

Company Dividends and Taxes in the UK

STEPHEN BOND, LUCY CHENNELLS and MICHAEL DEVEREUX¹

I. INTRODUCTION

The tax treatment of company dividend payments is an area where corporate taxation interacts with the personal income tax. This interaction raises some awkward issues, such as whether shareholders who are exempt from personal income tax should also be exempt from corporation tax, and if so, then how this can be achieved. The solutions adopted are often complex and certainly diverse, as witnessed by the range of different approaches used in the OECD countries, described in OECD (1991).

Since 1973, the UK has operated a partial imputation system, under which some tax relief on dividend income is given to all shareholders in recognition of corporation tax paid by the firm. For taxpaying shareholders, part of the corporation tax charge is credited against their income tax liability on dividend income; for tax- exempt shareholders, this credit is paid to them in cash by the Inland Revenue. Tax- exempt shareholders include pension funds and the pension component of insurance companies.

This approach certainly has some merits, but one problem is that this tax relief is only available for the part of company profits that is paid out to

¹ Stephen R. Bond is a Programme Director at the Institute for Fiscal Studies, and Gwilym Gibbon Research Fellow in Public Economics at Nuffield College, Oxford. Lucy Chennells is a Research Officer at IFS. Michael P. Devereux is Professor of Economics and Finance at Keele University, and a Research Fellow at IFS. The authors are grateful to HM Treasury and to the ESRC Centre for the Microeconomic Analysis of Fiscal Policy at IFS for financial support, and to members of the Treasury Academic Panel for helpful comments on the research reported in this paper. All views expressed in this paper are those of the authors alone.

shareholders in the form of dividends.² No similar tax relief is available for profits that are retained by the company, and corporation tax paid on retained profits is not reflected in tax credits paid to tax-exempt shareholders. Under the imputation system, dividends offer a tax advantage for this important class of shareholders, which may result in a higher level of dividend payments by firms than would otherwise be the case. Higher-rate taxpayers may have the opposite tax preference, but the current system is certainly not neutral with regard to the company's dividend payout decision.

A further feature of the UK system is the issue of 'surplus advance corporation tax', or surplus ACT. Put simply, if the firm's UK corporation tax liability is too low relative to its dividend payments, then it does not benefit fully from the imputation system. This may arise when a firm's profits are temporarily depressed, or when a substantial proportion of profits are earned and taxed abroad. These firms face a higher tax cost of paying dividends than firms that are not in a surplus ACT position.

These tax distortions affecting company dividend choices have attracted increased interest in recent years, as the level of company dividend payouts has itself become a matter of some concern. The proportion of profits paid out in the form of dividends has increased sharply since the mid-1980s, and is higher in the UK than in any other G7 country.

Are there any reasons why the dividend payout ratio should attract public policy interest? In an ideal capital market, it would be a matter of no concern, since investment finance from borrowing or new share issues would provide a perfect substitute for investment finance from retained profits. However, there is now considerable evidence that these external sources of finance for investment are more expensive than internal funds, as described in Bond and Meghir (1994). This cost differential would not be surprising in a capital market with non-negligible transactions costs, asymmetric information between lenders and borrowers, or imperfect monitoring of company behaviour by shareholders or creditors. In this case, high dividend payouts which reduce the availability of low-cost internal finance could depress the level of investment spending, and a tax system that encourages high payouts could have an adverse effect on investment.

On the other hand, it is sometimes suggested that high payout ratios are a good thing, in that they reduce management discretion to spend free cash flow, and expose investment decisions to the greater scrutiny of external capital markets. Whilst this may well be true, it does not follow that dividend payments should be encouraged through the tax system. This would require a further argument to the effect that in the absence of government intervention, firms and shareholders would choose a suboptimal level of dividends. In the absence of compelling evidence that this is the case, the rationale for a non-neutral

² Share repurchases may qualify for a similar tax treatment, at the discretion of the Inland Revenue.

treatment of distributed and retained profits seems unclear. The current tax bias in favour of dividends for tax-exempt investors seems hard to justify, and may have an undesirable impact on company investment.

It therefore becomes of interest to consider whether company dividend payments are in fact significantly influenced by tax considerations. Existing evidence suggests that taxes do matter, but is not entirely convincing. For the most part, it has been based on time-series studies of the aggregate dividend payout ratio.³ However, the tax cost of paying dividends has trended downwards over the last 30 years, as a result of declining marginal income tax rates and the rise of tax-exempt institutional investors. This makes it difficult to distinguish the effect of taxes from other trending influences on dividends.

To avoid this problem, we have looked at the impact of cross-sectional variation in the tax cost of paying dividends for firms in the UK; in particular, we have investigated the effect of the higher tax cost of paying dividends for firms in a surplus ACT position. If taxes do have a significant influence on dividend choices, then it would not be unreasonable to expect a firm moving into a surplus ACT position to increase its dividends by less than it might otherwise have done, and a firm moving out of surplus ACT to increase its dividends by more than it would otherwise have done. In essence, this is the question we have considered.

