one being to insure that adequate finance has been available and the other to improve incentives to invest.

This policy has clearly been successful inasmuch as industry generally has not been short of tax-free funds, although the degree of self-financing possible has not always been as high as some segments of industry would have wished. But shortages of internally generated funds have only been crucial for real investment where external finance either has been rejected or else was just not available. It is arguable whether the tax system should be further adjusted to facilitate self-financing for firms which could get external finance but do not wish to do so. And it is doubtful whether the economic significance of the small minority of firms that experience real difficulty in getting external finance, even when they have a good case and are willing to accept it, is great enough to warrant special tax provisions to ease their difficulties (even supposing that such provisions could be devised effectively). In short, in spite of the admitted difficulties sometimes experienced by small rapidly growing firms in obtaining finance for capital developments, there seems little justification for arguing that it is tax policy which is primarily responsible or that adjustments in taxation are the best means of meeting their difficulties.

When it comes to incentives to invest, initial and investment allowances appear to have been more successful in stimulating capital expenditures than many observers have been willing to concede, although their full potentialities, so easily demonstrable in principle, have not been fulfilled in practice. This is largely due to the real costs (subjective as well as objective) in revising capital expenditure

plans to the changed conditions they create, although this inflexibility can easily be exaggerated. But it also seems to be due to an inadequate appraisal by businessmen of the significance of the allowances, which in turn is due in many cases to the very crude investment criteria that are used.

Although their selectivity is blurred by their income effects, capital allowances do at least distribute tax-free finance roughly in proportion to the amount of investing that firms have been doing recently; and if it is safe to assume that the firms which have recently been investing most are those which on balance are most "growth-conscious" and have better-quality management, then, even though the funds may not always be applied directly to finance the kind of capital formation which policy favors, this distribution of the right to tax-free funds will probably be more conducive to growth than that based on any other objective *ex post* criterion, except possibly the rate of growth of investment. In the 1963 Budget these capital allowances were substantially increased, and in areas of high unemployment free write-offs permitted, so that the authorities appear satisfied that this kind of tax measure is worth pursuing further.

Capital allowances, and particularly the investment allowance, reduce the costs of capital relative to labor. It has been argued that much of the trouble with the British economy has been that, despite the wage increases that have already occurred, labor costs are still too low in many industries. Consequently, labor tends to get locked into firms and processes where its productivity is relatively low, and capital allowances are not a strong enough incentive for many firms to abandon old and outdated (but still serviceable) plant, machinery, and buildings and to install more productive (but costly) replacements. An alternative, but complementary, approach, might therefore be deliberately to make labor generally more expensive, and here taxation might have an important role to play.

At present the most favored candidate for this role is the value-added tax. The National Economic Development Council's report, *Conditions Favourable to Faster Growth*, says:

It can be argued that a tax on value-added is more conducive to growth than a special tax on profits. . . . To tax profits specially is to tax the reward of efficiency (though profits are not always a criterion of

efficiency) and, generally, the use of capital intensive methods of production. The substitution of a value-added tax for the present profits tax would, on this argument, tend to reduce the tax burden on efficient relatively to inefficient firms and firms with high output per head as against firms with low output per head.

The more favourable treatment of investment income under a value-added tax raises the question of our present practice of varying tax rates as between earned and unearned income and whether it might not help growth to tax the dimension of personal wealth and to place less emphasis on the differential taxation of the income produced by wealth. . . .⁷⁷

The practicability of introducing a value-added tax is now being investigated by a committee appointed by the government, and we shall doubtless be hearing more of it.

But when all is said and done, the inevitable conclusion, in my opinion, is that the greatest danger lies in placing too great a load on tax policy in the promotion of economic growth in the United Kingdom. It is always tempting to use tax concessions rather than the more positive step of increasing public expenditures, not only because they are usually more popular with the more influential members of the electorate, but also because of their greater administrative convenience. The tax authorities are already in detailed and pervasive contact with most of the units in the economy which the government desires to influence as part of its growth policy, and it is easier to use these existing channels than to attempt to establish new ones. The result is an increasingly intricate and unnecessarily wide-ranging system of tax rebates, reliefs, and remissions to further objectives that might more cheaply and effectively be achieved by direct grants or subsidies.

