

## **A MORE DETAILED LOOK AT TAXES AND GROWTH**

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### **1. Introduction**

The results of recent studies on the link between tax and growth in OECD countries suggest that the trade off between fairness and efficiency is significant and important. Whilst property taxes are the least distorting tax, they typically raise very low levels of revenue in most countries for a variety of mostly political economy and, in some developing countries, administrative reasons. This means that the least distorting taxes that raise significant revenue are generally (broad based) consumption taxes followed by income taxes. Corporate taxes are seen to be highly distorting because of their negative impact on investment, an effect which compounds over time. A question remains about how far these results have direct implications for developing countries, where the structures of economies are different, constraints facing tax policy makers about choice of taxes from which to raise revenue are much more severe and tax administrations face more limitations than in richer countries in terms of administrative capacity.

This brief paper outlines the results from the recent literature on the link between tax and growth in OECD countries. It then argues that this link could well be different in other regions of the world. It also argues that the trade-off between growth and equity that is so important to tax policy makers may also be different across regions. In both cases, participants are invited to express their views and describe relevant experiences.

### **2. Lessons from the literature**

The question of how to design tax policy that contributes to long-run growth is clearly an important policy issue. However, most literature on the effects of taxes on the economy concentrate on efficiency and income distribution, the policy implications of which are discussed in Institute for Fiscal Studies (2010). Nonetheless, a relatively small literature is concerned with the impact of tax on economic growth, and has mainly been concerned with the balance between the taxation of labour income, capital income and expenditure. For example, Lucas (1990) provides a very clear exposition of the view that capital income should not be taxed, at least in the long run, because such taxation reduces investment and, therefore, growth. He illustrates this theoretical conclusion with a simulation for the United States which suggests that eliminating capital income taxation would increase long-run consumption by about 7%.

Lucas's paper stimulated a range of responses, including empirical work by Kneller *et al.* (1999) and Bleaney *et al.* (2001), who argue that the mix between income taxes and consumption taxes

has a definite effect on long-run growth. More recently, the OECD (Johansson *et al.*, 2008, Arnold *et al.*, 2011) have carried the analysis further by:

- Using a panel of 21 OECD countries over 34 years to estimate the effect of tax structure on growth in more detail than earlier work;
- Complementing this macroeconomic approach with a closer look at the underlying micro mechanisms, by using both industry and individual firm data.
- Analysing how to use the tax system to both speed economic recovery and promote growth.

The remainder of this section concentrates on this OECD work.

## **Empirical evidence**

It is not possible to distinguish growth increases that are transitional from those that are sustainable in the long-run with the data available, although some tax changes were shown to increase innovation and entrepreneurship and so influence long-run growth. To be cautious, the results are presented on the assumption that the growth is simply transitional.

In this spirit, Table 1 reports the long-run effects of changes in the tax mix on the level of GDP. The tax changes are revenue neutral, so that increased revenue from one tax is balanced by reduced revenue from another. This is an important point, as the effect on growth of a tax change that increased overall revenue will depend on how the extra revenue is spent - something that could not be observed with the data available. The implication of this approach is that the coefficients against particular taxes in Table 1 show the effect of an increase in the share of this tax, balanced by a reduction in the share of the tax(es) shown in the bottom row (entitled 'Revenue-neutrality achieved by adjusting').

It should also be noted that the estimation controls for the accumulation of physical and human capital and population growth as well as the overall tax burden<sup>1</sup>, as well as variables designed to pick up any permanent causes of differences between countries in their relative GDP per capita (such as endowments of natural resources).

Column 1 shows a negative coefficient on the share of (personal<sup>2</sup> and corporate) income taxes, indicating that an increase in the share of these taxes that is balanced by a decreased share of consumption and property taxes will reduce long-run GDP. Column 2 shows that an increase in corporate income taxes (financed by an increase in consumption and property taxes) has a stronger negative effect on GDP per capita than a similar increase in personal income taxation.

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<sup>1</sup> It should be noted that the value of the coefficient of the overall tax burden does not necessarily represent the effect of an increased tax burden on economic growth because it takes no account of how the additional revenue is spent.

<sup>2</sup> The definition of personal income tax used in this study includes social security contributions paid by both employees and employers.

