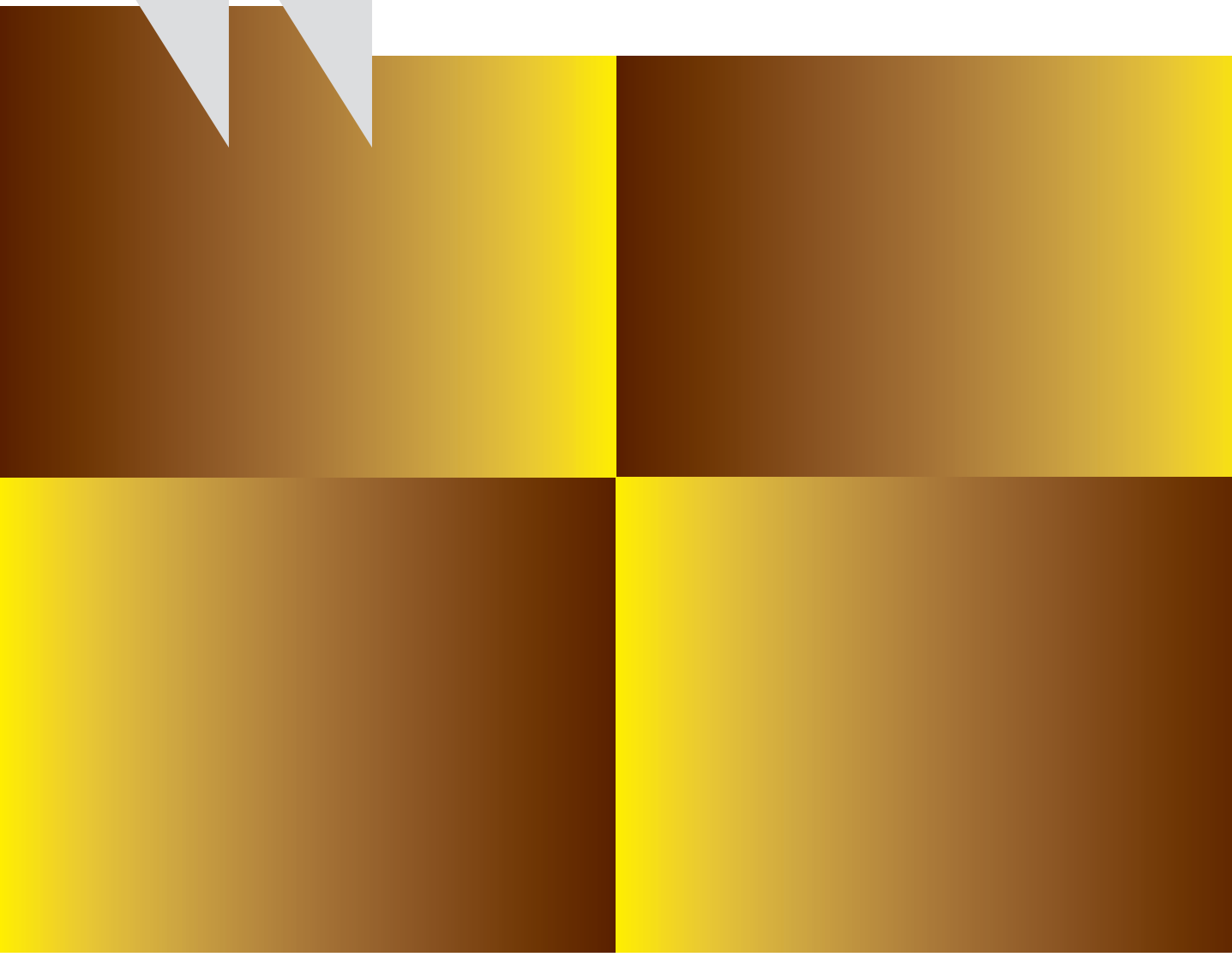
OECD Tax Policy Studies

Tax Policy Reform and Economic Growth



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Foreword

This report discusses how tax structures can best be designed to support GDP per capita growth. The analysis suggests a tax and economic growth ranking order according to which corporate taxes are the most harmful type of tax for economic growth, followed by personal income taxes and then consumption taxes, with recurrent taxes on immovable residential property being the least harmful tax. A revenue-neutral tax reform that shifts the balance of taxation more toward consumption and recurrent residential property taxes could thus strengthen the growth of output over the medium term.

Other "growth-oriented" tax reform measures include tax base broadening and a reduction in tax rates; and improving the extent to which the taxes correct for "externalities" – for instance, some degree of support for research and development through the tax system may help to increase private spending towards the socially desirable innovation level.

This report reviews the pros and cons of these "tax and growth" recommendations. The general tax base broadening recommendation does not imply that it would be optimal to abolish all tax expenditures, for instance. On the other hand, many tax expenditures are hard to justify from an efficiency or equity perspective. Tax reforms that broaden the VAT base and increase the recurrent taxes on immovable property are particularly likely to be worth considering.

Any tax reform needs to balance a number of competing objectives and trade-offs. The impact of "growth-oriented" tax reforms on revenues, the distribution of income, tax avoidance and evasion and tax compliance and enforcement costs all have to be taken into account. Fiscal federalism considerations, the transitional costs of changing tax systems and complex timing issues also have to be considered.

The report discusses the political economy of tax reform strategies. It notes the value of policy makers having a clear strategic vision and of high quality, robust tax policy analysis performed by respected research institutions. The framing of tax reform debates is crucial; tax systems should be considered as a whole rather than the sum of isolated taxes. Other strategies that may help to make growth-oriented tax reform actually happen include a well-designed communication strategy, a commitment to ex post evaluation of the tax reform outcomes, the design and timing of packages of reforms, a transparent tax reform process, the coordination of reforms across levels of government and resolving transitional issues. In all these areas experience underlines the importance of strong and committed political leadership.

This report has been prepared in the OECD Secretariat by Bert Brys. The report includes the "Tax and Economic Growth" study that was carried out jointly by the OECD's Economics Department and Centre for Tax Policy and Administration in 2008. This study has been previously published as an Economics Department Working Paper, *No. 620, and was prepared by Asa Johansson, Christopher Heady, Jens Arnold, Bert Brys and Laura Vartia. This joint ECO/CTP study is included as Chapters 1 and 2 and Annex B to this report. Chapters 3 to 6 have been prepared by Bert Brys. Parts of Chapters 3 and 4 have been previously published in the OECD book* Making

Reform Happen, Lessons from OECD Countries. *This study also draws on input from Delegates to the Working Party No. 2 on Tax Policy Analysis and Tax Statistics of the Committee on Fiscal Affairs. Annex A is based on a note written by the Delegate to Working Party No. 2 from Denmark, Thomas Larsen.*

Table of Contents

Tables

Figures

Executive Summary

This tax policy study considers the links between taxes and economic growth and the implications for tax policy. It then discusses the obstacles to fundamental tax reforms that are intended to strengthen economic growth and how they might best be addressed.

A country's rate of economic growth depends on many factors including the rate of economic growth of its main trading partners, the country's innovative capacity, the availability of venture capital, the amount and type of investment, the degree of entrepreneurship, the skills level and the mobility of the workforce, the flexibility of the labour market, the degree to which individuals have an incentive as well as an opportunity to participate in the labour market, the labour costs for employers of hiring workers, the availability of qualified workers, the administrative burden on businesses, product market regulations, the economic infrastructure as well as the legal certainty and the confidence level of consumers and businesses.

The tax system plays a crucial role as it is likely to impinge on many of these factors. The level of the taxes that are raised, the tax mix, the quality of the tax administration, the complexity of the tax rules and the tax compliance costs, the certainty and predictability for households and businesses of the taxes that have to be paid, the network of tax treaties as well as the specific design characteristics of individual taxes including the availability of tax incentives and the broadness of the different tax bases can have an impact on the country's rate of economic growth.

This study focuses on the impact of the tax mix and the design of individual taxes on the drivers of economic growth such as the employment level, the number of hours worked, capital deepening, human capital and the productive use of the factors of production, focusing also on the impact of taxes on entrepreneurship, R&D and innovation and FDI spillovers. This report focuses on tax structures rather than levels as cross-country differences in overall tax levels largely reflect societal choices as to the appropriate level of public spending, an issue that is beyond the scope of tax policy analysis. The report only briefly touches upon tax administration issues.

While there is not necessarily a direct link between economic growth and overall well-being, there are good reasons for OECD countries to try to increase the rate of economic growth. As well as increasing economic opportunity, higher levels of income and output should increase the level of public expenditure that can be regarded as "affordable" and make it easier to keep public debt within sustainable bounds. Many countries have been running large budget deficits as a result of the financial and economic crisis with strongly increased debt levels as a consequence. Reducing debt levels, also in light of ageing societies and the resulting higher pension and health costs, has been – or very likely will be – put high on the political agendas in many countries. Debt-to-GDP levels can be reduced

either by reducing spending or increasing taxes but also by increasing the GDP growth rate. Such considerations point to designing the tax system in such a way that it is the least negative for economic growth.

The report brings together the tax policy and economic growth work that has been undertaken by the Centre for Tax Policy and Administration since 2008. The report includes the "Tax and Economic Growth" study that was carried out jointly with the OECD's Economics Department in 2008 (OECD, 2008); this study has been previously published as an *Economics Department Working Paper*, No. 620. It is subsumed within Part I and Annex B of this report.

Chapter 1 of this report investigates how tax structures could best be designed to support GDP per capita growth. The analysis suggests a tax and economic growth ranking order according to which corporate taxes are the most harmful type of tax for economic growth, followed by personal income taxes and then consumption taxes, with recurrent taxes on immovable property being the least harmful tax. The explanation for these findings relates to the efficiency characteristics of the different taxes. Taxes that have a smaller negative impact on economic decisions of individuals and firms are less negative for economic growth. In general, income taxes have larger effects on firm and household decisions than (most) other taxes and therefore create larger welfare losses, ceteris paribus. A growth-oriented tax reform would therefore shift part of the tax burden from income to consumption and/or residential property.

Within individual main tax categories – property, consumption, personal and corporate income tax – there seems to be scope for making the design more conducive to economic growth by levying these taxes on a broader base, possibly at a lower rate, rather than providing targeted relief, except where such reliefs can be justified as externality-correcting. This includes moving to a single rate VAT and levying corporate tax on a broader base and with a lower rate. However, some degree of support for research and development through the tax system may help to increase private spending towards the socially desirable innovation level. Other growth-enhancing tax policies can include top marginal personal income tax rates that avoid undue damage to human capital formation and entrepreneurship, well-designed incentives to work at low earnings and externality-correcting specific taxes. A growth-oriented tax reform would therefore improve the design of a tax regime by broadening the tax base and lowering the tax rate and/or improve its externality correcting properties.