The remainder of the paper is organised as follows. Section II describes the behaviour of the dividend payout ratio in the UK over the last three decades, and relates this to important changes in the tax treatment of dividends. Section III describes the current UK tax treatment in more detail, explains the impact of surplus ACT on the tax cost of paying dividends, and briefly considers how taxes would be expected to influence dividend choices. Section IV describes our empirical study, first considering the incidence of surplus ACT in a sample of 1,218 quoted industrial and commercial companies over the period 1970–90, and then summarising the main findings of an econometric analysis of the impact of surplus ACT on these firms' dividend payments. Section V considers some implications of our findings.

II. COMPANY DIVIDENDS IN THE UK

The share of company profits paid out in the form of dividends has risen dramatically since 1985. Figure 1 plots cash dividends as a proportion of gross trading profits for the industrial and commercial company sector in the UK over the period 1963–93. The recent increase has raised the payout ratio to levels not seen since the late 1960s.

It is useful to recall that the introduction of a classical system of corporation tax by the Labour government in 1965 was partly intended to reduce dividend

³ See Poterba and Summers (1985), for example.

FIGURE 1
Dividend Payout Ratio: UK Industrial and Commercial Companies, 1963-93



Note: The graph shows total payments of cash dividends on ordinary and preference shares by UK industrial and commercial companies, as a percentage of total gross trading profit net of stock appreciation.
 Source: *Economic Trends Annual Supplement, 1994*.

payouts from the high levels seen in the early 1960s. The payout ratio subsequently did fall, and this continued in the first half of the 1970s following the imposition of dividend controls as part of the incomes policy in December 1972. The following year saw the introduction of the present imputation system, which had the effect of reducing or overturning the tax discrimination against dividends under the classical system.⁴ The decline in dividends as a share of profits subsequently ended, although dividend increases remained subject to controls until 1979.⁵ The payout ratio remained low during the recession at the start of the 1980s, but picked up in the second half of the 1980s and has risen sharply since.

A related source of concern is that the dividend payout ratio in the UK is exceptionally high by international standards. Table 1 compares dividend yields

⁴ These tax distortions will be explained in Section III.

⁵ The main effect of these dividend controls may have been to compress the distribution of dividend payouts, rather than to reduce their overall level, with the specified maximum increase tending to act as a norm. See Mayer and Pashardes (1986) for further discussion of the effects of dividend controls.

TABLE 1
Dividend Yields in the G7 Countries, 1992 and 1993

	1992	1993
Canada	2.5	2.6
France	2.9	2.9
Germany	1.7	2.1
Italy	1.6	2.2
Japan	0.8	0.8
UK	3.9	3.9
US	2.7	2.8

Source: World Equities

in the G7 countries in 1992 and 1993, and shows that dividend yields are substantially higher in the UK even than in the US. Dividend yields measure dividend payments in relation to equity values rather than current profits.⁶ However, provided the total return on equity investment does not vary greatly across countries, then this should give a good indication of the share of that return taking the form of dividend income rather than capital gains, which will be closely related to the payout ratio. Internationally comparable data on dividend payout ratios are not so easily available, but some recent estimates published in the Department of Trade and Industry's White Paper on competitiveness (HMSO, 1995, p. 169) confirm the same ranking, with the payout ratio in the UK being higher than in any other major economy in 1992.

The tax treatment of dividends is certainly not the only factor that influences this time-series or cross-country pattern of payout ratios. Nevertheless, it is useful to consider whether taxes do have a significant effect on dividend payments. If they do not, then concerns about the consequences of the current UK tax treatment would be largely misplaced, and changes to this tax treatment would be an ineffective way of reducing dividend payouts. Conversely, if taxes do influence dividends, then the distortions caused by the current system may be more worrying.

III. THE TAXATION OF DIVIDENDS

1. The Current UK System

Systems of company taxation are often characterised by their respective treatment of distributed profits. Under a classical system, profits earned by a

⁶ The dividend yield is the total dividend divided by the stock market capitalisation of the firm, or equivalently the dividend per share divided by the share price.

company are taxed once through corporate income taxes, and if those profits are distributed in the form of a dividend, they are taxed again through personal income taxes. As we explain below, this results in a tax bias against dividends for taxpaying shareholders. Such a system operated in the UK before 1973. Under an imputation system, profits earned by a company are again taxed through corporate income taxes, but part or all of the corporation tax paid by the firm is taken into account when calculating the personal income tax owed by shareholders on a dividend distribution. The UK has operated a partial imputation system since April 1973, which was adopted as a result of concern that the tax bias against dividend payments inherent in the classical system encouraged firms to hold on to their profits, rather than pass them on to their shareholders.

Under the current UK system, companies are taxed at a rate of 33 per cent on their taxable profits,⁷ but the tax is payable in two instalments. The first instalment, advance corporation tax (ACT), is paid soon after the company distributes its dividend and is assessed on the amount of the distribution; the second instalment, mainstream corporation tax, is payable approximately nine months after the end of the company's accounting period. Companies that are not in a surplus ACT position can then deduct the ACT they have already paid from their total corporation tax bill, and pay only the difference between total tax owing and ACT already paid. Companies that are in a surplus ACT position are treated less generously, as will be explained in more detail below.