**Table 1**

**Estimated Cross-Country Effects of the Tax Mix on Long-run GDP per Capita<sup>†</sup>**

<b>Dependent Variable: Log GDP p.c.</b>	(1)	(2)	(3)	(4)	(5)
<b>Baseline Model</b>					
Physical Capital	0.18 *** (0.05)	0.25 *** (0.05)	0.18 *** (0.05)	0.16 *** (0.05)	0.21 (0.45)
Human Capital	1.19 *** (0.13)	1.30 *** (0.12)	1.18 *** (0.13)	1.40 *** (0.11)	1.57 *** (0.11)
Population Growth	-0.08 *** (0.01)	-0.08 *** (0.01)	-0.07 *** (0.01)	-0.07 *** (0.01)	-0.07 *** (0.01)
<b>Control variable</b>					
Overall Tax Burden (Total revenues / GDP)	-0.27 *** (0.05)	-0.24 *** (0.05)	-0.26 *** (0.05)	-0.22 *** (0.04)	-0.14 *** (0.04)
<b>Tax structure variables</b>					
Income Taxes	-0.98 *** (0.20)				
Personal Income Taxes		-1.13 *** (0.19)			
Corporate Income Taxes		-2.01 *** (0.32)			
Consumption & Property Taxes			0.93 *** (0.20)		
Consumption taxes (excl. property taxes)				0.74 *** (0.18)	0.72 *** (0.19)
Property taxes				1.45 *** (0.43)	
Property taxes: Recurrent Taxes on Immovable Property					2.47 *** (0.84)
Property taxes: Other property taxes					-0.34 (0.51)
Observations	696	675	696	696	698
Revenue-neutrality achieved by adjusting	Cons. & Prop. Taxes	Cons. & Prop. Taxes	Income Taxes	Income Taxes	Income Taxes

<sup>†</sup> All equations include short-run dynamics, country-specific intercepts and country-specific time controls. Standard errors are in brackets. \*: significant at 10 % level; \*\* at 5% level; \*\*\* at 1 % level.

The remaining columns show the effects of tax shifts in the other direction: increasing consumption and property taxes at the expense of income taxes. Column 3 shows a positive effect from increasing consumption and property taxes (balanced by an increase in income taxes), while column 4 shows that the effect is significantly larger for property taxes and Column 5 shows that recurrent taxes on immovable property have the largest effect of all (mainly annual charges on housing). These results suggest that a revenue-neutral shift away from income taxes would increase GDP per capita by between 0.25% and 1% in the long run, depending on the empirical specification.

A more detailed analysis revealed that reducing both corporate and top personal income tax rates would increase the rate of productivity growth, the main driver of growth in per capita incomes in OECD countries. This suggests that some of the effects reported in Table 1 are likely to have a sustained effect on growth.

### **A tax and growth ranking for OECD countries**

The results presented above suggest a “tax and growth ranking” with recurrent taxes on immovable property being the preferred tax instrument in terms of long-run GDP per capita, followed by consumption taxes (and other property taxes), personal income taxes and corporate income taxes. The growth effects of each type of tax are considered in turn below (see Johansson *et al.*, 2008, for a more detailed discussion).

- *Recurrent taxes on immovable property* (especially residential property) are relatively good for growth because most OECD countries provide various tax preferences for owner-occupied housing, which result in a misallocation of capital towards housing, away from other investments. This implies that increasing recurrent taxes on immovable property will shift some investment out of housing into higher return investments and so increase the rate of growth.
- *Taxes on property transactions* – another major form of property tax – also have the benefit of shifting investment out of housing into higher-return activities. However, they discourage the reallocation of housing to its most productive use, thus reducing growth. They also raise the cost of moving and in this way may lower labour mobility.
- *Other property taxes* – on financial transactions, inheritance and net wealth – can also distort the allocation of capital and/or the incentive to save. Thus, property taxes in general are likely to be more harmful to growth than recurrent taxes on immovable property.
- *Consumption taxes* increase the prices of consumer goods and so reduce the real reward for working, and therefore can affect labour supply. However, they do not discourage saving and investment provided that they are expected to be constant over time. Thus, consumption taxes can be expected to have little negative effect on growth, although they do not have the advantages of recurrent taxes on immovable property. Exceptions to this generally benign view of consumption taxes are excise duties (to the extent that they are applied to products purchased by firms, as this distorts production) and border taxes (as they distort a country's pattern of production away from its comparative advantage). However, these exceptions are of diminishing importance in OECD countries as revenues from border taxes have almost disappeared and excise duties have been progressively replaced by VAT (which refunds taxes on goods purchased by firms).
- *Personal income taxes* are seen as more harmful to growth than consumption taxes for three reasons. First, they are generally progressive, with marginal tax rates (which discourage growth) that are higher than their average rates (which generate government revenues). This means that they discourage growth more per unit of tax revenue than