From this viewpoint, it seems to me entirely right that the National Economic Development Council report cited above plays tax reform in a minor key, and chooses as its dominant theme the role of education. This includes management education, as well as the training of scientists and technicians and the spread of knowledge generally. Fiscal concessions can, of course, be pressed into service here too, but it is primarily a matter of public expenditure. The same is true of measures to secure greater mobility of labor, through retraining and rehousing of displaced labor, and more gen-

⁷⁷ Paras. 166 and 170.

erous redundancy compensation, which are accorded second place in the report. Any substantial advance that can be made along these lines will inevitably increase the efficacy of fiscal policy, for it will make firms more responsive to the tax measures which are already being deployed. Even in the absence of any further fiscal experimentation, this should help to disperse the myopic euphoria which is probably the fundamental reason for the slow rate of economic growth in postwar Britain.

POSTSCRIPT (JUNE 1965)

Since the above report was written there have been further significant changes in the tax measures analyzed therein, and some further research results have been published which shed a little more light on a few of the issues raised. Nevertheless, no substantial changes in the earlier analysis seem called for, and what follows is merely a matter of changing the emphasis a little here and there and bringing the reader up to date with the more important legislative changes.

The most substantial changes are those enacted in the 1965 budget, which introduced a more comprehensive capital gains tax and subjected companies to a unified corporation tax instead of the profits tax and the income tax (thus separating company taxation from the taxation of persons and unincorporated businesses). The aspects of the new corporation tax that are important from our viewpoint are (1) that it widens once more the tax differential between distributed and undistributed profits, and (2) that it reduces the actual value to companies of the initial and investment allowances.

The first effect arises because payments of corporation tax are not treated in principle as the withholding of tax due on profit distributions to shareholders, but as an entirely separate tax levy, just as was the case with the (now superseded) profits tax. But the corporation tax will be levied at about 35 or 40 per cent (the exact rate is to be announced in the 1966 budget), compared with a profits tax rate of 15 per cent. Thus when profits are distributed, they will be subject to corporation tax on total profits plus income tax on the actual distributions, whereas undistributed profits are subject only to the

corporation tax. This, therefore, reopens in a more acute form once more the questions raised in Section II of this report.

The second effect (the reduction in the effective value of capital allowances) occurs because the rate of tax on undistributed profits has been reduced from about 54 per cent to whatever the new rate of corporation tax turns out to be. The nominal levels of the initial and investment allowances have been left unchanged, for the time being at any rate, so their value in terms of actual tax payments saved has declined proportionately with the fall in the marginal tax rate. The Chancellor of the Exchequer has said, however, that he intends to review the whole question before the 1966 budget, and there has even been talk of replacing these allowances with outright cash subsidies on certain kinds of investment.

Part of the stimulus to this more radical reconsideration of the role of the allowances has come from the publication of a series of private research studies documenting various weaknesses in the way the allowances have worked and from the views expressed by businessmen to the (Richardson) Committee on Turnover Taxation, which reported that "most of them said that they looked principally at the expected gross return before tax when judging a new investment project" rather than the net return after taxation.⁷⁸ This prompted the publication by the National Economic Development Council of a pamphlet⁷⁹ which reviewed the general position as it appeared from these various studies, and attempted to explain to businessmen "methods of appraising investment proposals which would bring out more systematically and reliably the advantages of investing in new plant and machinery where it will increase efficiency, and thus help to secure faster growth." Essentially this pamphlet advocates the use of the discounted cash flow technique.

As regards its major task, the Richardson Committee came out firmly against adopting a value-added tax, either in place of the profits tax or in place of the purchase tax (a multirate, single-stage sales tax levied at the wholesale stage upon a wide range of consumer goods, but exempting food and fuel, and falling most heavily upon consumer durables). It rejected the argument that such a change

⁷⁸ Command Paper 2300, London, 1964, especially paragraphs 142-173, 225-231, 280-285, and 315-322.