Advance corporation tax is currently paid at a rate of 20 per cent on the 'gross dividend' received by a shareholder, i.e. the actual cash dividend paid by the company plus the amount of ACT paid. For example, a company paying each shareholder a dividend of 80p per share will pay 20p in ACT for each share, giving a notional 'gross dividend' of £1 and an ACT rate of 20 per cent.⁸ The individual shareholder actually receives 80p per share, along with a tax credit of 20p per share representing the ACT paid on their behalf. If the shareholder is a basic-rate taxpayer, the story ends there, since the rate of ACT is set equal to the basic rate of income tax on dividend income.⁹ If the shareholder is a higher-rate taxpayer, the tax credit will not completely satisfy their income tax liability and more tax will have to be paid. The tax credit will be paid by the Inland Revenue in cash if the shareholder is tax-exempt.

⁷ The rate is reduced to 25 per cent for 'small companies', that is, companies with taxable profits of less than £250,000 a year. A tapered system of relief applies for companies with taxable profits of more than £250,000 but less than £1 million.

⁸ The rate of ACT is often expressed as the ratio of the tax paid on the dividend to the actual dividend distributed, i.e. $20/80$ or $c/(1-c)$, where c is the rate of imputation.

⁹ Note that following the March 1993 Budget, the basic rate of tax on dividend income is 20 per cent for both basic-rate and lower-rate taxpayers. Henceforth, references to 'basic-rate' shareholders will apply to both groups.

Hence the essential element of the current tax treatment of dividends in the UK is that part of the tax that has been paid by companies on distributed profits is imputed to individual shareholders and acts to offset some or all of their personal tax liability on dividend income. However, there is no parallel treatment of the tax paid by companies on retained profits, and in particular there is no relief of corporation tax paid on retained profits for tax-exempt shareholders.

Table 2 shows the relationship between the tax burden on £100 of pre-tax profits that are either distributed immediately or retained and used to reduce new share issues. Suppose that the firm earning these profits has 100 ordinary shares all owned by the same individual, so that each share would receive a dividend of £1 in the absence of all taxes. Under a classical system, the firm will pay out £100(1- τ) to the shareholder, and the shareholder will actually receive £100(1- τ)(1- m), where τ is the rate of corporation tax and m the individual's marginal rate of personal income tax on dividend income. The first column of the table shows that if the shareholder were exempt from tax, he or she would pay a total of £33 in tax on the distribution of £100 (and receive £67), at current UK tax rates. A taxpaying shareholder would pay £46.40 if liable to tax at the basic rate (on dividend income) of 20 per cent, and £59.80 if liable to tax at the higher rate of 40 per cent. The last column shows the corporation tax charge of £100 τ or £33 which applies to all shareholders if the profits are retained and used to reduce new share issues.¹⁰ Under a classical system, only tax-exempt shareholders pay the same tax regardless of the company's decision to pay dividends or reduce new issues; a classical system will cause taxpaying shareholders to strictly prefer companies not to pay dividends.

TABLE 2
Corporate and Personal Income Taxes on Dividend Income

	Distribute £100 of pre-tax profit		Total tax paid (£)
	Classical system	Current system	Current system
Exempt shareholder	33	16.25	33
Basic-rate shareholder	46.40	33	33
Top-rate shareholder	59.80	49.75	33

Notes: the table shows the sum of corporation tax and personal income tax paid when £100 of pre-tax profits are either distributed as dividends or retained and used to reduce new share issues. The tax rates used are $\tau = 0.33$, $c = 0.2$, $m = 0$ or 0.2 or 0.4 according to tax status, and $z = 0$.

¹⁰ This discussion abstracts from capital gains tax, which would be payable on the increase in the share price resulting from this reduction in new issues. Effective rates of capital gains tax are generally much lower than income tax rates. In the UK, the generosity of annual exemptions from capital gains tax and the fact that individuals can defer this tax indefinitely greatly reduce its burden. In 1992-93, capital gains tax raised only £0.9 billion from individuals (see *Economic Trends*, October 1994).

Under the current UK system, shareholders receive a 'gross dividend' of $\pounds 100(1-\tau)/(1-c)$ after company tax, where c is the rate of imputation (currently 20 per cent in the UK).¹¹ This grossed-up dividend is then liable to personal income tax, so that the shareholder actually receives $\pounds 100(1-\tau)(1-m)/(1-c)$, and results in the tax charges shown in the second column of the table. Under the UK imputation system, only basic-rate shareholders pay the same tax regardless of the company's decision to pay dividends or not, because the rate of imputation (c) is set equal to the basic rate of tax on dividend income (m).