consumption taxes, which are generally flat rate and not (or not very) progressive. Second, they typically tax the return to savings in addition to taxing the income from which savings are made, thus discouraging savings. Third, high income tax and social security contributions on low-wage workers can lead to people choosing to stay on social benefits rather than work (Brewer *et al.*, 2010).

- *Corporate income taxes* can be expected to be the most harmful for growth as they discourage the activities of firms that are most important for growth: investment in capital and in productivity improvements. This arises because they increase the gross rate of return on investment that is needed to attract the necessary funds from investors. In addition, most corporate tax system have a large number of provisions that create tax advantages for specific activities, typically drawing resources away from the industries in which they can make the greatest contribution to growth.

## Policy implications

Cutting corporate tax is good for long-run growth through its effect on productivity growth. Cuts in the top personal income tax rate are similarly good for longer-term growth. In addition, cutting personal income taxes for low-income households would stimulate labour supply (Brewer *et al.*, 2010) and thus growth, as suggested by the results in Table 1.

In order to finance such tax cuts, countries would need to increase other taxes. Table 1 suggests that the best taxes to increase are consumption taxes and taxation of immovable property are the least harmful tax for economic growth. In fact, well-designed taxes on immovable property (particularly on residential property) can even increase growth by reallocating capital away from tax-subsidised housing towards activities that are more productive.

In summary, the results of the OECD study suggest that growth can be increased by moving the balance of taxation away from income taxes and towards taxation of consumption and immovable property.

In the context of OECD countries, this recommendation could be difficult to implement for a mixture of political and distributional reasons, particularly because income taxes are seen as more progressive than other taxes. Annual taxes on residential property are often unpopular and perceived as regressive. The same is true of VAT, although to a smaller extent. Also, many European countries already have high VAT rates and raising their standard rates further could increase fraud. Nevertheless, many countries make considerable use of exemptions and lower rates of VAT and substantial revenues could be obtained by removing these provisions. The difficulty is that many of these exemptions and low rates are designed to reduce the apparent regressivity of the tax. However, they are poorly targeted because richer people spend more on these goods, even though the poor spend a higher *proportion* of their income on such goods. From a distributional point of view, it is better to have a uniform VAT on a broad base and use some of the additional revenues to assist low-income households by increasing social benefits.

### **3. The impact of taxes on growth in different regions**

The results described above are based on observations of OECD countries, analysing how each country's growth rate changed after a change in the balance of taxation between different sources. The effects of changes in the balance of taxation are not the same for all OECD countries<sup>3</sup> because of differences in such factors as existing tax policies, industrial structures and per capita income levels. This naturally raises the question of the extent to which the results of changes in the balance of taxation could be different in non-OECD countries, because of the substantial differences OECD and non-OECD countries in so many aspects.

This means that it is very important to question the extent to which shifts from income taxes to consumption and property taxes may not be as appropriate for non-OECD countries as the results in Table 1 suggest them to be for OECD countries. Some examples of the sorts of questions that could be asked are as follows:

1. For some non-OECD countries, the idea of a revenue-neutral shift from one tax to another may be less relevant than it is in OECD countries. In some cases, it may simply not be possible: many developing countries have been unable to replace lost revenue from reduced border taxes with revenue from domestic taxes, such as VAT. Many developing countries need more total revenue in order to increase growth through increased infrastructure investment. For such countries, this means that it is less important to reduce the share of corporate taxes (as recommended by the OECD study) than to increase total revenue. As corporate taxes may be levied on a small number of profitable taxpayers and so are relatively easy to collect as compared to other taxes, especially in countries with widespread informality, reducing their importance might reduce growth by reducing revenue.
2. In addition, some countries fear that reducing corporate tax could reduce the revenues that they obtain from the extraction of their natural resources - tax revenues that are less distortionary than in most OECD countries because the profits of these companies are well in excess of the required rate of return on capital in world capital markets. However, it should be noted that many countries have some form of rent resource tax (applying higher taxes on the excess element of an extraction company's profits). Thus, a reduction in regular corporate tax combined with an increase in (or introduction of) a rent resource tax could improve growth (by reducing distortions) while maintaining revenues.
3. While a relatively high share of corporate tax in total tax revenue is a characteristic of many developing countries, a high share of border tax revenue is another. Because border taxes raise such a small proportion of total revenue in OECD countries, they are usually included as part of consumption tax revenue. But, as noted in section 2, border taxes are much more harmful than other consumption taxes. Thus, the OECD results, should not be seen as justifying the maintenance - or even increase - of border tax revenues.

