

# Corporation tax buoyancy and revenue elasticity in the UK <sup>☆</sup>

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Accepted 24 April 2007

## Abstract

Observed changes in corporation tax revenues from year to year, which include the effects of changes in tax rates, deductions and compliance, appear to be highly volatile relative to profits, the tax base. This paper examines whether the ‘built-in’ fiscal drag properties of corporation tax can be expected to display similar properties. Simple, conceptual modelling demonstrates that the corporate tax revenue elasticity does indeed display this property in the presence of regular cyclical fluctuations in profit growth, suggesting that much of the observed volatility is inherent to the corporation tax system.

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*Keywords:* Corporation tax; Tax revenue elasticity; Built-in flexibility of taxes; UK tax revenue

## 1. Introduction

Growth rates of corporation tax receipts in the UK are known to fluctuate widely from year to year, both absolutely and relative to profits — the main corporation tax base.<sup>1</sup> Tax revenue authorities have found it increasingly difficult to provide reliable forecasts of corporation taxes, even when given reasonably accurate projections of profits. These revenue changes in relation to profits could reflect a combination of factors. First, there are the inherent, or ‘built-in’, properties of the UK corporation tax system; these are associated with ‘fiscal drag’. Second, revenues are influenced by discretionary changes in tax rates, thresholds and other conditions affecting tax liability. Third, tax revenue changes can be affected by changes in avoidance and evasion.

<sup>☆</sup> This research was conducted whilst Norman Gemmell was at the HMRC’s Analysis department. We are grateful to colleagues there for their support of this research, especially David Ulph and Edwin Ko. We have also benefited from the helpful comments from two referees of this *Journal*. The views expressed in this paper are those of the authors and do not necessarily reflect those of HMRC. We are grateful for comments from participants at presentations at H.M. Treasury and the New Zealand Treasury and Inland Revenue Department.

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<sup>1</sup> Corporate tax revenues have also remained high despite periodic decreases in the statutory tax rate. [Devereux et al. \(2004\)](#) examined various empirical factors associated with the buoyant UK corporation tax revenues since 1980 and concluded that the primary explanation lies in the strong growth of financial companies’ profits. In effect, this provided an expanding tax base to compensate for reductions in the statutory rate.

<sup>2</sup> Previous papers which have examined revenue aspects of the UK corporation tax include [Young \(1992\)](#), [Basu et al. \(2003\)](#), [Metz and Weale \(2003\)](#), and [Devereux et al. \(2004\)](#). The first three papers generally focus on forecasting models or methods, and none deals explicitly with fiscal drag properties. Measuring effective rates of corporation tax has also been a focus of a number of recent papers including [Nicodeme \(2001\)](#) and [Devereux and Klemm \(2003\)](#).

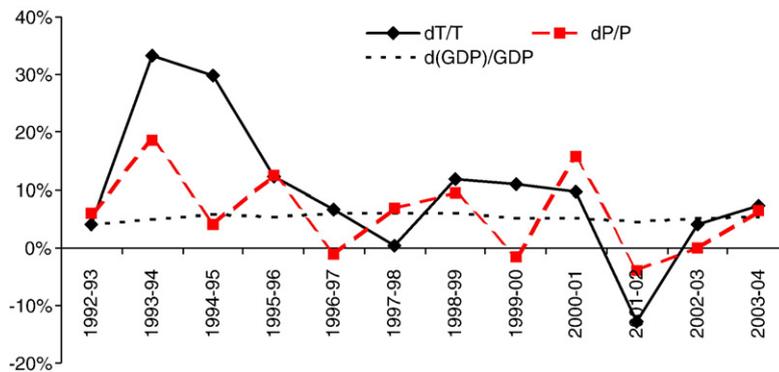


Fig. 1. Corporation tax, profit and GDP growth rates.

The present paper concentrates on analysing the potential contribution of the built-in, or fiscal drag, properties of the corporation tax system in the UK.<sup>2</sup> In particular it seeks to explain how far the observed volatility in the buoyancy of corporation tax revenues, with respect to profits, can be explained by the tax's fiscal drag properties. This is important because if relatively large changes in tax revenues, relative to profit changes, are indeed an inherent characteristic of the corporation tax system, substantial challenges are raised for tax forecasting.

The paper is structured as follows. Section 2 reports evidence relating to buoyancy in the UK over the last twenty-five years or so, demonstrating the extent of its volatility. Section 3 introduces the key concept of fiscal drag as it applies to corporation taxes. A commonly used measure of fiscal drag is the tax revenue elasticity. Section 4 therefore discusses the factors affecting the revenue elasticity of individual firms, along with the aggregate revenue elasticity. An important aspect of this is the corporate tax schedule.<sup>3</sup> Section 5 therefore describes the schedule of UK corporate tax rates applicable to total profits net of deductions. This requires special attention in the corporation tax context because it differs from the type of tax function typically used in the context of personal income taxation (the main focus of previous studies of fiscal drag). Section 6 examines the likely variation in the revenue elasticity over the economic cycle. Conclusions are in Section 7.

## 2. Corporation tax buoyancy in the UK

Corporation tax revenues can be measured either in cash or accrual terms. The former measures the amount of tax paid by companies and received by the UK Revenue and Customs department (HMRC) in a given period, while the latter measures the corporation tax liability as assessed using the tax code during a given period (usually a fiscal year).

Using HMRC data on corporation tax accruals and profits, available on a consistent basis from 1992/93, Fig. 1 shows the growth rates of tax accrual,  $dT/T$ , and gross taxable profits,  $dP/P$ , compared to GDP growth,  $d(GDP)/GDP$ .<sup>4</sup> This demonstrates the much greater variability in gross profit growth compared with GDP growth rates. Furthermore, although both corporation tax accruals and profits are relatively volatile, their growth rates follow quite different patterns. This latter feature contributes substantially to highly volatile corporation tax buoyancy in Fig. 2.

Tax buoyancy is measured as the growth in tax revenues (receipts or accruals) divided by the growth in profits or GDP. Fig. 2 shows the accruals-based buoyancy measure (with respect to GDP and profits) and compares this with a receipts-based measure. Corporation tax accruals are derived directly from the HMRC measure of gross profits liable to UK tax, so this provides a more consistent denominator for the accruals-based buoyancy measure (from 1992/93). The buoyancy of corporation tax receipts can be examined over a longer period by using the Office of National Statistics

<sup>3</sup> The term schedule is used here to refer to the form of the tax function, rather than the source of income. Tax regulations are expressed in terms of a 'schedular' structure, where each source or schedule has its own rules. Indeed the UK system is complicated by the fact that the different sources allow or disallow particular profit off-sets or tax credits, depending on the source of the profit (such as UK trading profits, foreign-sourced profits, and profits from property transactions).

<sup>4</sup> These HMRC profit data relate only to company profit as declared for tax purposes and therefore treats all company gross losses as zero profits. They are therefore quite different from profits in companies' commercial accounts which include both positive profits and losses. The accruals-based measure of profits used here is the HMRC measure of gross taxable trading profits and other taxable income and net capital gains; see [http://www.hmrc.gov.uk/stats/corporate\\_tax/table11\\_2.pdf](http://www.hmrc.gov.uk/stats/corporate_tax/table11_2.pdf). Corporate tax accrual is also available from this source.

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