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NOTES AND TOPICS

The High Costs of Capital Taxation in Australia

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THE important issue of capital taxation has been virtually ignored in the current Australian debate over tax reform. Discussion of alternative taxation options has been carried out in the virtual absence of comprehensive attempts to quantify the efficiency costs of different forms of taxation. Rather, the attention of business leaders, in particular, has been focused on the prospect of replacing the ramshackle wholesale sales tax with a relatively modest goods and services tax. While this is a step in the right direction, Australia needs to embrace much more fundamental reform of its taxation system, particularly as it relates to capital taxation. Australia's high capital taxes have reduced investment, lowered the size of the capital stock and impeded economic growth.

This note reports the results of the first steps towards creating a consistent analytical framework for analysing the efficiency costs of different taxes to the Australian economy. In particular, it provides initial estimates of the deadweight costs of capital taxation in Australia.

What Are Deadweight Costs?

In recent years there has been a growing focus internationally on the costs of raising taxation revenue. Communities have come to realise that, far from being free, rising government expenditure has to be financed sooner or later by increased taxation, and that taxation imposes a number of costs on the economy.

As well as the direct cost of the extra revenue and associated administrative and compliance costs, an important additional cost arises from the changes in behaviour induced by taxation. Taxes distort the incentives to work, save and invest, and the pattern of input use and production in the economy. These distortions impose costs on the economy by reallocating resources from their most productive uses to less productive ones. The losses created are known as *deadweight costs* or the *excess burden* of taxation. The deadweight cost of taxation is a measure of the value of the opportunities that are effectively lost when taxation diverts labour, land and

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capital from their best uses. By calculating the deadweight costs of taxation, we can gauge the potential effects of taxation on the economy and society and calculate the least costly combination of taxes.

The size of deadweight costs is influenced by a range of factors, but is likely to be largest when the actions of producers and consumers are highly responsive to after-tax prices, when existing marginal tax rates are high and when savings are highly responsive to after-tax returns.

Other Studies of Deadweight Costs

An earlier study by Diewert and Lawrence (1994, 1995) for New Zealand did much to raise the awareness of the deadweight costs of taxation among policy-makers and the general community. The key findings of the study were that the deadweight costs associated with labour taxation increased from 5 per cent to over 18 per cent in the 20 years up to 1991. Over the same period the marginal excess burden of consumption taxation (all indirect taxes other than property taxes and import duties) increased from 5 per cent to around 14 per cent.

However, while our first study made a number of advances in the measurement of deadweight costs, the estimates obtained are likely to be relatively conservative. By estimating a static model we were not able to calculate the marginal excess burden of capital taxation. Other studies which have attempted to introduce dynamics and model capital accumulation decisions have shown that the marginal excess burden of capital taxation is generally higher than that for labour given capital's far greater mobility. This is especially likely to be the case for small open economies such as Australia and New Zealand trading in a world of ever-increasing capital mobility and globalisation.

A few previous studies have attempted to estimate marginal excess burdens for Australia, notably those of Findlay and Jones (1982), Han (1996) and Campbell and Bond (1997). However, these studies all use static models and concentrate on labour and commodity taxation. While capital tax deadweight losses are likely to be far higher, studies that have successfully quantified them are rare, owing to the conceptual and implementation difficulties associated with building dynamic models. The work of Jorgenson and Yun (1991) in the United States is one important exception.

Tax Rates on Capital

In calculating the deadweight costs caused by taxation we need to know the size of the 'wedges' taxes impose between the price paid by the consumer or user and the price received by the producer or supplier. Tax rates on labour and capital returns are presented in Figure 1.[1]