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<sup>3</sup> Although statistical tests suggested that they were sufficiently similar for an averaged 'typical effect', as reported in Table 1. to be meaningful.

No doubt there are many other examples from non-OECD countries as to how the relative economic costs of various taxes are different from that observed in OECD countries. Participants are encouraged to express their views on this issue.

#### **4. The trade off between growth and equity in tax design in different regions**

As briefly discussed in section 2, above, there is normally a trade-off between growth and equity in the design of the tax system. Income taxes are more redistributive than consumption taxes but - at least in OECD countries - appear to be more harmful to growth.

The nature of this trade-off and its policy relevance can differ substantially between countries for a wide range of reasons, including the ease with which adverse distributional consequences of tax changes can be mitigated by other policies. One important reason (mentioned at the end of section 2) is the fact that, in principle, it is usually more efficient to mitigate distributional consequences by the use of social benefits (such as by the use of child benefits) rather than by distorting the tax system (such as by the use of lower rates of VAT on items that form a high percentage of the expenditure of poor families with children).

This suggests that OECD countries, typically with higher expenditures on more complex social benefits, will find it easier to offset adverse distributional effects through the benefit system than most non-OECD countries.

However, it is important not to be too pessimistic about the possibly regressive effects of consumption taxes. Research in a number of countries in sub-Saharan countries has shown that they are frequently at least mildly progressive, because of the exemptions and low rates applied to basic goods. Although such selective tax reductions are not ideal from a theoretical point of view, this means that increases in revenues from consumption taxes could be a good way of raising the necessary revenues to finance growth-promoting investment without discouraging private sector investment or increasing inequality (especially if some of the investment helps the poor).

Another possible area of raising additional revenues for growth without harming income distribution or discouraging private sector investment is the greater use of property taxes. As mentioned in section 2, such taxes are often perceived as regressive, but experience in some OECD countries suggest that they can be designed to be at least mildly progressive, as richer people typically own more valuable property. However, the detail of the distributional effects of property taxes depend crucially on many institutional details that differ widely across countries. So, substantial detailed research on this topic in non-OECD countries is needed before the true potential of property taxes can be assessed.

Participants are encouraged to express their views on these points and to raise additional reasons why the tax-related tradeoff between growth and equity may vary between different regions.

## References

- Arnold, J.M., Brys, B., Heady, C., Johansson, A., Schwellnus, C. and Vartia, L. (2011), 'Tax policy for economic recovery and growth' *Economic Journal*, vol. 121, pp. F59-F80.
- Bleaney, M.F., Gemmell, N. and R. Kneller (2001). 'Testing the endogenous growth model: public expenditure, taxation and growth over the long-run.' *Canadian Journal of Economics*, vol. 34, pp. 36-57.
- Brewer, M., Saez, E. and Shephard, A. (2010). 'Means testing and tax rates on earnings.' In Institute for Fiscal Studies (2010), pp. 90-173.
- Institute for Fiscal Studies (2010). *Dimensions of Tax Design: The Mirrlees Review*. Oxford: Oxford University Press.
- Johansson, Å., Heady, C., Arnold, J., Brys, B. and Vartia, L. (2008). 'Tax and economic growth.' [\*OECD Economics Department Working Papers\*](#), No. 620.
- Kneller, R., Bleaney, M.F. and Gemmell, N. (1999). 'Fiscal policy and growth: evidence from OECD countries.' *Journal of Public Economics*, vol. 74, pp.171-190.
- Lucas, R.E. (1990). 'Supply-side economics: an analytical review.' *Oxford Economic Papers*, vol. 42, (April), pp. 293-316.