Under this system, different types of shareholders have different tax preferences for or against dividends. It is usual to measure this tax preference by comparing the tax treatment of a unit of dividend income, given by the ratio $(1-m)/(1-c)$, with that of a unit of capital gains, given by $1-z$, where z is the shareholder's marginal rate of tax on capital gains.¹² Assuming that the shareholder's effective rate of capital gains tax is zero, we can compare the value of the ratio $(1-m)/(1-c)$ with 1, in order to gauge the extent of the tax bias for or against distributions. Where this ratio is greater than 1, this indicates a tax incentive to receive dividends; a value of 1 indicates indifference; and values less than 1 indicate a tax preference against dividends. At present tax rates, it is clear that tax-exempt shareholders have a strong preference for dividend payments, whilst higher-rate taxpayers have a preference against dividend payments.

Table 3 shows values of this ratio for the three different types of investors at selected points between 1970 and 1995. It is interesting to note the decline in the incentive to receive dividends for exempt shareholders, as reductions in the basic rate of income tax have lowered the rate of imputation and hence reduced the value of the tax credit paid out to those who are exempt. However, although the extent of this tax bias has declined, the importance of tax-exempt shareholders in the stock market has increased dramatically over this period. In 1969, pension funds and insurance companies together owned only 22 per cent of the total equity in stock market listed companies, while by 1990 this proportion had risen to 52 per cent. Over the same period, the proportion of total equity owned by individuals fell from 47 per cent to 20 per cent.¹³ It is also the case that large falls in the top rate of income tax over the 1980s have brought the highest personal tax rate closer to the rate of imputation, so that the disincentive to receive dividends has fallen for top-rate shareholders. Basic-rate shareholders

¹¹ The gross dividend' consists of two parts: a cash dividend of $\pounds 100(1-\tau)$ and a tax credit equal to the cash dividend times $c/(1-c)$, i.e. $\pounds 100(1-\tau)c/(1-c)$.

¹² This measure can be derived by considering a unit increase in both new share issues and dividend payments, holding constant all future dividends and new issues. A unit increase in new equity, holding the value of the company constant, will reduce the share price and the capital gains tax liability. This financial decision is tax-efficient if $(1-m)/(1-c) > (1-z)$, and tax-inefficient if $(1-m)/(1-c) < (1-z)$. See Poterba and Summers (1985) for a formal derivation.

¹³ See HMSO (1994). Note that only the pension business of insurance companies has tax-exempt status.

TABLE 3
The Tax Cost of Paying Dividends to Different Investors

	<i>Exempt</i>	<i>Basic-rate</i>	<i>Top-rate</i>
1970	1	0.59	0.09
1975	1.54	1	0.03
1980	1.43	1	0.57
1985	1.43	1	0.57
1990	1.33	1	0.80
1995	1.25	1	0.75

Notes: The table shows the ratio $(1-m)/(1-c)$, where m is the marginal rate of personal income tax on dividend income and c is the rate of imputation. For shareholders facing a zero effective capital gains tax rate, values of this ratio above 1 indicate a tax preference for dividends, and values below 1 indicate a tax preference against dividends.

have, of course, been indifferent over the period that the imputation system has operated, since for these shareholders $m = c$.

2. Surplus ACT

Firms whose UK taxable profits are too low for them to be able to recover all their payments of ACT in the same year are described as being in a surplus ACT position. In particular, companies cannot offset ACT paid on gross dividends in excess of UK taxable profits. Any ACT that cannot be deducted in the current year is classed as surplus ACT. This can be carried back for up to six years to set against previous tax payments, or carried forward indefinitely to set against future tax liabilities. The present value of the ACT set-off is then reduced by discounting.

Companies may find themselves in a surplus ACT position for several reasons. Temporary positions of surplus ACT tend to arise when a company pays dividends out of reserves, for example during a recession, when firms may be reluctant to cut their dividends in line with a temporary fall in profits. More seriously, companies earning a large proportion of their profits overseas may experience a permanent imbalance between their UK taxable profits and the ACT payable on their dividend distributions. Although corporate taxes paid overseas can usually be offset against corporate tax due in the UK, these arrangements do not usually extend to ACT. If they did, the UK government would find itself 'repaying' tax credits to exempt shareholders when the tax revenue had in fact been received by foreign governments.¹⁴

¹⁴ From July 1994, companies have been able to declare foreign income dividends, which were introduced in response to this problem for multinational companies. See Freeman and Griffith (1993) for further discussion of the impact of surplus ACT on international companies.

Surplus ACT may be carried forward to set against future corporation tax liabilities, but since only the nominal value can be carried forward, the present discounted value of the tax credit may be very much reduced. A firm in a surplus ACT position effectively faces a lower rate of imputation than does a firm that can offset its ACT immediately. In the extreme case of a firm that does not ever expect to be able to recover its ACT payments, the tax treatment of dividends effectively reverts to that found under a classical system. In this case, a firm with £1 of post-corporation-tax profits to distribute would only be able to pay a cash dividend of $\pounds(1-c)$, and ACT of c . The shareholder receives a gross dividend of £1,¹⁵ out of which personal taxes must be paid, so that the shareholder in fact receives a dividend of $\pounds(1-m)$. This is exactly the same result as would be the case for a firm paying out £1 of post-corporation-tax profits under a classical system.