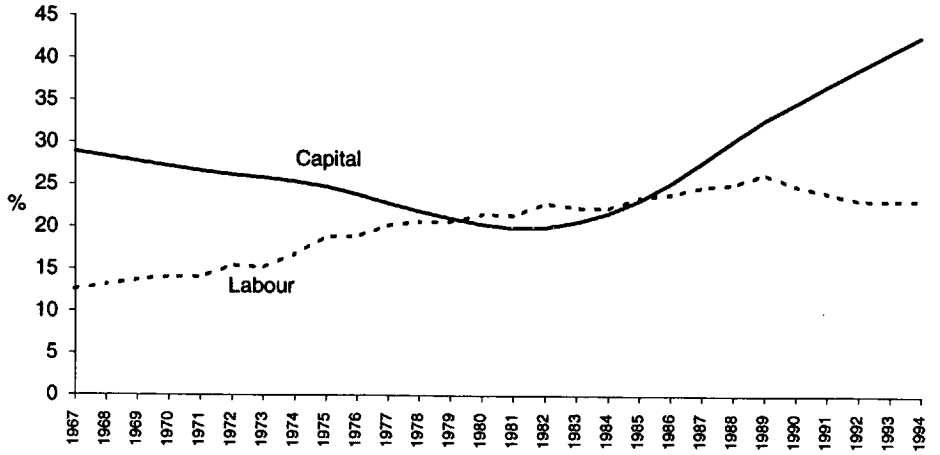
Changes to the Australian tax system since the mid-1980s have fallen relatively heavily on capital. The average tax rate on labour income increased over the 28-

[1] The database used in the study is described in Diewert and Lawrence (1997).

year period up to 1994 from 12.5 per cent in 1967 to 23.3 per cent in 1994. The labour tax rate peaked in 1989 at 26.4 per cent. After starting at 28.9 per cent, capital tax rates progressively declined to a rate of 19.9 per cent in 1981. Since then capital tax rates have again increased steadily, up to 42.7 per cent 1994. This increase in the overall rate of capital tax can be attributed to the introduction of capital gains taxes, increasing reliance on transactions taxes and the progressive tightening of exemptions from the tax base.

Figure 1

Labour and capital tax rates, 1967-94



Source: Diewert and Lawrence (1997).

Capital Tax Deadweight Costs Are High

Our estimated capital tax marginal excess burdens are presented in Figure 2. For each year, the marginal excess burden represents the incremental loss of net output divided by the incremental increase in tax revenue induced by an increase in the capital tax rate. The estimates are derived from an econometric model of the production sector described in the appendix to this paper and summarised in Diewert and Lawrence (1997).

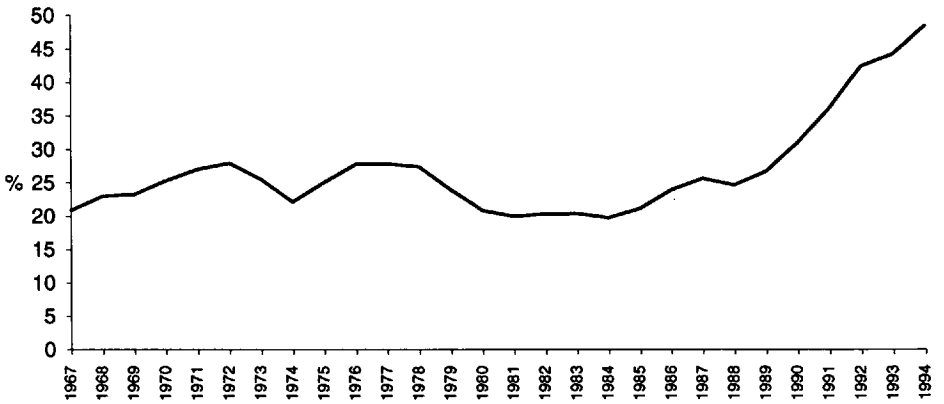
After starting from a figure of 21 per cent in 1967, the capital tax marginal excess burden climbed to a high of 28 per cent in the late 1970s. It then fell back to a low of 21 per cent again in 1983. Over the last decade, however, the capital tax marginal excess burden has climbed steadily to finish at a high of 48 per cent in 1994.

Policy Implications

What are the implications of these results? The essential implication is that, far from being free, government expenditure comes with a high price tag and must correspondingly be spent wisely on high-yielding projects or not at all. To be justified, a government project must not only provide the going return on the amount spent but must provide an additional return which covers the deadweight cost associated with raising that revenue.

Figure 2

Capital tax marginal excess burdens, 1967-94



Source: Diewert and Lawrence (1997).

The precise nature of the penalty this imposes on government projects depends on the nature of the project. There is an important difference between government expenditure on investments which provide a stream of returns over time and recurrent expenditure projects.

Consider first the case where the government raises an extra dollar of revenue from capital taxes and then invests this dollar in a perpetual project that earns $\$r$ in each period. In the following period the level of capital taxation returns to its old level but the government continues to receive the return from the dollar invested in the perpetual project. Let the discount rate be R. Then the discounted stream of benefits that the project earns (B) is:

(1) $B = r/R$.