⁷⁹ *Investment Appraisal*, London, 1965.

would stimulate investment, largely because it was convinced by the statements of the businessmen it consulted that tax considerations were of little or no consequence in such decisions. This view has not won such ready acceptance elsewhere, however.⁸⁰

It will, therefore, be seen that recent developments in the U.K., far from settling any of the major issues raised in this report, have merely accentuated them so that they now arise in an even more acute form than at the time when the report was written.

COMMENT

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Anyone who has to write a paper on the contribution of tax policy to growth in postwar Britain is under a severe handicap simply because the British economy has grown relatively slowly during most of this period. Although one can argue about the details of this performance and maintain, say, that the postwar record looks different according to the precise span of years covered or that it does not differ so very much from the record of many previous years, the broad outlines of the international comparison are not seriously in dispute. It follows, therefore, that any observer of the British scene is limited to a rather negative role: he can record the changes in tax policy over the period and perhaps show that they had no markedly adverse effects on the economy. But he has relatively little material, at least on the aggregate level, on which to base any conclusions about the efficiency of different measures in promoting vigorous or sustained growth. So he has to work with one hand tied behind his back, as it were.

In writing his paper, Alan Williams has imposed further limits on himself over and above these external constraints. It would be going too far to say that he has placed his other hand behind his back, but the metaphor may nevertheless bring my argument home. First, he does not at any point give a synopsis of the policies or devices which he himself regards as most essential to the growth process. He has, in fact, specifically refused to undertake any such role, and although he does come out of his shell in the very last para-

⁸⁰ See, for instance, *The Economist*, Dec. 5, 1964, pp. 1151-1153.

graph of the paper, this is hardly sufficient to redress the balance. Obviously, no one can be expected to produce a complete growth model, modern conveniences and all, in a paper on taxation. But I, for one, would have found it helpful to know Williams' views on some important questions. For instance, he asks at the end of the paper whether it would be sensible to complement those policies aimed at reducing the effective price of capital goods by others designed to raise labor costs. This presupposes that the key to greater efficiency in British industry is to be found in direct incentives to adjust capital/labor ratios. This may be true; but one would like to know whether Williams really accepts this position and, if he does, why he prefers it to the alternative hypothesis that the main cause of labor hoarding, etc., by industrialists has been past or potential excess demand for their products. More generally, unless one has some reasonably firm ideas about what is likely to promote growth, how can one hope to make tax policy prescriptions for it?

Quite apart from the absence of any connected discussion of these various general issues, the author further limits his field by concentrating on a relatively small number of detailed problems. As a consequence, some points which have attracted a good deal of discussion over the years are rather perfunctorily dealt with; and others are virtually exempt from scrutiny. Among the former, for instance, are education and personal savings; among the latter, exports and imports. It is quite true, as Williams says, that education in the U.K. is primarily a matter of public expenditure rather than revenue policy. But there are revenue aspects to the matter. The earned income relief system, whereby earned income is taxed at a lower rate than unearned, can be defended as an incentive to invest in human rather than physical capital. And the whole question of tax incentives to firms to release employees for training or retraining courses merits consideration. In contrast to the lengthy discussion of the tax incentives for corporate saving, the author says relatively little about any such incentives for personal saving. It might have been worth pointing out that tax relief for life insurance and superannuation was widened over the period, particularly as a result of the 1956 Finance Act which made substantial concessions to self-employed people who took out such policies. The whole range of

small savings tax concessions—National Savings Certificates, Premium Bonds, the abolition of taxation on owner-occupied property in 1963, and so on—might also have been mentioned. I found it surprising that Williams did not pay more attention to the various discussions over the years about tax incentives for exports. It has, after all, been said many times that a somewhat better balance-of-payments position would have permitted a faster rate of growth of domestic demand for British products. Tax relief to exporters was one of the main reasons for setting up the Committee on Turnover Taxation in April 1963. The author mentions this Committee, but without reference to this point.