The presence of surplus ACT therefore reduces the rate of imputation that the firm effectively faces (down to zero in the extreme case just described), and implies that firms in a surplus ACT position face a higher tax cost of paying dividends than firms that are not in a surplus ACT position. One way of investigating whether taxes affect dividends is therefore to ask whether moving into a surplus ACT position affects the level of dividends that a firm pays.

3. Are Taxes Expected to Influence Dividends?

Consideration of the impact of taxes on dividends is complicated by the lack of a convincing theoretical explanation of why firms pay the levels of dividends that they do. In the US context, with a classical tax treatment and a tax bias against dividend payments, this amounts to a puzzle about why firms pay dividends at all.¹⁶

It is not that there are no theoretical explanations for why firms pay dividends in this context, but rather that there are several alternative explanations with little general agreement or evidence as to which models are more appropriate. Leading contenders are that dividend payments play a signalling role, conveying private information about the firm to less-well-informed investors; or that dividends play a role in the exercise of corporate control, obliging managers to raise funds in the external capital markets more frequently than would otherwise be the case, thereby subjecting themselves to more rigorous outside monitoring. Edwards (1987) provides an excellent survey of these theoretical developments.

The mainstream view of the role of taxes is that tax costs (or benefits) are just one of a number of possible costs and benefits associated with the payment of dividends, with the optimal level of dividends found by trading off these costs

¹⁵ The cash dividend of $\pounds(1-c)$ plus the tax credit of $\pounds c$.

¹⁶ In the US, share repurchases are generally taxed more favourably than dividend distributions. Although there was a considerable increase in the use of share repurchases in the 1980s, around half of the cash distributions from firms to shareholders still take the form of dividends (see Bagwell and Shoven (1989)).

and benefits. Other things being equal, a higher tax cost of paying dividends increases the marginal cost of using dividends to signal private information or to discipline self-interested managers, and is predicted to result in a lower optimal level of dividend payments. It then becomes an empirical question as to how sensitive dividend payments are to variation in taxes.

It should be noted, however, that alternative theoretical predictions are seriously suggested. One alternative is the 'tax irrelevance' view, proposed in the US context by Miller and Scholes (1978). This view claims that the shareholders who matter are tax-exempt, and so face no tax bias either for or against dividend payments in a classical system. In the UK context, this view has much less appeal though, since, as we noted in section 1, tax-exempt shareholders in the UK have a strict tax preference for dividend payments.

Another alternative is the 'tax capitalisation' or 'new' view. This approach, in contrast, focuses on taxes as the only significant influence on dividend policies. This generates extreme predictions, that dividends should be either minimised or maximised, which seem to be at odds with most observations (see Edwards (1984) for a good discussion). Paradoxically, this approach can also predict that tax *changes* may have no effect on dividend payments, at least in certain circumstances. For example, suppose that dividends are tax-inefficient for shareholders. This view predicts that dividend payments should already be minimised, and a further permanent increase in the tax cost of paying dividends would have no effect.¹⁷

Given this proliferation of theoretical possibilities, the first empirical question is whether taxes have any effect on company dividend payments at all. This yes/no question can be addressed straightforwardly by asking whether company dividend payments are related to the firm's surplus ACT position. If the tax cost is found to be a significant influence on dividends, then it becomes interesting to quantify the size of this effect, although, as discussed below, it is not so straightforward to answer this quantitative question.

IV. SOME EVIDENCE ON THE IMPACT OF SURPLUS ACT

In a recent empirical study, we have investigated whether the higher tax cost of paying dividends associated with moving into a surplus ACT position results in any reduction in the level of dividends paid. This study is reported in detail in Bond, Chennells and Devereux (1995). In this section, we first describe the incidence of surplus ACT in our sample of companies, and then summarise the main findings of the study.

¹⁷ Temporary changes to the tax cost would affect dividends by changing the cost of capital and the desired level of investment. See Poterba and Summers (1985) for a rigorous analysis.

1. Surplus ACT Estimates

We used annual company accounts information obtained from Datastream for a sample of 1,218 quoted UK industrial and commercial companies over the period 1970–90. Of these firms, 774 were in the manufacturing sector and the remaining 444 in the non-manufacturing sector. All firms were observed for at least five years, and almost one-third of the sample were observed for 18 years or more. In most years, observations were available on around 900 companies. This sample accounted for 40–50 per cent of the total dividends and profits of UK industrial and commercial companies over this period.

Unfortunately, company accounts do not contain a direct measure of surplus ACT, so we first had to estimate whether each firm was in a surplus ACT position. Although accounts do not contain a measure of surplus ACT, companies do write off ACT against their profits if the recovery of that ACT is not ‘reasonably certain and foreseeable’ and the amount is considered ‘material’.¹⁸ This is called ‘irrecoverable’ ACT, but this is something of a misnomer since we observe firms that do recover ACT previously declared as ‘irrecoverable’, i.e. reporting negative values for ‘irrecoverable’ ACT. In fact, it is usual for irrecoverable ACT to be reported if the company expects to carry forward the unrelieved ACT beyond the next accounting year (Holmes and Sugden, 1990). Thus companies reporting irrecoverable ACT are sure to have some surplus ACT, but it is not necessarily the case that all firms with surplus ACT will report irrecoverable ACT. For example, a firm with surplus ACT may write off no irrecoverable ACT if it pays no dividend and hence no ACT in the current period.