In general, a growth-oriented tax system may want to create as little obstacles as possible to the growth of economic activities. This implies also that tax systems may not want to discourage risk-taking, to discourage the possible inflow of high-skilled and other foreign workers and may want to stimulate not only the creation but also the adoption of domestic and foreign created intellectual property. Tax systems can contribute to the creation of an attractive business climate, implying also that the restructuring of business activities for economic purposes should not be discouraged, although governments may want to ensure that they receive their fair share of tax revenues. Growth-oriented tax systems contribute to the creation of a favourable e-business and e-commerce environment. A detailed discussion of these specific growth-oriented tax issues, however, goes beyond the scope of this report.

The tax policy changes that are most likely to increase growth in any particular OECD country will also depend on the starting point, in terms of both the current tax system and

the areas of relative economic weakness, such as employment, investment or productivity growth. Also, there may be limits to raising growth by changing tax structures since it is probable that there are diminishing growth returns to adjusting the tax mix.

Chapter 2 analyses trends in the breakdown of tax receipts by type of tax and in tax rates. The level and mix of taxation vary markedly across OECD countries but there have been a number of common trends. Many countries have cut top personal income tax rates as well as corporate tax rates while they have broadened especially the corporate income tax base. Countries have increased social security contributions over time. One-third of the OECD countries have a reduced corporate tax rate for small and medium-sized corporations and many countries provide a generous tax treatment of R&D investment. There has been an increased use of Value-Added Taxes (VAT) and a general trend to higher VAT rates but, on average, there has not been an increase in the use of indirect taxes, mainly as a result of the reduction in the share of excise duties and other taxes on specific goods and services. The share of property taxes has stayed relatively constant over time. There has also been growing interest in the use of environmentally-related taxes, but there has been no general upward trend in their revenues.

Part II of this Report discusses the main obstacles that policymakers can face when designing and implementing fundamental growth-oriented tax reforms and how these obstacles might be tackled. When reforming tax systems, policymakers have to weigh up the different goals that tax systems try to achieve. This often implies that difficult trade-offs will have to be made. For instance, policymakers will balance the efficiency and growth-oriented objectives of tax reform with their distributional impact, both in terms of horizontal and vertical equity. The impact of tax reforms on revenues, tax avoidance and evasion and tax compliance and enforcement costs will also have to be taken into account. Fiscal federalism considerations, the transitional costs of changing tax systems and complex timing issues will also have to be considered.

In addition, policy makers will have to face complex implementation, legal and tax administration issues. The design and implementation of tax reform will be influenced by the institutional context in which the reform occurs. Political economy factors will have an impact on the outcome of the tax reform process as well, for instance because policy makers might use the tax system to favour particular interest groups and increase the probability of being re-elected. Hence, in order to successfully implement growth-oriented tax reforms, policy makers will have to take into account the different administrative, institutional and political environment factors.

Chapter 3 discusses these different tax policy objectives and the most important environment factors that have an influence on the tax reform process, focusing on the circumstances that explain when these objectives and environment factors may become an obstacle to the implementation of growth-oriented tax policies. In addition to the different tax policy objectives from a public economics perspective, Chapter 3 will also focus on tax administration and political economy factors.

Chapter 4 identifies the tax reform strategies that might enable policymakers to reconcile tax policy objectives and successfully carry out growth-oriented reforms. Although the focus of the analysis is on such reforms, many of the tax reform strategies discussed in Chapter 4 are relevant to other fundamental tax reforms.

The chapter argues that the framing of tax reform debates is critical: by considering the tax system as a whole (or even the tax-and-benefit system, when the taxation of labour

income is at issue), rather than focusing on isolated elements, policy makers can better communicate the issues involved, as well as address issues of efficiency and equity. This points to the potential for advancing reforms via broad packages that reduce distortions in the system while spreading both benefits and adjustment costs widely. In particular, this will allow policy makers to compensate those who will lose out as a result of the tax reform. Concession to potential losers, however, need not compromise the essentials of the reform. Policy makers may therefore aim at improving the prospects of particular groups that will be affected by tax reform without contradicting its overall aims.

Since tax reform is likely to be a lengthy and complex process, Chapter 4 also argues that articulating broad aspirational goals can help to clarify the meaning of reform for taxpayers and voters, while also making it easier to resist special interest lobbies. Tax reform proposals have to be underpinned by solid research and analysis. An evidence-based and analytically sound case for reform serves both to improve the quality of policy and to enhance prospects for reform adoption. If reform advocates can build a broad consensus on the merits of a reform, they will be in a stronger position when dealing with its opponents. There is often a role for independent bodies charged with assessing the likely impact of proposed reforms on taxpayer behaviour, revenues, equity and ease of administration; the role of the tax administration, in particular, is often critical. Finally, the timing of implementation can be critical. Changes in business taxation, in particular, can have disruptive effects on firms if they are not phased in appropriately; similar problems can also arise in conjunction with changes to recurrent taxes on immovable property or the tax treatment of home ownership.

Part III of the report re-evaluates the "tax and growth recommendations" (from the earlier *Economics Department Working Paper* [OECD, 2008]) and discusses them in light of the need to restore sound public finances in many OECD countries.

Chapter 5 focuses on growth-oriented tax reform design considerations. The discussion provides a nuanced analysis of the pros and cons of some of the specific growth-oriented tax reforms. The recommendation to broaden the different tax bases, for instance, does not necessarily imply that it would be optimal to abolish all tax expenditures. The chapter discusses tax base broadening *versus* the use of tax expenditures, VAT base broadening, recurrent taxes on immovable property and corporate and personal income tax reform strategies respectively. This analysis is not an attempt to undermine the "tax and growth" recommendations. On the contrary, a nuanced analysis of the pros and cons of specific growth-oriented tax reforms might reduce some of the (mainly political) obstacles against these reforms. In addition, the discussion in Chapter 5 presents and discusses also tax-specific strategies that might help overcoming the obstacles against the implementation of the "tax and growth" recommendations.

The "tax and growth" recommendations as well as the strategies to overcome the tax reform obstacles are of special interest in light of the financial and economic crisis. Chapter 6 argues that a crisis might facilitate tax reform. The political economy obstacles against fundamental tax reform might be easier to overcome during a crisis, especially because of the increased pressure to raise more tax revenue in order to restore public finances and because of the pressing need to tackle the economic problems and to put the economy back on a high-growth path. A crisis might make the implementation of tax reform more likely because it undermines the power of vested interest groups and it might imply that opponents of reform may change their perspective because they start to gain of

reform as well. A crisis might create a sense of urgency which creates a "window of opportunity" for reform which otherwise would have been blocked. On the other hand, a crisis might make fundamental tax reform even more difficult to implement, especially because large groups of taxpayers are strongly affected by the crisis.

Many OECD countries need simultaneously to restore sound public finances and the growth of potential output. Chapter 6 of this report argues that the "tax and growth" recommendations continue to hold in these circumstances. The chapter does however recognize that the crisis seems to have created additional obstacles that might imply that the immediate implementation of some of the growth-oriented tax recommendations is hampered, at least in the short run. This however does not imply that governments should not start preparing such reforms. In order to increase recurrent taxes on immovable property in an equitable way, for instance, governments need to set up a proper system for the valuation of real property. A broadening of the VAT base by abolishing many of the VAT exemptions and reduced rates requires that the distributional impact of such a reform is analysed carefully; this allows governments to consider accompanying measures that could compensate the losers of the reform such as low-income workers and pensioners.

PART I

Taxation and Economic Growth Recommendations and Reforms in OECD Countries

PART I

Chapter 1

Growth-oriented Tax Policy Reform Recommendations

Tax systems are primarily aimed at financing public expenditures.[1] Tax systems are also used to promote other objectives, such as equity, and to address social and economic concerns. They need to be set up to minimise taxpayers' compliance costs and government's administrative cost, while also discouraging tax avoidance and evasion. But taxes also affect the decisions of households to save, supply labour and invest in human capital, the decisions of firms to produce, create jobs, invest and innovate, as well as the choice of savings channels and assets by investors. What matters for these decisions is not only the level of taxes but also the way in which different tax instruments are designed and combined to generate revenues (what this chapter will henceforth refer to as *tax structures*). The effects of tax levels and tax structures on agents' economic behaviour are likely to be reflected in overall living standards. Recognising this, over the past decades many OECD countries have undertaken structural reforms in their tax systems. Most of the personal income tax reforms have tried to create a fiscal environment that encourages saving, investment, entrepreneurship and provides increased work incentives. Likewise, most corporate tax reforms have been driven by the desire to promote competition and avoid tax-induced distortions. Almost all of these tax reforms can be characterised as involving rate cuts and base broadening in order to improve efficiency, while at the same time maintain tax revenues.

This report focuses on tax structures rather than levels, which is desirable because cross-country differences in overall tax levels largely reflect societal choices as to the appropriate level of public spending, an issue that is beyond the scope of tax policy analysis. Conversely, investigating how tax structures could best be designed to promote economic growth is a key issue for tax policy making. Yet, in practice, it is hard to completely separate the analysis of the overall tax burden from that of tax structure: countries that have a relatively high level of taxes may also have a tax structure that differs from that of other countries, and the response of the economy to a change in the tax structure varies across countries, depending on their tax level. Even more importantly, fully disentangling the revenue raising function of the tax system from its other objectives, *e.g.* equity, environmental or public health matters is difficult. In order to make the assessment of the effects of the tax structure on economic performance manageable, these objectives are not dealt with in great detail in this study, except when there is a clear trade off between them and tax reforms aimed at raising GDP per capita. Nevertheless, the ways in which governments use the tax system to achieve these other objectives have been extensively studied by the OECD (for instance, see OECD, 2005c, on equity and OECD, 2006d, on the environment).

Most of the discussion on the link between changes in the tax structure and economic performance focuses on the effects on GDP levels. This report, however, recognises that in practice it may be difficult to distinguish between effects on levels and growth rates. Indeed, any policy that raises the level of GDP will increase the growth rate of GDP because effects on GDP levels take time. Also, transitional growth may be long-lasting, and so it has not proved possible to distinguish effects on long-run growth from transitional growth

effects, although some elements of the tax system are likely to have a bearing for long-run growth. For instance, it is possible that taxes that influence innovation activities and entrepreneurship may have persistent long-run growth effects, while taxes that influence investment also can have persistent effects on growth but these will fade out in the long-run. In contrast, taxes affecting labour supply will mainly influence GDP levels. In this spirit, this report looks at consequences of taxes for both GDP per capita levels and their transitional growth rates, with a large part of the empirical analysis (see Annex B) devoted to assessing the effects of different forms of personal and corporate income taxation on total factor productivity growth.