On the imports side, it has often been maintained (e.g., in the contest of the EEC negotiations) that reductions of British tariff barriers would act as a cold shower on the entrenched forces of British business. It would have been helpful to know the author's views on this point too.

But it is always easy for any critic to offer a long list of points which an author has not dealt with, and easier still for an author to rebut any such accusations on the grounds that he could not deal with everything. Let me now turn to a more detailed commentary on the subjects the author did treat intensively.

In his discussion of the relative tax treatment of distributed and undistributed profits in Section II, the author singles out three questions: the effects on saving of taxes that differentiate between distributed and undistributed company profits, the ease with which different types of firms could get finance, and the linkage between differential profits taxation and real capital formation. As a rough summary, his answers are that corporate saving was reduced after the replacement of the differential profits tax by a flat rate tax in 1958, but that there is not much evidence to show that many firms were short of finance or that real capital formation was affected thereby; part of the explanation of this complex of events is the great upsurge in personal saving over the period.

On the proportion of profits distributed, there are just two points worth adding. The first is that Table 2 gives a slightly exaggerated impression by taking 1951, with 18.9 per cent of company income distributed, as the starting year; if we go back to 1948, we find the

figure to have been as high as 26.0 per cent. The change from that year—the time of the Cripps restraint period, as well as some differentiation against distributed profits—to, say, the figure of 28.5 per cent for 1960 (when profit distribution was no longer a matter for black looks from the authorities) is not quite so impressive as the changes recorded in Table 2. The second point is that the 1961 percentage (32.2) may have been influenced by the surtax relief of the 1961 Budget, which effectively reduced personal taxes on investment income for many people. However, both these are minor defects in Williams' argument, which I do not seriously challenge. It might, incidentally, be noted that his figures offer some, though not conclusive, support for the hypothesis that profits taxes are not fully passed on to consumers.

On the rest of this section, my first point is that I should have liked to see some discussion of the net tax incentive for profits retention which still remains in the present British tax structure. This would entail comparing the over-all weight of tax on undistributed profits with that on distributed profits. The conventional argument is that a profits tax on companies can be justified insofar as the representative dividend recipient is a substantial surtax payer. Whether, on balance, the total tax paid by companies and their shareholders is reduced or increased by profit retention in a world where an increasing proportion of equity shares is held by insurance companies and the like is an immensely complicated but very important matter. That it is important is borne out by some investigations which the author does not mention, i.e., those of I.M.D. Little,¹ who recently investigated growth rates of British companies and found virtually no positive relationship between them and lagged undistributed profits. The partial regression coefficient had the wrong sign in eight out of thirteen groups and was not significant for four out of the remaining five. Although Little warns that this investigation is not as complete as might be desired, it still seems to me highly important and highly relevant to this section of Williams' paper.

On Section III on capital allowances, I think it is worth adding a

¹I. M. D. Little, "Higgledy Piggledy Growth," *Bulletin of the Oxford University Institute of Statistics*, November 1962.

word or two on some of the very recent concessions made in the U.K. In November 1962, the general level of investment allowances was raised so that since that date plant and machinery has attracted a 30 per cent allowance (plus a 10 per cent initial allowance) and buildings a 15 per cent allowance (plus a 5 per cent initial allowance). The time period for writing off capital equipment of all kinds has been reduced so that the minimum annual allowance (for plant and machinery) on the reducing-balance basis is 15 per cent; and now industrial buildings are allowed a 4 per cent straight-line basis. A limiting case is that capital expenditure on scientific research assets can now be written off completely in the first year. Since April 1963, a system of free depreciation—analogueous to that formerly prevailing in Sweden—has been introduced for new mining works and for certain new plant and machinery in specified development districts in the U.K. The extraordinary liberality of these provisions should be emphasized. For instance, it is now possible for an unincorporated business to make a profit out of buying a capital asset even if it never brings in a penny of revenue.² A company buying a scientific research asset now pays for only about 32 per cent of the cost itself.³ And investment of £100 in new machinery, etc., in specified districts now attracts a 10 per cent grant (i.e., £10) plus an allowance of 130 per cent of £90 (i.e., £117) against tax in the year following the expenditure, if the option to write off 100 per cent of capital value in the first year is taken. It is hard to imagine more liberal concessions than these; if they do not produce a higher level of investment, it is difficult to see what would.