As a result, we supplemented these data from accounts with two estimates of the stock of surplus ACT for each company. The first estimate was obtained from the IFS corporation tax model, which estimates the tax liabilities of individual companies from accounting data on profits, investment, dividends etc., and in doing so produces an estimate of the stock of surplus ACT for each company (see Devereux (1986)). The second estimate also uses accounts data to estimate the stock of surplus ACT, but is based on the tax information reported directly in company accounts (see Higson (1986), again described in Devereux (1986)). We then constructed an indicator of whether a firm was in a surplus ACT position using these three sources of information. We assumed that the firm had surplus ACT if it wrote off some irrecoverable ACT during the year. In addition, for observations with no irrecoverable ACT, we assumed that the firm was in a surplus ACT position if *both* our estimates agreed that the firm had surplus ACT in that year.

Figure 2 shows the proportion of companies with surplus ACT in each year according to this indicator, and also the proportion that wrote off some ACT as

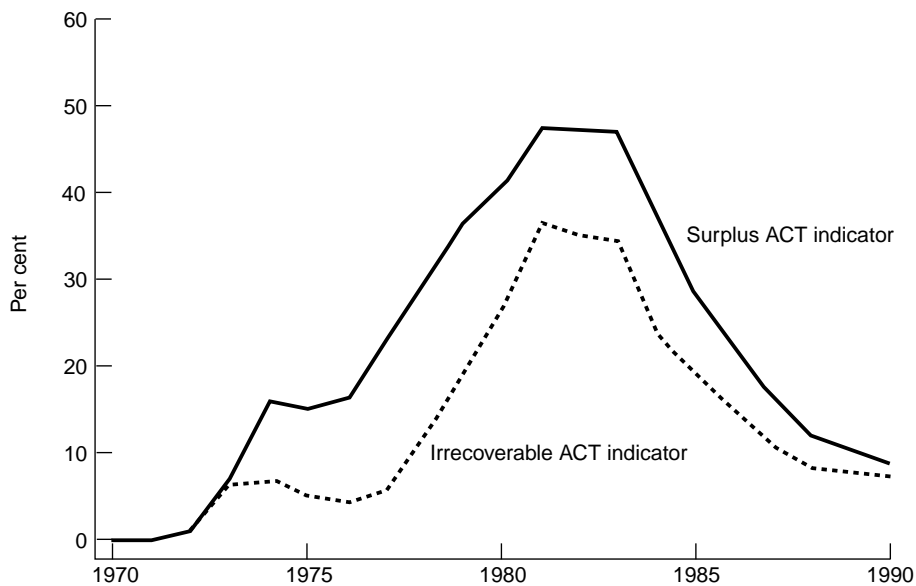
¹⁸ Statement of Standard Accounting Practice (SSAP) 8, ‘The treatment of taxation under the imputation system in the accounts of companies’, August 1974.>

‘irrecoverable’. It is clear that, upon the introduction of the imputation system, some firms immediately entered a surplus ACT position. The proportion of companies with surplus ACT rose from 8 per cent in 1973 to a peak of 48 per cent in 1981 and 1982. This figure declined steadily after 1984, partly as a result of changes to the corporation tax base introduced in 1984 (which widened the base of the UK corporation tax), and partly as a result of the turnaround in company profitability in the second half of the 1980s. By 1990, the figure had fallen back to 9 per cent. The pattern for companies reporting irrecoverable ACT was very similar: this proportion rose from 6 per cent in 1973 to 37 per cent in 1981, before declining to 8 per cent by 1990.

We estimated that 64 per cent of the sample companies experienced surplus ACT at least once during this period, compared with 52 per cent that wrote off some irrecoverable ACT. For a significant number of these firms, moving into a surplus ACT position was not a transitory consideration. We estimated that almost half the spells of surplus ACT in our sample persisted for at least three years, and almost a third persisted for at least five years.

FIGURE 2

**Percentage of Companies in a Surplus ACT Position:
Surplus ACT and Irrecoverable ACT Indicators, 1970-90**



Notes: The surplus ACT indicator shows the percentage of companies that were in a surplus ACT position according to our estimate, as described in the this section.

The irrecoverable ACT indicator shows the percentage of companies that wrote off some ‘irrecoverable’ ACT in their accounts.

Source: Datastream and authors’ calculations.

2. Empirical Findings

In Bond, Chennells and Devereux (1995), we report an econometric investigation of the effect of surplus ACT on company dividend payments. The analysis was based on a regression model of company dividends that controlled for other measured influences on dividends, such as profits and firm size. The analysis also controlled for some important unmeasured influences on dividend payments: in particular, common macroeconomic influences that affected all firms in the same year, such as the business cycle, and firm-specific influences that persisted over time, such as the board's attitude towards dividend payments.