If we assume the deadweight cost associated with raising capital taxation is d then the above present value of benefits can be set equal to the current cost of $(1 + d)$ and we can solve for the ongoing return r that would be required for the project to

be worthwhile in view of the extra burden imposed by the increase in taxation. We obtain:

(2) $r = R(1 + d)$.

If we think of both r and R as being real returns (returns adjusted for inflation), then if $d = 0.48$ and $R = 0.05$, we must have $r = 0.05(1 + 0.48) = 0.074$. Under these assumptions, with a going real rate of return of 5 per cent, a perpetual project financed by increased capital taxation must earn a real rate of return of 7.4 per cent to be justified: an excess of 2.4 per cent over the going real rate of return.

However, while this is a major hurdle for an investment project, the penalty is far larger for a government project which involves recurrent expenditure. A recurrent expenditure project must provide a return each year which exceeds its direct cost (including a normal return) by at least the amount of the marginal excess burden. This is equivalent to earning an ongoing real rate of return over and above the normal rate of return by at least the estimated percentage of the marginal excess burden. This is because the return from the project occurs only in the year the expenditure is made, and to maintain an ongoing return the level of capital taxation has to be raised permanently.

For example, in 1994 a recurrent expenditure government project (such as a transfer payment) financed by additional capital taxation should have earned a real rate of return 48 percentage points above the normal real rate of return in order to overcome the adverse effects of increased capital taxation.

In 1994 the high cost of capital taxation can be alternatively illustrated by considering that a reduction in recurrent government expenditure financed by reduced capital taxes would have led to a real rate of return of 48 per cent. There are very few, if any, government projects which can boast such a high real rate of return.

It is important to note, however, that our study is not saying that less government spending is always better. The optimal level of government spending is not zero. The government has an important role to play, for example in providing public goods and physical and legal infrastructure that would not be supplied in desirable quantities through private transactions. It is worth incurring the marginal deadweight costs of taxation up to the point justified by the returns to such expenditure. Our study highlights the high opportunity cost of public funds and the need to spend those funds very carefully.

More important, these results indicate that by significantly reducing its capital tax rate Australia can remove some of the competitive disadvantage it faces compared to its low tax neighbours. The way to attract footloose, capital-intensive industries to Australia is not to give them selective incentives and to attempt to pick winners but rather to ensure that Australia's capital tax system is as competitive as possible across the board. Continuing globalisation and international economic integration means that Australia has to look at fundamental rebalancing of its tax

system to reduce the impost on its most internationally mobile factor, namely, capital.

Appendix: Methodology

There are many approaches to determining the efficiency costs of capital taxation. The approach we take is the following. We assume that the private production sector of the economy uses inputs of capital, labour and imports to produce consumption goods, exports, government purchases of goods and services and investment goods. We assume that investment goods produced in the current year are added to the capital stock at the beginning of the following year. Domestic households and foreign investors require interest payments in order to induce them to supply financial capital to the production sector.

We view the business income tax as falling on the return to capital, so that the rate of return that the private production sector must earn is increaded by this capital tax. The effect of the capital tax will be to reduce the equilibrium level of capital, investment and domestic net product. In an equilibrium situation, investment goods are produced so as to just offset depreciation, and an optimal capital stock is one that maximises net output minus interest payments subject to primary resource constraints. Capital taxation moves the economy away from this optimal situation. Our approach to capital taxation is based on that developed by Diewert (1981:65-8; 1988:19-23).

The construction of the database used in this study largely follows the approach outlined in detail in the appendix to Diewert and Lawrence (1994), with the exception of the treatment of capital and investment goods. The principal data sources for this study are Australian Bureau of Statistics and Organisation of Economic Co-operation and Development (OECD) data contained in Econdata (1996). The database runs for 28 years from 1966-67 to 1993-94 and the market sector producer model estimated contains twelve goods. These comprise three variable outputs (general private consumption; government consumption of goods and services; and exports), two variable inputs (imports and labour), three investment goods (plant and equipment; non-residential and other construction; and inventories) and four capital stocks (plant and equipment; non-residential and other construction; inventories; and business and agricultural land).

The characteristics of the production technology are estimated using a variant of the semi-flexible normalised quadratic profit function with curvature imposed and incorporating splines on the technology variable.

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