Although the disentangling of cause and effect in these matters is inevitably complex, it is at any rate worth noting that there have been signs in recent months of responsiveness by industry to these

² See "Expense Is My Object—A Play in One Act" by "Santa Claus," *British Tax Review*, September-October 1962. To illustrate, £260 can be reclaimed in allowances on a machine costing £200. At the top rate of surtax (17s.9d. in the £), this reduces tax liability by £230.15s. The present value of the profit from this operation can, therefore, be put at about £25, assuming an interest rate of 5 per cent (implying a discount rate, net of tax, of some 0.5 per cent) and a six-year recovery period.

³ E.g., if the asset costs £100, allowances total £130. At 10s.9d. in the £, this means a tax saving of about £70; allowing for a year's delay in claiming the rebate, the net cost is £32.

new concessions, e.g., the latest Federation of British Industries survey of investment intentions shows a clear change from the previous one.

On a more general plane, I would have liked Williams' treatment of the theoretical advantages of different types of concessions to be a little fuller. Discussion of the pros and cons of free depreciation would have been helpful; and the meaning of the formulae in Chart 2 could have been made more explicit. I found his summary of the inquiries into the effects of capital allowances on businessmen's plans very illuminating; but I wish that it had been accompanied by a multiple regression analysis of the factors determining capital formation over this period. From what I have seen of some unpublished work in this field, it would seem that the role of investment and initial allowances was not negligible. Finally, I would certainly agree that the psychological reactions of businessmen to incentives of this sort may well be imponderable; there is no need to mention to an American audience the attitude of the business community in the U.S. to the abortive investment incentive proposals of 1961.

Williams refers to the possibilities of introducing a value-added tax in the U.K. This proposal has been put forward with the twin objectives of promoting, first, exports and, second, capital investment, efficiency, etc. I do not propose to go into the ramifications of this complex subject, but would simply make two points. Given the very generous income and profits tax allowances for capital investment which are now available in the U.K., it is not clear that the additional incentive to invest could be very large if one switched from the present system of taxing company profits to a value-added tax. Secondly, if the proposal crystallizes as the replacement of income tax on undistributed company profits, as well as profits tax, by the value-added tax, I would expect these to lead to larger profit retentions than in the immediate past and, on the basis of Little's investigation, I would judge this to be a very dubious move. There are obviously many arguments in favor of value-added taxation; all I am suggesting is that the above two must not be neglected when everything is weighed in the balance.

One other point in Williams' exposition struck me as particularly

worthy of expansion. Toward the end of the paper he suggests that tax benefits might be related to the rate of growth of investment rather than the level of investment. This is rather reminiscent of the proposal by Baumol that subsidies to firms should be based on the rate of growth of value added. Many problems arise with such devices. For instance, do we have a symmetrical system whereby reductions in investment are taxed, as well as increases subsidized, or not? If we do, this could mean that a firm investing less because of a decline in demand for its products might pay more, rather than less, tax than previously. If we have an asymmetrical system, and subsidize increases but not tax decreases, then this could mean larger total subsidies over a given period to a firm with a fluctuating investment record than to one with steadily growing investment, even if the over-all increase in the level of investment were the same in both cases.⁴

I have spent my time criticizing Williams' arguments and elaborating on them. That is inevitable; it is why I am here. But I do not wish to close without putting on record that I consider this paper to be an extremely lucid, well-balanced, and well-informed survey of the British situation since World War II.

⁴ E.g., assume a 20 per cent rebate on annual increases in gross investment. Then if firm A spends successively £90, £120, £160, and £200 on investment, it receives a total allowance over the whole four-year period of £22. If firm B spends £90, £180, £100, and £200 in each successive year, its total allowance would be £38. Over the time period considered, both firms have pushed up their capital formation to the same extent, but firm B nevertheless gets a bigger rebate than firm A.