In open economies the design of a national tax system will need to consider the design of tax systems in other countries, since countries are increasingly using their tax systems to improve their ability to compete in global markets. Globalisation may also increase the opportunities for tax avoidance and evasion especially as concerns mobile capital income tax bases. Therefore, the mobility of the tax base plays some part in the design of tax reforms at the national level, and increased international tax policy co-operation among countries may allow for efficiency gains in some areas (for a discussion on this see Box 1.1).

However, there are important issues that are addressed only cursorily. First, optimal taxation, or how to minimise the excess burden of taxation, is an important topic that is largely outside the scope of this report, although some references are made to the main insights provided by research in this area. Likewise, tax incidence, or who bears the burden of a tax, is not explicitly addressed in this work, except when it has implications for the way the tax structure affects the determinants of growth.

Second, the transition costs of tax reform are not considered in the empirical analysis. These include not only the costs to the public administration but also the costs to businesses in adapting to policy changes. In some circumstances, it might also include the costs of "grandfathering" some of the old tax provisions (or some other form of compensation) if taxpayers have made substantial investments based on the expectation that these provisions would be maintained. The existence of these costs implies that tax reform will only be attractive if it can be expected to produce offsetting gains in economic performance. These issues will be discussed in Chapter 3 of this report.

Against this background, this chapter summarizes the main findings of the OECD project on the effects of changes in tax structures on GDP per capita and its main determinants. This study was carried out jointly by the OECD's Economics Department and Centre for Tax Policy and Administration in 2008 (OECD, 2008). This study, which is included as Annex B to this report, reviewed tax structures and general trends in taxes that are particularly relevant for growth and investigated how the structure of the tax system can have an impact on GDP per capita through its components, labour utilisation and labour productivity. The study also discussed the impact on performance of each of the main categories of taxes (consumption, property, personal and corporate taxation) and drew some conclusions concerning efficient tax design in each of these areas. In the light of this discussion, the report also sketched possible reform avenues for moving towards an overall tax structure that may enhance aggregate economic performance, conditional on the specificities of each country.

Box 1.1. **The role of Globalisation**

Globalisation – the increased openness of economies to trade and investment combined with reduced transport costs and improve communications – has several effects that need to be taken into account in formulating tax policy:

- Taxes can affect the costs of producing goods and services, and so change the relative international competitiveness of some sectors, prompting structural changes.
- Tourism and cross-border shopping mean that even VAT and sales taxes, which do not normally apply to exports, can influence the demand of foreign residents for domestically produced goods and services.
- Personal income taxes can influence workers, particularly those who are highly paid, in the choice of the country in which they work.
- Corporate income taxes can influence the choice of location of factories and offices. The tax system is only one factor among many in improving countries' competitiveness otherwise there would have been a large outflow of capital and activities from high to low tax countries, but there is evidence that location decisions are becoming more sensitive to tax.

These factors mean that individual countries are likely to make different tax policy choices from those they would have made in the past, when there was less mobility. Also, as mobility depends on relative tax rates and is most likely to take place between nearby countries, it also means that groups of countries (such as the European Union) may be differently affected when they co-ordinate tax policy changes than would their individual member countries acting alone.

It is generally assumed that choices related to corporate taxation are most affected by globalisation because of the ease with which multinational enterprises can move the location of at least some of their activities. However, highly skilled workers are also becoming more mobile and some countries are taking this into account in designing their personal tax systems. In contrast, the taxation of lower-skilled workers and of consumption is seen as being less affected by globalisation because these tax bases are less mobile. Finally, the taxation of immovable property is seen as the least affected by globalization.

The effects of this general ranking can be seen in the discussion of taxation trends in Chapter 2, with tax rates falling most for the more mobile tax bases. The ranking can also be expected to be a major factor driving the empirical results reported in this Report, as countries that ignore the pressures of globalisation may be expected to grow more slowly. But, a shift in the tax structure from mobile income taxes to less mobile taxes, such as consumption taxes, would reduce progressivity since consumption taxes are in general less progressive than income taxes. Therefore, such tax shifts imply a trade-off between growth enhancing tax reforms and equity.

1.1. Broad policy options for reforming the overall tax mix

The tax policy changes that are most likely to increase growth in any particular country will depend on its starting point, in terms of both its current tax system and the areas (such as employment, investment or productivity growth) in which its current economic performance is relatively poor. The discussed reforms should be seen as small tax changes rather than suggesting that shifting the revenue base entirely to one particular tax instrument provides more of a growth bonus since it is probable that there are diminishing growth returns to adjusting taxes.

The analysis in this report suggests some general policy options that could be considered. The reviewed evidence and the empirical work suggests a "tax and growth

ranking" with recurrent taxes on immovable property being the least distortive tax instrument in terms of reducing long-run GDP per capita, followed by consumption taxes and other property taxes as well as environmentally-related taxes, personal income taxes and corporate income taxes.

The explanation for these findings relates to the "static" and "dynamic" efficiency[2] characteristics of the different taxes. Taxes that have a smaller negative impact on economic decisions of individuals and firms are less negative for economic growth. In general, income taxes have larger effects on firm and household decisions than (most) other taxes – in terms of "static" but especially in terms of "dynamic" efficiency – and therefore create larger welfare losses, ceteris paribus.

A revenue neutral growth-oriented tax reform would therefore shift part of the revenue base from income taxes to less distortive taxes. Taxes on residential property are likely to be best for growth, also because they could contribute to the usage of underdeveloped land and because most OECD countries provide various tax preferences for owner-occupied housing (such as deductibility of interest on house loans and exemptions from capital gains tax), which result in a misallocation of capital towards housing, away from other investments. In this situation, the pre-tax rate of return on housing investment is below the pre-tax rate of return on investment elsewhere in the economy. 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 also have the benefit of shifting investment out of housing into higher-return activities. However, they have the disadvantage of discouraging housing transactions and thus the reallocation of housing to its most productive use, thus reducing growth. For example, property transaction taxes discourage people from buying and selling houses and so discourage them from moving to areas where their labour is in greater demand. Also taxes on financial transactions are highly distortionary. Net wealth taxes and especially inheritance taxes, however, are potentially less distortionary (see Section B.1.2).

The scope for switching revenue to recurrent taxes on immovable property is limited in most countries both because these taxes are currently levied by sub-national governments and because these taxes are particularly unpopular. Hence, despite the

Box 1.2. **Tax and growth definitions**

The following definitions are used throughout the report:

"***Tax and growth*" *recommendations*:** a revenue-neutral tax reform that *a)* shift the burden of taxation from income to consumption and/or residential property, or *b)* improve the design of a tax regime by broadening the tax base and lowering the rate and/or improves its externality-correcting properties.*

***Growth-oriented tax reform*:** a reform that is in line with the "tax and growth recommendations", but with the caveat that shifting the burden of taxation towards consumption and property taxes may only be desirable where these taxes and reform are themselves well-designed.

***Fundamental tax reform*:** a reform that makes radical changes to a tax base and rate, or involves a significant change in the composition of the tax burden.

* The OECD "tax and growth" recommendations were first published in: OECD (2008), "Tax and economic growth", *Economics Department Working Paper*, No. 620. This working paper is subsumed within Part I and Annex B of this report.

advantages of drawing on an immovable tax base in a period of globalisation, few countries manage to raise substantial revenues from property taxes, with returns on housing generally taxed more lightly than returns on other assets.

In practical policy terms, a greater revenue shift could probably be achieved into consumption taxes. Consumption taxes can affect labour supply by reducing the real value of wages but are otherwise seen as neutral. For example, they do not discourage savings and investment. Also, they are normally applied on a destination basis – applied to imports and refunded/exempted on export – and so do not affect the behaviour of firms that produce internationally traded goods. They can distort the behaviour of firms producing non-traded goods if applied at non-uniform rates, but the spread of general consumption taxes, such as VAT, means that consumption taxes are more uniform now than they used to be in most OECD countries although reduced VAT rates are still common. Thus, consumption taxes can be expected to have smaller negative effects on growth, although they do not have the advantages of recurrent taxes on immovable property.

However, with consumption taxes being less progressive than personal income taxes, or even regressive, a shift in the tax structure from personal income to consumption taxes would reduce progressivity. Similarly, shifting from corporate to consumption taxation would increase share prices (by increasing the after-tax present value of the firm) and wealth inequality as well as increasing income inequality by lowering capital income taxation. Such tax shifts therefore imply a non-trivial trade-off between tax policies that enhance GDP per capita and equity, which is likely to be evaluated differently across OECD countries.

Looking within income taxes, personal income taxes are seen as more harmful to growth than consumption taxes for two reasons. First, they are generally progressive, with marginal tax rates that are higher than their average rates. 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. There is evidence that flattening the tax schedule could be beneficial for GDP per capita, notably by favouring entrepreneurship (once again, this implies a trade-off between growth and equity). Second, they typically tax the return to savings (interest or dividends) in addition to taxing the income from which savings are made, thus discouraging savings. While this second effect may not harm the growth of publicly quoted companies that can raise funds overseas, it can reduce the growth financing for small and medium-sized companies.

Corporate income taxes are the most harmful for growth as they discourage the activities of firms that are most important for growth: investment in capital and productivity improvements. In addition, most corporate tax systems have a large number of provisions that create tax advantages for specific activities, typically drawing resources away from the sectors in which they can make the greatest contribution to growth. However, lowering the corporate tax rate substantially below the top personal income tax rate can jeopardize the integrity of the tax system as high-income individuals will attempt to shelter their savings within corporations.

However, changing the balance between different tax sources should not been seen as a substitute for improving the design of individual taxes. Indeed, the reform of individual taxes can complement a revenue shift. For example, broadening the base of consumption taxes is a better way of increasing their revenues than rate increases, because a broad base improves efficiency and eases administration and compliance while a high rate encourages the growth of the shadow economy. A single VAT rate could be accompanied by

specific consumption taxes in cases where they can reduce environmental change, discourage unhealthy consumption or encourage labour supply. More generally, most taxes would benefit from a combination of base broadening and rate reduction.

1.2. Possible avenues for tax reforms to enhance the performance of labour utilisation, investment and productivity

This section discusses different avenues for tax reforms that might enhance the performance of labour utilisation, investment and productivity.

Labour utilisation

Reforms of labour income taxation will generally have to differ depending on whether the aim is to raise participation or hours worked. Reducing average labour taxes – either directly through tax rate decreases or indirectly through the implementation of earned income tax credits or other "in-work benefits" policies – could be desirable for raising participation, while lowering marginal rates may be preferable for increasing hours worked. Any such reform should, however, take into account joint effects with existing benefits, which could affect the effective average and marginal tax rates, particularly for low-skilled workers or second-earners. Also, reductions in the marginal tax rate will lead to greater income inequality. Moreover, the effects of changes in labour taxes on employment are also likely to be dependent on labour market institutions, such as wage-setting mechanisms and minimum wages, which affect the pass through of taxes on to labour cost.