These controls were important in this context. For example, Figures 1 and 2 show that the recession at the start of the 1980s caused the incidence of surplus ACT to peak at a time when payout ratios were depressed, but it would be dangerous to conclude that this high incidence of surplus ACT was the *cause* of low payout ratios at that time. The inclusion of unobserved year-specific effects in our model controlled for this impact of 'the recession'.

Similarly, suppose that a particular firm consistently paid out an unusually high share of its profits as dividends, perhaps because some signalling role of dividends was particularly important in its case. Other things being equal, this firm was more likely to encounter surplus ACT, precisely because it was paying high dividends relative to profits. Thus the cross-section correlation between dividends and surplus ACT status could easily be positive, but with the causation running from high dividends to a high probability of having surplus ACT. It would be misleading to infer from this cross-section correlation that firms were responding perversely to taxes; indeed, at a *given* level of the signalling incentive hypothesised above, this firm may still have responded to an *increase* in the tax cost by reducing its dividend level.

To control for such firm-specific influences that remained constant over time, we considered the effects of *changes* in a firm's surplus ACT position. Movements into surplus ACT are associated with an increase in the tax cost of paying dividends for a given firm. We investigated whether movements into surplus ACT resulted in lower dividend payments, and vice versa.¹⁹ Note that this approach was only possible because we observed sufficient companies moving into and out of surplus ACT positions over our sample period. As shown in Figure 2, many UK companies encountered surplus ACT when profits were depressed in the late 1970s and early 1980s, but have subsequently moved out of this position.

Details of our econometric specification and estimation method can be found in Bond, Chennells and Devereux (1995). That paper also describes a range of alternative specifications which confirmed the robustness of the main findings reported here.

¹⁹ More technically, we estimated regression models in first differences to eliminate unobserved permanent effects.

Separate models were estimated for four subsamples of the data: manufacturing firms in the 1970s, non-manufacturing firms in the 1970s, manufacturing firms in the 1980s and non-manufacturing firms in the 1980s. For both manufacturing and non-manufacturing firms in the 1970s, we found that movements into a surplus ACT position had a significantly negative impact on company dividends, as would be expected given that this increased the tax cost of paying out dividends.²⁰ The hypothesis that taxes have no significant effect on dividends could therefore be rejected. We also found a negative impact of surplus ACT in the 1980s, although the statistical significance of these results was weaker for the later period, particularly for the non-manufacturing sector.

Given that taxes do affect dividends, we would like to know whether these effects are quantitatively as well as statistically significant. It should be noted that our analysis was primarily designed to answer the yes/no question, rather than to quantify these effects. The impact of a long spell of surplus ACT on the tax cost of paying dividends is greater than the impact of a short spell of surplus ACT, but this is not accounted for by the consideration of a simple 0/1 status indicator. To quantify the effects of surplus ACT on dividends properly would require a tax cost measure such as $(1-m)/(1-c)$ for each firm in each period. However, measuring the tax cost for each firm in this way is problematic, and preliminary experiments with a tax cost measure did not yield encouraging results.²¹

Given this qualification, we nevertheless used our models to provide some indication of the likely order of magnitude of this surplus ACT effect. In particular, we simulated the effect on dividends of a firm changing *permanently* from having no surplus ACT to having surplus ACT (i.e. to having *truly* irrecoverable ACT). For a single firm, the effect of this on the tax cost of paying dividends is equivalent to switching from the imputation system to a classical system, as described in Section III(2).

Before considering the results, however, two further qualifications should be noted. First, our simulation was based on the effect of cross-section variation in the tax cost on a single firm, which need not be the same as the effect of a tax change common to all firms, particularly if signalling considerations are important (see Edwards, Mayer, Pashardes and Poterba (1986)). Second, according to the 'new' view outlined in subsection III(3), dividends may be unaffected by moving into a permanent surplus ACT position, so that our simulation can only be relevant under the traditional view.

²⁰ For example, the t-statistic on our surplus ACT indicator for manufacturing firms in the 1970s was -3.2, which is significantly different from zero at the 1 per cent level. For non-manufacturing firms in the 1970s, the t-statistic was -2.0, which is significant at the 5 per cent level.

²¹ Among the more serious problems, the appropriate income tax rate varies according to the composition of each firm's shareholders; and the effective rate of imputation depends on how many years the firm expects to remain in a surplus ACT position, which has to be forecast outside the sample period.

TABLE 4
**Percentage Reduction in Dividends Implied by a Permanent Change from No
 Surplus ACT to Surplus ACT**

<i>Sample</i>	<i>Percentage reduction</i>	<i>Standard error</i>
Manufacturing in the 1970s	15.2	6.0
Non-manufacturing in the 1970s	12.8	6.5
Manufacturing in the 1980s	6.1	4.3
Non-manufacturing in the 1980s	60.0	43.5

Source: Bond, Chennells and Devereux, 1995.