There may also be gains, both in the quantity and the quality of labour supply, from reducing the progressivity of the personal income tax schedule. Estimates included in Annex B point to adverse effects of highly progressive income tax schedules on GDP per capita through both lower labour utilisation and lower productivity (see below) partly reflecting lesser incentives to invest in higher education. Again, this implies a potential trade-off between growth-enhancing tax policies and distributional concerns. However, there may be win-win labour tax reforms in this area. For example, "in-work benefits" increase the income of low-income households, thus reducing inequality, and may also improve efficiency if the gain in labour force participation outweighs the adverse incentives on hours worked by job-holders (as benefits are withdrawn) and on human capital formation (as the returns from up-skilling are reduced) as well as the distortionary costs of the tax increases that are needed to finance the in-work benefits.

Investment

Reducing corporate tax rates and removing special tax relief can enhance investment in various ways.

- Especially, if the primary aim is to reduce distortions that hold back the level of domestic investment and to attract foreign direct investment, reducing the corporate tax rate may be preferable to reducing personal income taxes on dividends and capital gains.
- Evidence included in Annex B suggests that favourable tax treatment of investment in small firms may be ineffective in raising overall investment.
- Lowering the corporate tax rate and removing differential tax treatment may also improve the quality of investment by reducing possible tax-induced distortions in the choice of assets.
- Providing greater certainty and predictability in the application of corporate income taxes may lead to higher investment, which in turn, could enhance growth performance.

Productivity

There are several ways in which tax policy can influence productivity:

- One option is to reduce the top marginal statutory rate on personal income since it has an impact on productivity via entrepreneurship by affecting risk taking by individuals. While empirical research has pointed to conflicting ways in which entrepreneurship could be affected, in this report a reduction in the top marginal tax rate is found to raise productivity in industries with potentially high rates of enterprise creation. Thus reducing top marginal tax rates may help to enhance economy-wide productivity in OECD countries with a large share of such industries, though the trade off with equity objectives needs to be kept in mind. It is also possible that cutting top marginal tax rates could increase economy-wide productivity through composition effects, by increasing the share of industries with high rates of enterprise creation.
- A second option is to reform corporate taxes, as they influence productivity in several ways. Evidence included in Annex B suggests that lowering statutory corporate tax rates can lead to particularly large productivity gains in firms that are dynamic and profitable, *i.e.* those that can make the largest contribution to GDP growth. It also appears that corporate taxes adversely influence productivity in all firms except in young and small firms since these firms are often not very profitable. One possible implication is that tax exemptions or reduced statutory corporate tax rates for small firms might be much less effective in raising productivity than a generalised reduction in the overall statutory corporate tax rate. This reduction could be financed by scaling down exemptions granted on firm size as they may only waste resources without any substantial positive growth effects.
- A widely-used policy avenue to improve productivity is to stimulate private-sector innovative activity by giving tax incentives to R&D expenditure. This report (see Annex B) finds that the effect of these tax incentives on productivity appears to be relatively modest, although it is larger for industries that are structurally more R&D intensive. Nonetheless, tax incentives have been found to have a stronger effect on R&D expenditure than direct funding.
- Lower corporate and labour taxes may also encourage inbound foreign direct investment, which has been found to increase productivity of resident firms. In addition, multinational enterprises are attracted by tax systems that are stable and predictable, and which are administered in an efficient and transparent manner.

Again, it needs to be emphasised that policy makers will need to examine very carefully the trade-off between these growth-enhancing proposals and other objectives of tax systems – particularly equity. These trade-offs will be discussed in more detail in Chapters 3 and 4 of this report.

Notes

1. This first chapter draws on OECD (2008), "Tax and economic growth", *Economics Department Working Paper*, No. 620 as well as on C. Heady, A. Johansson, J. Arnold, B. Brys and L. Vartia (2009), "Tax policy for economic recovery and growth".
2. "Static" efficiency refers to the short run; it requires that the economy operates as efficiently as possible within a given production process defined by the available technology and organisational systems. "Dynamic" efficiency looks at the longer term, referring to the rate at which the economy's capacity to produce outputs improves over time. Dynamic efficiency implies being efficient in terms of innovation, investment in human capital, entrepreneurship, etc.

PART I

Chapter 2

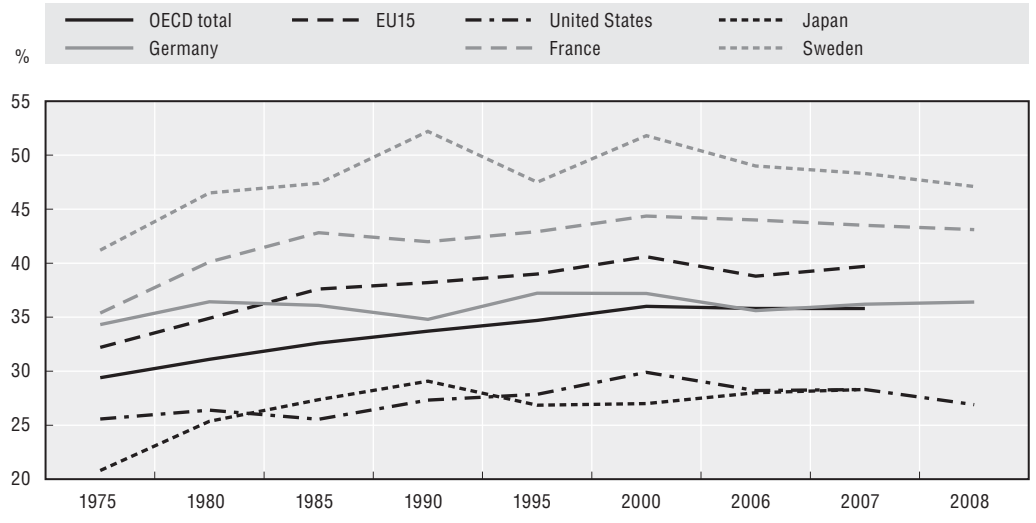
How Do Trends in the Composition of Tax Receipts and in Tax Rates Compare with the "Tax and Growth" Recommendations?

The level and mix of taxation vary markedly across OECD countries but there have been a number of common trends.Many countries have cut personal and corporate tax rates while broadening the tax base and increasing social security contributions. Meanwhile, there has been an increased use of value-added taxes and a general trend to higher VAT rates. The data presented in this chapter shows to which degree countries have followed strategies with regard to the composition of tax revenues and changes in statutory tax rates that are similar to the "tax and growth" recommendations. The analysis also helps to identify the most severe "tax and growth" obstacles.

2.1. The level of taxation

Between 1975 and 2008, there has been a persistent and largely unbroken upward trend in the ratio of tax to GDP across the OECD area increasing on average in the OECD by over six percentage points of GDP (Figure 2.1) followed by some more recent signs of stabilisation in the tax revenue in the OECD as a whole. Several countries deviate from this trend. Greece, Italy, Korea, Portugal, Spain and Turkey all increased their tax to GDP ratios by more than ten percentage points over the period (although all starting from lower than average tax levels), while the increase for Canada, Germany, Norway, the United Kingdom and the United States was less than three percentage points and the Netherlands experienced a fall in the ratio of over three percentage points. In addition, the Czech Republic, Hungary, Poland and the Slovak Republic have reduced their ratios since joining the OECD. Measures of total tax to GDP ratios are routinely used for international comparisons of overall tax burdens, but these measures can be influenced by measurement issues. For example, in some countries transfers to households (such as benefits) are taxed in the same way as earnings, in others

Figure 2.1. **Tax-to-GDP ratios in the OECD area, 1975-2008**



Source: OECD (2009), *Revenue Statistics* 1965-2008.

they are taxed at reduced rates, consequently affecting the measure of the tax to GDP ratio.[1] Despite these conceptual and statistical problems, it is useful for policy analysis to consider the level and structure of taxation distinctly.

2.2. The tax mix

Despite some significant differences in the distribution of the tax burden between tax instruments, most OECD countries extract the bulk of revenue from three main sources: income taxes, taxes on goods and services, and social security contributions (other payroll taxes are zero or very small in most countries). The share of total tax revenue accounted for by these three main tax instruments has evolved over time (see Table 2.1 for the unweighted OECD averages). Some of these changes in the tax mix are endogenous while others are policy induced. Globalisation and the increased openness of economies may also be one factor driving the recent trends in taxation in OECD countries (Box 1.1). The main patterns for the OECD unweighted average over the last thirty years can be summarised as follows, although there are significant variations across countries in both the shares of individual taxes (Figure 2.2) and the trends:

- There has been a reduction in the share of tax revenue accounted for by personal income tax, although the share has been fairly constant in Austria, Greece, Italy and the United Kingdom. In Canada, France and Iceland, the personal income tax revenue share has increased considerably.
- There has been a continuously growing share of social security contributions, which by 2007 accounted for 25 per cent of total tax revenues, apart from France, Italy, the Netherlands and Spain where the share has decreased.
- The share of the corporate income tax in total tax revenues has increased in the majority of the OECD countries.
- The share of taxes on consumption (general consumption taxes plus specific consumption taxes) has declined gradually, but the mix of taxes on goods and services has changed markedly towards the greater use of general consumption taxes, particularly VAT. However, in Belgium, Italy and the United States, the share of general consumption taxes remained rather constant while it decreased in Austria, France, Iceland, Norway and Turkey.
- The share of property taxes (on immovable property, net wealth, inheritances and legal transactions) has been approximately constant but not in France, Ireland, Korea, Luxembourg and Spain where the share has increased by more than 2.5 percentage points since 1980 and in New Zealand where it decreased more than 2.5 percentage points.

Figure 2.2 ranks countries in increasing order in the share of direct taxes (corporate and personal income taxes, social security contributions and payroll taxes) in total tax revenues in 2007. Direct taxes are 44.4 per cent of total tax revenues in Mexico and 45.4 per cent in Turkey, while direct taxes raise respectively 72.4 per cent and 72.8 per cent of total tax revenues in the United States and Japan.

The data in Figure 2.2 should be interpreted with care, as countries with a lower share of indirect taxes can still raise more revenue from indirect taxes than countries with a higher share of indirect taxes in total tax revenue. Moreover, the tax revenue data on property taxes also includes the revenues of taxes on business assets and stamp duties on transactions, which are highly distortive.

Table 2.1. **Revenue shares of the major taxes in the OECD area**

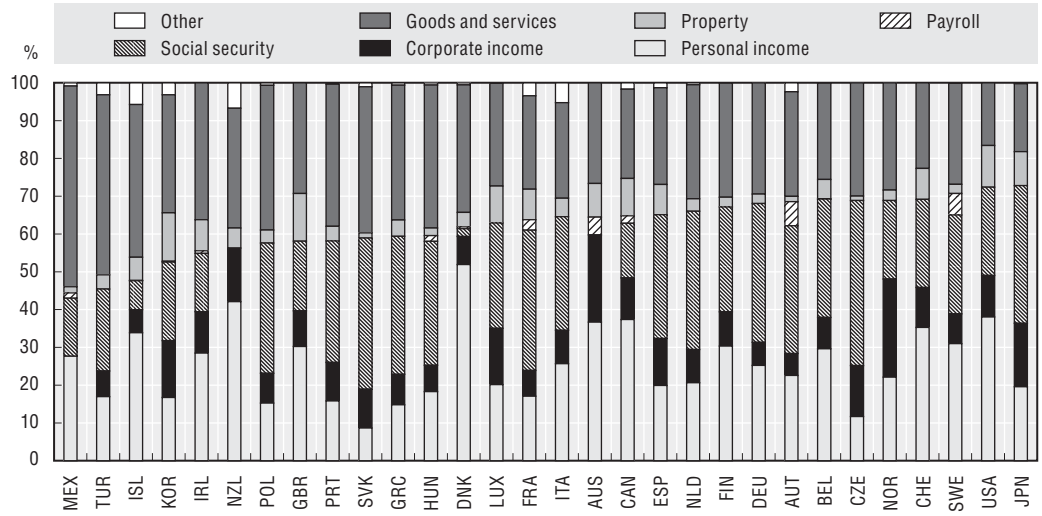
	1975	1980	1985	1990	1995	2000	2005	2007
Personal income tax	30	31	30	30	27	26	25	25
Corporate income tax	8	8	8	8	8	10	10	11
Social security contributions[1]	22	22	22	22	25	24	26	25
(employee)	*(7)*	*(7)*	*(7)*	*(8)*	*(8)*	*(8)*	*(8)*	*(9)*
(employer)	*(14)*	*(14)*	*(13)*	*(13)*	*(14)*	*(14)*	*(15)*	*(15)*
Payroll taxes	1	1	1	1	1	1	1	1
Property taxes	6	5	5	6	6	5	6	6
General consumption taxes	15	15	16	17	18	18	19	19
Specific consumption taxes	18	17	16	13	13	12	11	11
Other taxes[2]	1	0	1	3	3	3	3	3
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

1. Including social security contributions paid by the self-employed and benefit recipients (heading 2300) that are not shown in the breakdown over employees and employers.
2. Including certain taxes on goods and services (heading 5200) and stamp taxes.

Source: OECD (2009), *Revenue Statistics* 1965-2008.

Figure 2.2. **Composition of tax revenues, 2007**[1]

Percentage points of total tax revenue



1. Countries are ranked in increasing order according to the share of direct taxes – the sum of personal income taxes, corporate income taxes, social security contributions and payroll taxes (respectively categories 1100, 1200, 2000 and 3000 in Revenue Statistics) – in total tax revenues. For Mexico, personal income tax revenues include all taxes on income including corporate income.

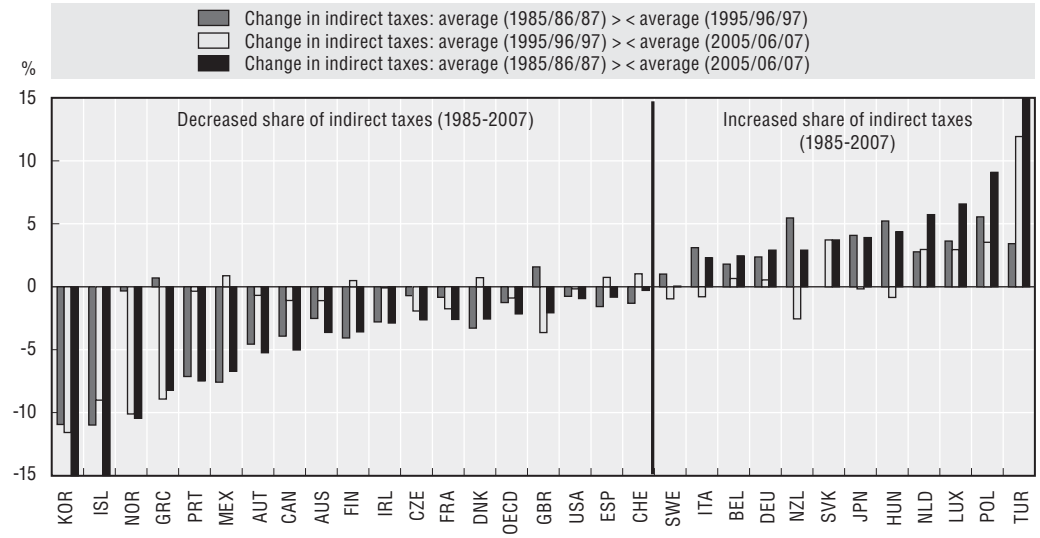
Source: OECD (2009), *Revenue Statistics* 1965-2008.

Figure 2.3 shows the change in the share of indirect tax revenues as a percentage of total tax revenue for OECD countries – comparing the average revenues in 1985-1986-1987 with the average revenues in 1995-1996-1997 and the average revenues in 2005-2006-2007. All taxes on goods and services and property taxes are considered to be "indirect" taxes.

Twelve (respectively eighteen) countries have increased (respectively decreased) their share of indirect taxes since 1985. The unweighted OECD average share of indirect taxes has decreased by 2.1 percentage points. Twelve countries have increased the share of indirect taxes since 1996. The strongest reduction in the share of indirect taxes over the period 1985-2007 can be observed in Korea (–22.5 percentage points) and Iceland (–20 percentage points). Poland (+9.1 percentage points over the period 1991-2007) and

Figure 2.3. **Changes in the direct-indirect tax mix over time**[1]

Percentage points of total tax revenue



1. Countries are ranked in the change in the share of indirect taxes in total tax revenue since the middle of the 1980s in increasing order. Average indirect tax revenues for the period 1985-1986-1987 have been compared with average indirect tax revenues for the period 1995-1996-1997, which have been compared with average indirect tax revenues for the period 2005-2006-2007. The overall change is the sum of the changes in indirect taxes in the two sub periods included in the graph. Some data was not available in the following countries (first year for which data was available to rank countries is shown in brackets): Hungary (1991), Poland (1991), the Czech Republic (1993) and the Slovak Republic (1998); for these countries, the average revenue for the first three years for which data was available has been used. Indirect taxes are the sum of property taxes and taxes on goods and services, which are respectively categories 4000 and 5000 in Revenue Statistics (2009). Direct taxes reflect income taxes, social security contributions and payroll taxes, respectively category 1000, 2000 and 3000 in Revenue Statistics. The difference between the change in direct and indirect taxes is attributable to the change in "other taxes" (Category 6000 in *Revenue Statistics* [2009]). The tax revenues reported in income category 6000 are very small in most countries; the revenue in income category 6000 has strongly changed over time only in Italy (revenue in 2007 increased to 5.9 per cent of overall tax revenue) and Turkey (revenue in 2007 decreased to 3.2 per cent of overall tax revenue).

Source: OECD (2009), *Revenue Statistics* 1965-2008.

Turkey (+15.3 percentage points) are the OECD member countries that have increased their share of indirect taxes the most. Other countries that have increased the share of indirect taxes with more than 4 percentage points since 1985 are Hungary (+4.4 percentage points since 1991), the Netherlands (+5.7 percentage points) and Luxembourg (+6.6 percentage points). Figure 2.3 confirms that there has not been any general trend in OECD countries from direct to indirect taxation (see also the analysis in the Special Feature in Revenue Statistics, 2007b).

The remainder of this section briefly reviews the most important changes to consumption taxes, property taxes, personal income taxes and corporate income taxes in the past thirty years.

Consumption taxes

As shown above, the main changes to consumption taxes have been the decline in the revenue share of specific consumption taxes (such as the excise duties on alcohol, tobacco and vehicle fuels) and the large rise in revenues from general consumption taxes. The main factor behind the growth of general consumption tax revenues has been the spread of VAT – the United States is now the only OECD country that does not use VAT – and the gradual increase in the rates applied in many countries (Table 2.2).

Table 2.2. **The evolution of standard value-added tax rates**

	Implemented	1975	1980	1985	1990	1995	2000	2005	2010
Australia	2000	–	–	–	–	–	10	10	10
Austria	1973	16	18	20	20	20	20	20	20
Belgium	1971	18	16	19	19	20.5	21	21	21
Canada	1991	–	–	–	–	7	7	7	5
Chile	1975	20	20	20	16	18	18	19	19
Czech Republic	1993	–	–	–	–	22	22	19	20
Denmark	1967	15	22	22	22	25	25	25	25
Finland	1994	–	–	–	–	22	22	22	22
France	1968	20	17.6	18.6	18.6	20.6	20.6	19.6	19.6
Germany	1968	11	13	14	14	15	16	16	19
Greece	1987	–	–	–	18	18	18	19	19
Hungary	1988	–	–	–	25	25	25	20	25
Iceland	1989	–	–	–	22	24.5	24.5	24.5	25.5
Ireland	1972	19.5	25	23	23	21	21	21	21
Italy	1973	12	15	18	19	19	20	20	20
Japan	1989	–	–	–	3	3	5	5	5
Korea	1977	–	10	10	10	10	10	10	10
Luxembourg	1970	10	10	12	12	15	15	15	15
Mexico	1980	–	10	15	15	15	15	15	16
Netherlands	1969	16	18	19	18.5	17.5	17.5	19	19
New Zealand	1986	–	–	–	12.5	12.5	12.5	12.5	12.5
Norway	1970		20	20	20	23	23	25	25
Poland	1993	–	–	–	–	22	22	22	22
Portugal	1986	–	–	–	17	17	17	21	20
Slovak Republic	1993	–	–	–	–	23	23	19	19
Spain	1986	–	–	–	12	16	16	16	16
Sweden	1969	17.65	20.63	23.46	23.46	25	25	25	25
Switzerland	1995	–	–	–	–	6.5	7.5	7.6	7.6
Turkey	1985	–	–		10	15	17	18	18
United Kingdom	1973	8	15	15	15	17.5	17.5	17.5	17.5
United States	–	–	–	–	–	–	–	–	–

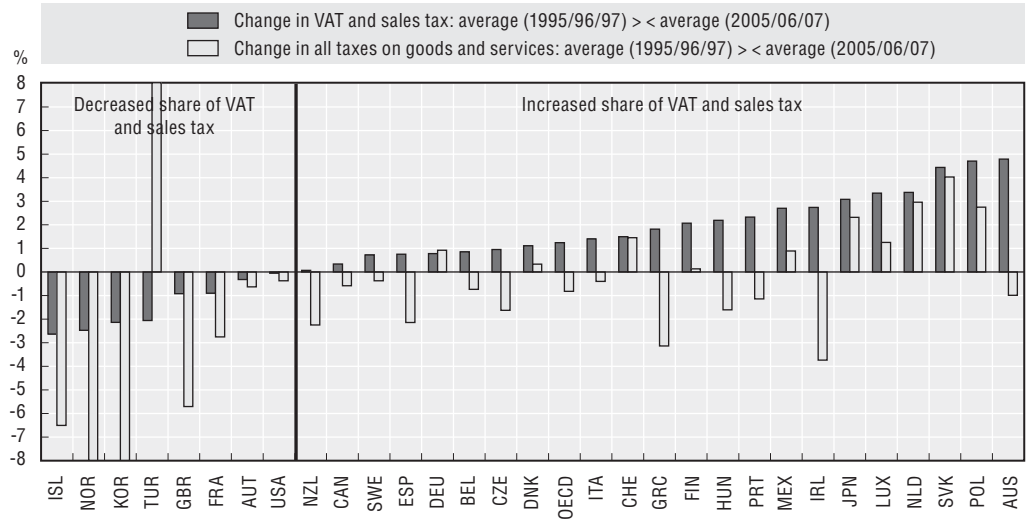
Source: OECD Tax Database (*www.oecd.org/ctp/taxdatabase*).