Table 4 reports the long-run percentage reduction in dividends suggested by these simulations, for each of the subsamples we considered. The estimate for non-manufacturing firms in the 1980s was very imprecise and should not be taken seriously; the remaining estimates suggested that dividends might be reduced by 6–15 per cent, at a given level of profits and sales. The short-run dynamics were straightforward. The models suggested that dividends take one year to respond to the change in tax cost, and then just under half of the adjustment to this long-run position occurs in each subsequent year.

Although these simulations were only intended to be suggestive, it is worth noting that these effects are rather smaller than suggested by previous time-series studies. For example, the results of Poterba and Summers (1985), using aggregate UK data, suggested that returning to a classical treatment would reduce company dividends by 20–40 per cent, whilst Poterba (1987) and Nadeau (1988) found even bigger effects using US data. We do not find these differences particularly surprising in view of the strong trends present in the aggregate data, and the rather limited attempts to control for other influences on dividends in some of these studies.

In contrast, an earlier study of the impact of surplus ACT on UK company dividends by Edwards, Mayer, Pashardes and Poterba (1986) found a weaker effect of tax on dividend payments, which was not robust to the inclusion of year-specific effects in their model. Part of the difference may be attributable to our use of a much larger sample, and possibly to the use of more efficient econometric methods for this type of data, which have been developed in the last 10 years.

V. CONCLUSIONS

The main finding of our empirical study was that the higher tax cost of paying dividends for firms with surplus advance corporation tax does put downward pressure on the level of their dividend payments. We therefore rejected the hypothesis that taxes have no effect on company dividends. Although our

estimates of the size of this effect were very tentative, they do cast some doubt on the very large tax effects that have been suggested by some aggregate time-series studies.

This finding has a number of implications. First, the distortions introduced by the current UK tax system are likely to have some effect on the level of dividend payments chosen by UK firms. To the extent that tax-exempt shareholders such as pension funds are now the most influential investors in many UK companies, their tax preference for dividend income is likely to result in significantly higher dividend payout ratios than would be chosen by companies in the absence of this tax bias. However, our results also indicate that moving to a more neutral tax treatment of the dividend payout decision could put significant downward pressure on dividend payout ratios.

REFERENCES

- Bagwell, L. S. and Shoven, J. B. (1989), 'Cash distributions to shareholders', *Journal of Economic Perspectives*, vol. 3, pp. 129–40.
- Bond, S. R., Chennells, L. A. and Devereux, M. P. (1995), 'Taxes and company dividends: a microeconomic investigation exploiting cross-section variation in taxes', Institute for Fiscal Studies, Working Paper no. 95/11. Forthcoming in *Economic Journal*, conference volume.
- and Meghir, C. (1994), 'Financial constraints and company investment', *Fiscal Studies*, vol. 15, no. 2, pp. 1–18.
- Devereux, M. P. (1986), 'The IFS model of the UK corporation tax', Institute for Fiscal Studies, Working Paper no. 84.
- Edwards, J. S. S. (1984), 'Does dividend policy matter?', *Fiscal Studies*, vol. 5, no. 1, pp. 1–17.
- (1987), 'Recent developments in the theory of corporate finance', *Oxford Review of Economic Policy*, vol. 3, no. 4, pp. 1–12.
- , Mayer, C. P., Pashardes, P. and Poterba, J. (1986), 'The effects of taxation on corporate dividend policy in the UK', Institute for Fiscal Studies, Working Paper no. 96.
- Freeman, H. and Griffith, R. (1993), 'Surplus ACT — a solution in sight?', *Fiscal Studies*, vol. 14, no. 4, pp. 58–73.
- Higson, C. (1986), 'Corporate financial behaviour in the presence of taxes', Ph.D. thesis, London Business School.
- HMSO (1994), *Share Ownership: The Share Register Survey Report End 1993*, London: HMSO.
- (1995), *Competitiveness: Forging Ahead*, Cm 2867, London: HMSO.
- Holmes, G. and Sugden, A. (1990), *Interpreting Company Reports and Accounts*, Cambridge: Woodhead-Faulkner.
- Mayer, C. P. and Pashardes, P. (1986), 'Dividend setting in the presence of controls', Institute for Fiscal Studies, Working Paper no. 98.
- Miller, M. H. and Scholes, M. S. (1978), 'Dividends and taxes', *Journal of Financial Economics*, vol. 6, pp. 333–64.
- Nadeau, S. (1988), 'A model to measure the effects of taxes on the real and financial decisions of the firm', *National Tax Journal*, vol. 41, pp. 467–81.
- OECD (1991), *Taxing Profits in a Global Economy: Domestic and International Issues*, Paris: Organisation for Economic Co-operation and Development.

Fiscal Studies

- Poterba, J. M. (1987), 'Tax policy and corporate saving', *Brookings Papers on Economic Activity*, no. 1987:2, pp. 455–515.
- and Summers, L. H. (1985), 'The economic effects of dividend taxation', in E. Altman and M. Subrahmanyam (eds), *Recent Advances in Corporate Finance*, Homewood, Ill.: R. D. Irwin.