Figure 2.4 compares the average indirect tax revenue shares in the period 1995-1997 with the average revenue shares in the period 2005-2007, both for all taxes on goods and consumption (Category 5000 in *Revenue Statistics*, 2009) and VAT and sales taxes (Category 5110 in *Revenue Statistics*, 2009). Twenty-two countries have increased the share of VAT and sales taxes in total tax revenue since 1995-1997. In almost all of these countries, however, the total increase in taxes on goods and services is considerably below the increase in VAT and sales taxes as a result of the reduction in the share of excise duties and other taxes on specific goods and services. Moreover, most countries that have reduced the share of VAT and sales taxes face an even larger decrease in total taxes on goods and services. This result confirms the general trend in most OECD countries of a shift from taxes on specific goods and services towards VAT and sales taxes without leading to a strong increase in the overall share of indirect taxes. This result is confirmed by the values for the OECD average included in Figure 2.4.

The standard VAT rate has been relatively constant since 1995 (see Table 2.2). Australia introduced its GST in 2000. Comparing the rates in 1995 and 2000, the standard VAT rate increased with more than 1 percentage point only in Germany, Japan, the Netherlands, Portugal, Switzerland and Turkey. The rate decreased in Canada, the Czech Republic, France and the Slovak Republic.

Figure 2.4. **Changes in the indirect tax revenue mix**[1]

Percentage points of total tax revenue



1. Countries are ranked in increasing order in the change of the share of VAT and sales taxes (Category 5110 in *Revenue Statistics*) in total tax revenue over time. The change in the overall taxes on goods and services (Category 5000 in *Revenue Statistics*) is also shown. The average tax revenue of these categories in 1995-1997 is compared with the revenues in 2005-2007.

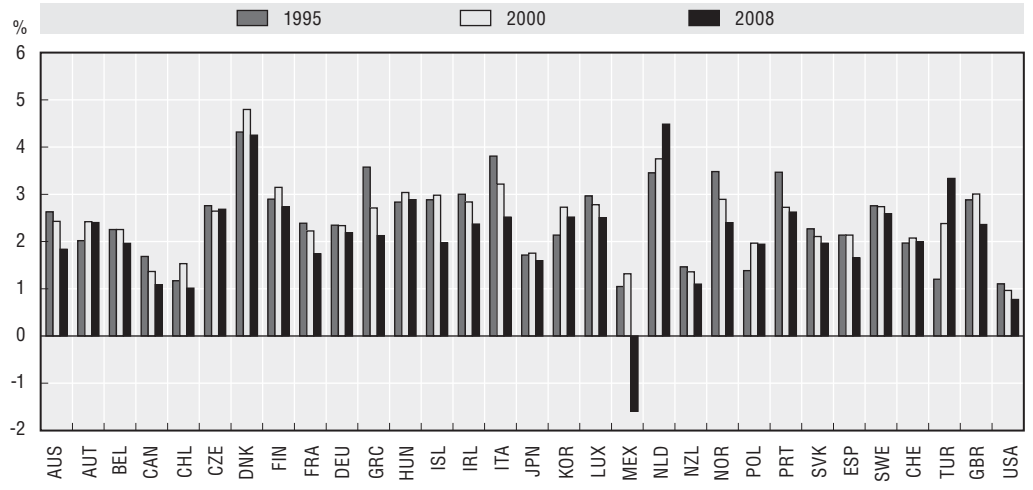
Source: OECD (2009), *Revenue Statistics* 1965-2008.

Environmentally related taxes

There has also been growing interest in the use of environmentally-related taxes, with several countries introducing new taxes to deal with specific environmental problems. However, as shown in Figure 2.5, there has not been a general upward trend in their revenues as a proportion of GDP. Excise duties on motor fuels are the largest single source of environmentally-related tax revenue.

Figure 2.5. **Revenues from environmentally-related taxes**

Percentage points of GDP



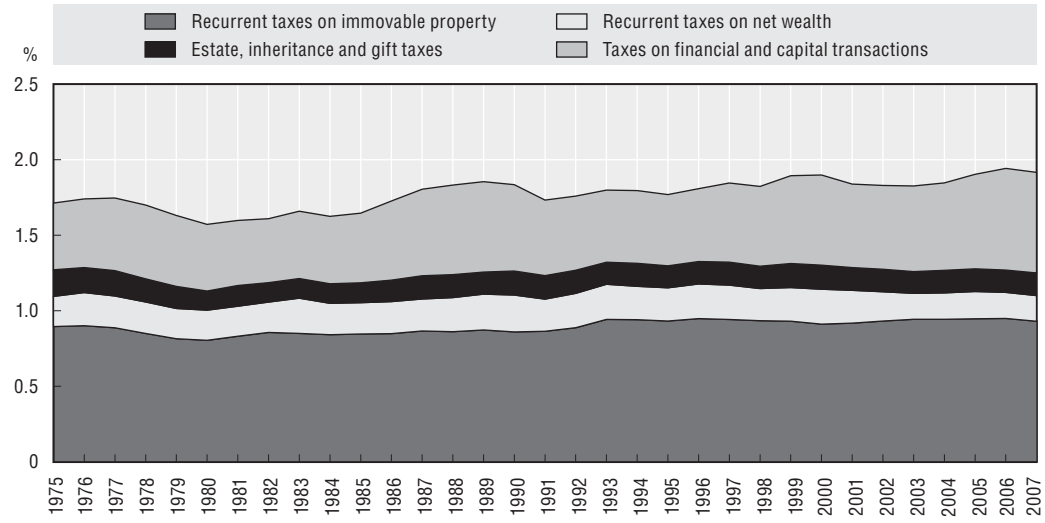
Source: OECD (2009), *Revenue Statistics* 1965-2008.

Property taxes

Despite their general low revenue shares, property taxes remain an important source of revenue in some OECD countries, with the United States, the United Kingdom and Korea obtaining at least 11 per cent of tax revenue from this source in 2007. This group of taxes are diverse in both their design and their effects, as they include recurrent taxes on immovable property (paid by both households and businesses), taxes on net wealth (paid by both households and corporations), taxes on gifts and inheritance and taxes on financial and capital transactions. The evolution of the OECD average revenues from each of these taxes is illustrated in Figure 2.6. This shows that recurrent taxes on immovable property – mainly levied at the sub-national level – account for approximately half of total property taxes, while taxes on transactions account for about half of the rest. There are no strong trends in the revenues from any of these taxes as a share of GDP despite short-term variations. As a percentage of GDP, the recurrent taxes on immovable property have increased by 0.5 percentage points or more only in France, Iceland, Italy, Japan, Korea, Portugal, Spain and Sweden and decreased by more than 0.5 percentage points in Ireland and the United Kingdom. The taxes on financial and capital transactions, in per cent of GDP, have increased by more than 0.5 percentage points in Australia, Ireland, Korea, the Netherlands, Spain and the United Kingdom while they decreased by more than 0.5 percentage points only in Greece.

Figure 2.6. **The evolution of property taxes in the OECD**

Percentage points of GDP



Source: OECD (2009), *Revenue Statistics* 1965-2008.

Owner-occupied housing is taxed favourably in many countries, as can be seen from Table 2.3. Imputed rental income is not taxed under the income tax (except in Belgium, the Netherlands, Norway and Sweden), although this should be seen in the context of most countries levying property taxes. At the same time, mortgage interest payments can be deducted from the personal income tax base in many countries, but not in Canada, Germany, France (they became partly deductible in 2007) and the United Kingdom. Some countries, like Belgium and Spain, even allow for a deduction of the principal repayments. Moreover, realised capital gains on owner-occupied houses are often not subject to capital

Table 2.3. **Taxation of residential property, 2002**

	Imputed rental income taxed	Tax relief on mortgages		Capital gains on housing assets taxable	Estate/Gift/Inheritance taxes
		Interest	Principal repayments		
Austria	N	Y (up to ceiling)	N	Y	Y
Belgium	Y (with fixed deduction)	Y (up to imputed rental income)	Y (within limit)	Y (if sold < 5 years) POOD are exempt	Y
Canada	N	N	N	Y (on 50% of gains) POOD are exempt	N (but subject to capital gains tax from which POOD are exempt)
Denmark	N	Y	n.a.	Y POOD are exempt	Y
Germany	N	N	N	Y (if sold < 10 years) POOD are exempt	Y (lower than for financial assets)
Finland	N	Y (up to a ceiling)	n.a.	Y POOD exempt if sold > 2 years	Y
France	N	N	N	Y POOD are exempt	Y
Ireland	N	Y	N	Y POOD are exempt	Y
Italy	N (for POOD)	Y (for POOD)	N	Y (50% for POOD)	Y (until 2001)
Netherlands	Y	Y	N	N	Y (above tax free threshold)
Norway	Y	Y	N	Y (exempt if occupied by owner > 1 of 2 years preceding sale)	Y
Spain	N (for POOD)	Y	Y	Y (exempt if reinvested)	Y
Sweden	Y	Y	N	Y (exempt if reinvested)	N
United Kingdom	N	N	N	Y POOD are exempt	Y
United States	N	Y (up to ceiling)	N	Y (until 2002) (deduction for POOD if held > 2 years)	Y

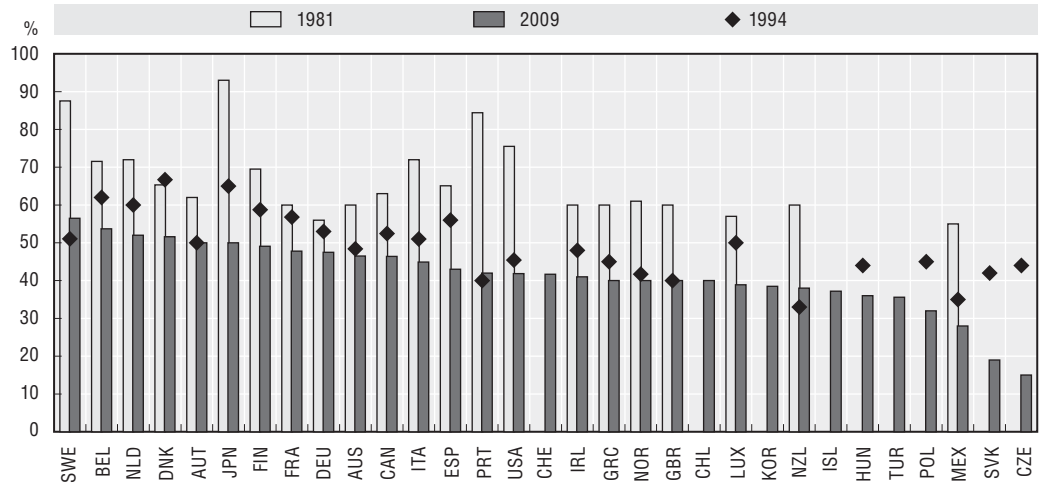
Note: POOD = principal owner-occupied dwellings; Y = yes, N = no.
Source: Catte, P., N. Girouard, R. Price, and C. André (2004) and Baunkjoer, *c.f.* (2004).

gains tax, though the value of the house is subject to inheritance tax in most countries. Moreover, some countries levy a high transaction tax on the purchase of houses.

Personal income taxes

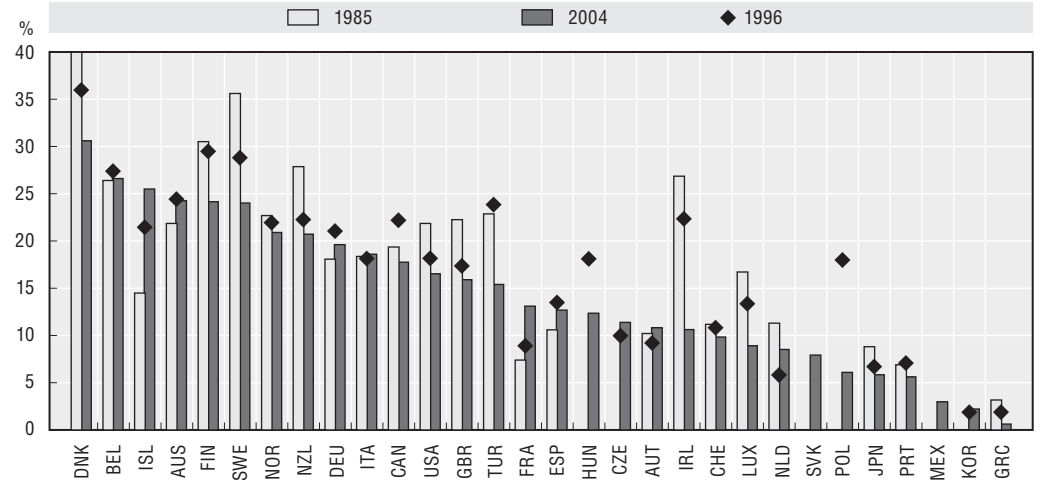
One of the most marked changes in taxation over the past 25 years has been the steep decline in the top rates of personal income tax in OECD countries (Figure 2.7). The OECD unweighted average has fallen from 67 per cent in 1981 to 49 per cent in 1994 and 41 per cent in 2009.[2] The largest reductions are observed in Japan (–43 percentage points), Portugal (–42.4 percentage points), the United States (–33.7 percentage points) and Sweden (–31 percentage points). However, in general, this has not been matched by a reduction in the average income tax levied on the labour incomes of average production workers (Figure 2.8), where the OECD unweighted average has fallen by less than five percentage points from slightly below 19 per cent in 1985 to slightly above 14 per cent in 2004; more recent information on the tax burden of workers earning the average production wage in the manufacturing sector is not available.[3] This difference has partly been due to the fact that marginal rates at lower income levels have not been reduced so much and partly due to the fact that most countries have not increased tax thresholds in line with the increase in average earnings. The change in the average income tax on the labour incomes of workers in the private sector since 2000 confirms this trend. The average income tax for a single worker at average wage earnings only slightly decreased from 16.4 per cent in 2000 to 16.0 per cent in 2008. The rate has been reduced considerably on average in the OECD in 2009 (to 15.4 per cent; OECD, 2010) as a result of the measures implemented by countries to tackle the impact of the financial and economic crisis.

Figure 2.7. **Top statutory personal income tax rates on wage income**



Source: OECD Tax Database www.oecd.org/ctp/taxdatabase.

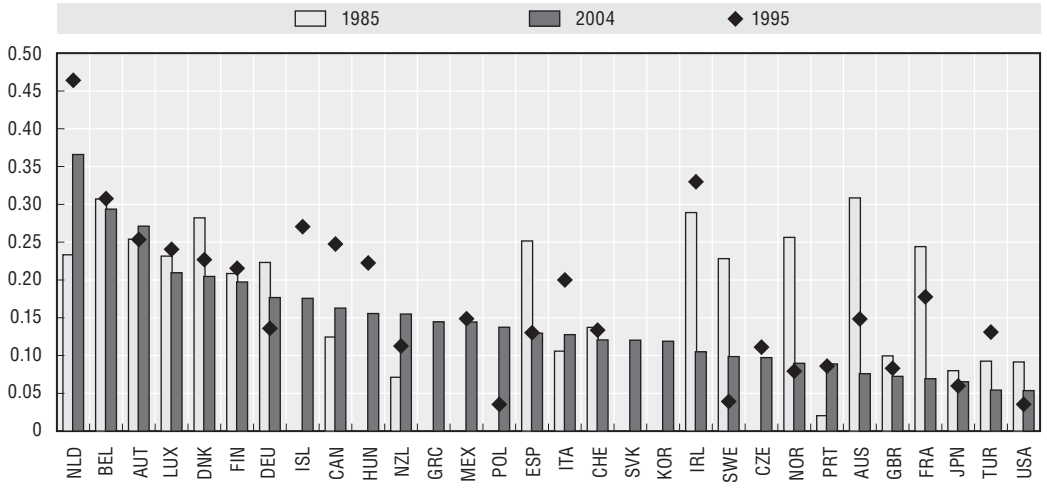
Figure 2.8. **Average income tax for a single production worker at average earnings**



Source: OECD (2010) *Taxing Wages* 2008-2009.

The concentration of personal income tax cuts at the top of the income distribution has been reflected in a reduction of the progressivity of the personal income tax in most OECD countries.[4] The progressivity measure in Figure 2.9, which compares marginal and average tax wedges for single production workers, focuses on taxes at the average wage level in the manufacturing sector (Sector D in ISIC Rev. 3.1). Since 1995, the largest reductions (more than 8 percentage points) are observed in Canada, Iceland, Ireland, France and the Netherlands. This measure does not take into account the impact of tax changes on lower and higher-incomes. In fact in recent years, the tax system has become slightly more progressive when the average tax burden on low and high-income earners is compared. This is mainly the result of the introduction of in-work tax credits in many countries (*e.g.* Finland, France, the United Kingdom and the United States), which have reduced the tax burden on low-income earners more than the reduction in the tax burden on high-incomes caused by the reduction in top statutory income tax rates. Another recent

Figure 2.9. **Statutory income progressivity for single individuals at average earnings**



Source: OECD (2005d), *Taxing Wages* 2003-2004.

trend in personal income taxation is that some OECD countries, mostly Scandinavian countries, have introduced a dual tax system which taxes personal capital income at low and proportional rate while labour income continues to be taxed at high and progressive rates (Box 2.1). Several other countries have moved away from comprehensive towards "semi-dual" personal income taxes.

Box 2.1. **Dual income tax systems in OECD countries**

Finland, Norway, Sweden and to a lesser extent Denmark introduced a dual income tax system in the early 1990s. The purest dual income tax system has been established in Norway. The main characteristics of the Norwegian system in 2005 were:

- A flat personal income tax rate of 28 per cent on net income, which includes wage, pension and capital income less tax deductions. The same rate is used for corporate income. This implies:
  - ❖ A symmetrical treatment of all capital income with no double taxation of dividends and capital gains on shares and full deductibility of all interest expenditures. At the same time, double taxation of distributed profits was prevented through a full imputation system. Shareholders were permitted a tax credit against the personal income tax on dividends for the corporate tax that could be imputed to the dividends they have received.
  - ❖ A broad tax base, aiming to bring taxable income in line with true economic income and a reduction of the number and the value of tax allowances, as all remaining allowances are deductible only at the flat 28 per cent tax rate.
- Progressive taxation of wage and pension income in addition to the flat rate, by means of surtax on gross income from wages and pensions above a certain threshold level. The highest surtax rate on wages and pensions was 13 per cent when the tax reform was implemented in 1992; it increased to 19.5 per cent in 2000 and it decreased to 15.5 per cent in 2005.

Box 2.1. **Dual income tax systems in OECD countries** *(cont.)*

In order to ensure an equal tax treatment of wage earners and the self-employed, the dual income tax system splits the income of the self-employed into a labour income component as a reward for work effort and a capital income component, which is the return to the savings invested in the proprietorship. The part considered as labour income is taxed according to the progressive rate schedule, while the part considered as capital income is taxed at the flat rate. This so-called split-model imputes a return to the capital invested and categorizes the residual income as labour income (Sørensen, 1998).

In general, the main problems with the dual income tax system are twofold. First, dividends and capital gains on foreign shares are often taxed more heavily than dividends and capital gains on shares in domestic companies (for instance because the imputation credit is provided only to domestic shares). A second problem of dual income tax systems arises because of the large difference in top marginal tax rates on labour and capital income. This difference provided taxpayers with a tax-induced incentive to have their income characterized as capital income rather than as labour income, for instance by incorporating themselves. These income shifting problems are observed in most countries where the tax burden on capital income deviates from the tax burden on labour income. The fact that social security contributions are often levied only on labour income just strengthens the income shifting.

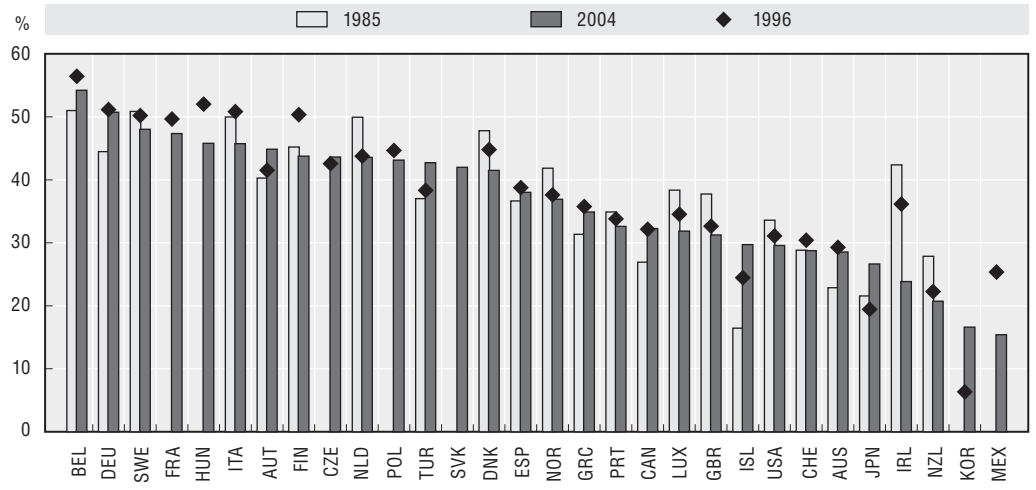
In practice, a majority of OECD countries may be characterized as having "semi-dual" income tax systems, which are defined as tax systems that use different nominal tax rates on different types of income, typically by taxing some forms of capital income at low and often flat rates and remaining forms of income at higher and progressive rates. An example is the Box system in the Netherlands, which was introduced in 2001. The tax reform reduced the tax rates and broadened the base, replaced tax allowances by tax credits, replaced the wealth tax and the taxation of personal capital income with the taxation of an imputed income from capital. Instead of a tax on the actual return on saving income, a 30 per cent proportional tax rate is applied on a notional return of 4 per cent on the net value of the assets owned by the shareholder. This presumptive capital income tax, which ensures that all forms of personal capital income are taxed equally, is therefore equivalent to a tax on net wealth of 1.2 per cent. Progressivity is obtained through a basic tax-free allowance.

Source: OECD (2006b), "Fundamental Reform of Personal Income Tax".

Social security contributions

All OECD countries except Australia and New Zealand levy compulsory social security contributions on labour income, in addition to personal income tax. As noted above, there has been a general upward trend in these contributions. This has resulted in a smaller reduction in the overall taxation of labour income than would be observed by considering personal income taxes alone. Figure 2.10 shows the evolution of the tax wedge (incorporating both social security contributions and personal income tax)[5] applied to the earnings of the average production worker. The OECD unweighted average has fallen by less than one percentage point from 1985 to 2004, much less than the fall in the average personal income tax of about 5 percentage points, noted above. Even though the OECD average has hardly changed over this period, the tax wedge for the average production worker declined by more than 5 percentage points in Denmark, Ireland, Luxembourg, New Zealand, the Netherlands and the United Kingdom. Meanwhile, the tax wedge increased by more than 5 percentage points in Australia, Canada, Germany, Iceland, Japan and Turkey.

Figure 2.10. **Tax wedge for single individuals at average earnings**



Source: OECD (2010), *Taxing Wages* 2008-2009.

The average tax wedge for workers in the private sector (Sectors C to K in the ISIC Rev. 3.1 industry classification) dropped from 37.8 per cent in 2000 to 37.5 per cent in 2004; it is 36.4 per cent in 2009 (OECD, 2010). Comparing 2000 with 2009, the tax wedge for the average worker in the private sector declined with 4 percentage points or more in Denmark, Finland, Ireland, Poland, the Slovak Republic and Sweden. Meanwhile, the tax wedge increased by more than 3 percentage points in Greece, Japan and Korea.

A few OECD countries (*e.g.* Australia, Austria and Canada) levy payroll taxes (also included in the tax wedge), which are similar to employers' social security contributions but do not give an entitlement to social benefits. The amounts of revenue involved are generally small and do not show any particular time trend.

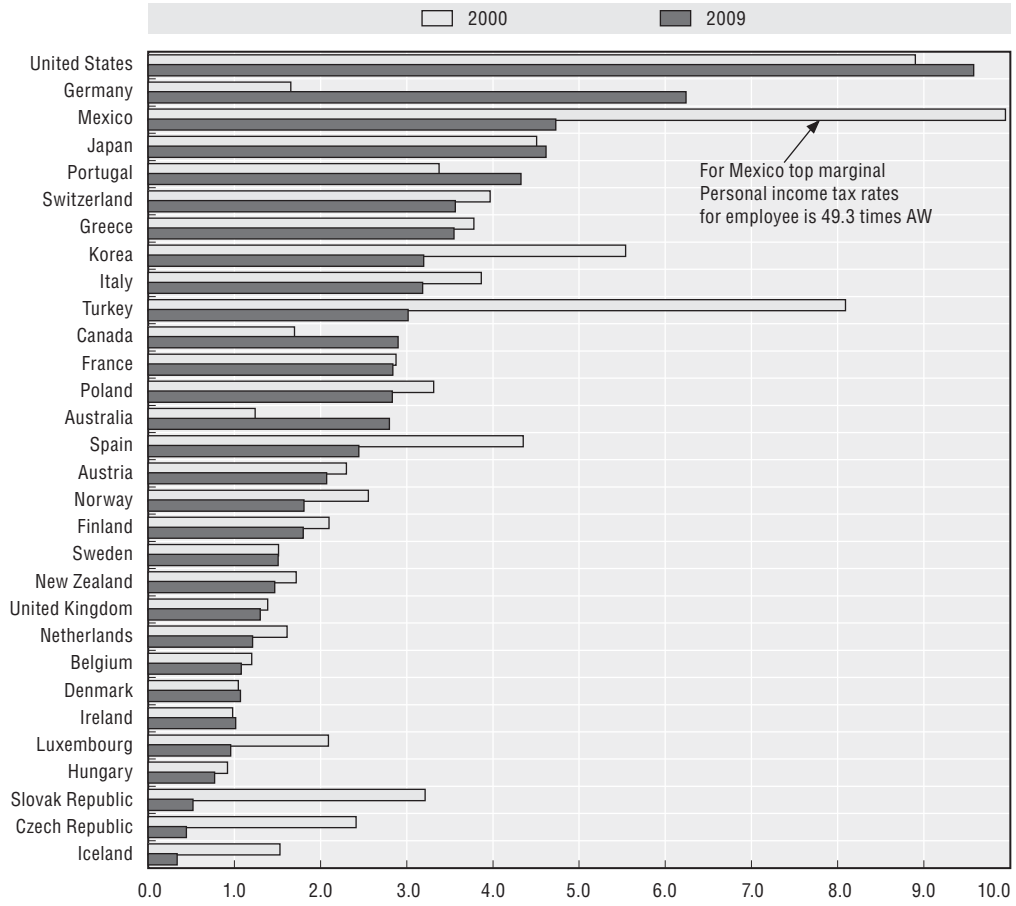
The top statutory PIT rates are not levied at the same income level across the OECD. The distributional impact of a reduction in the top statutory PIT rate will therefore differ across countries (see Figure 2.11). Since 2000, the top PIT rates decreased considerably in many OECD countries. In 2000, however, taxpayers on average had to earn almost three times the average wage before having to pay the top rate while in 2009 taxpayers had to pay the top PIT rate at earnings slightly below 2.5 times the average wage.[6]

Taxes on corporate income

The reduction in personal income taxes has been accompanied by cuts in corporate tax rates. Since 1994, the largest rate reductions have been implemented in Luxembourg (–14.4 percentage points), Canada (–14.8 percentage points), Hungary (–17 percentage points), Poland and the Slovak Republic (–21 percentage points), Germany (–22 percentage points), the Czech Republic (–23 percentage points), Italy (–25.7 percentage points), Turkey (–26 percentage points) and Ireland (–27.5 percentage points). The corporate tax rate has increased only in France and Finland (+1.1 and +1 percentage point respectively) (Figure 2.12). In the OECD area, the unweighted average corporate tax rate has dropped from 47 per cent in 1981 to 37.7 per cent in 1994 and 25.9 per cent in 2010. The corporate tax rate reductions have been partly financed by corporate tax base broadening measures in many countries – for instance through the implementation of less generous tax depreciation allowances, the reduction in the use of targeted tax provisions and stricter

Figure 2.11. **Income threshold where the top statutory PIT rate is levied (2000 and 2009)**

Multiple of the average wage

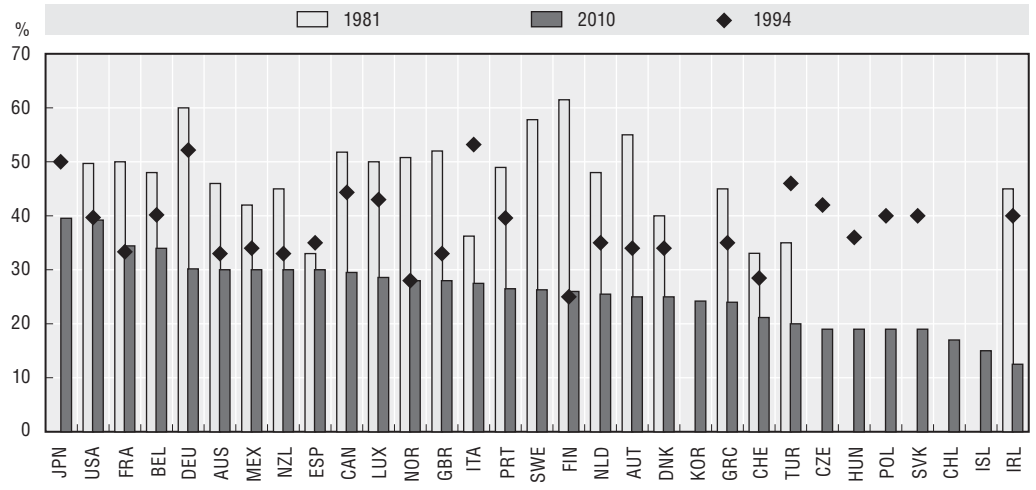


Source: OECD *Taxing Wages 2008-2009*, and OECD *Tax Database, www.oecd.org/ctp/taxdatabase*.

corporate tax enforcement policies enacted by OECD countries.[7] As the rate cuts were not fully financed by reductions in depreciation allowances, effective tax rates also fell although, as noted earlier, corporate tax revenues have tended to increase reflecting, *inter alia*, rising corporate profits. This increase in corporate profits is partly a result of increased incentives for businesses to incorporate, especially in the European Union (De Mooij and Nicodème, 2008). The revenue effects of lower corporate tax rates will therefore partly show up in lower personal income tax revenues rather than lower corporate income tax revenues (OECD, 2007).

The rate of taxation on dividends combines features of both the personal and corporate tax systems. It has been of particular interest in recent years, given the policy focus on the relevant advantages, disadvantages and methods of integrating corporate and personal level taxation of distributed income. Figure 2.13 reports the top marginal tax rates on the distribution of domestic source profits to a resident individual shareholder, taking account of the fact that profits are usually taxed both at the corporate level and again when they are distributed as dividends (although double taxation

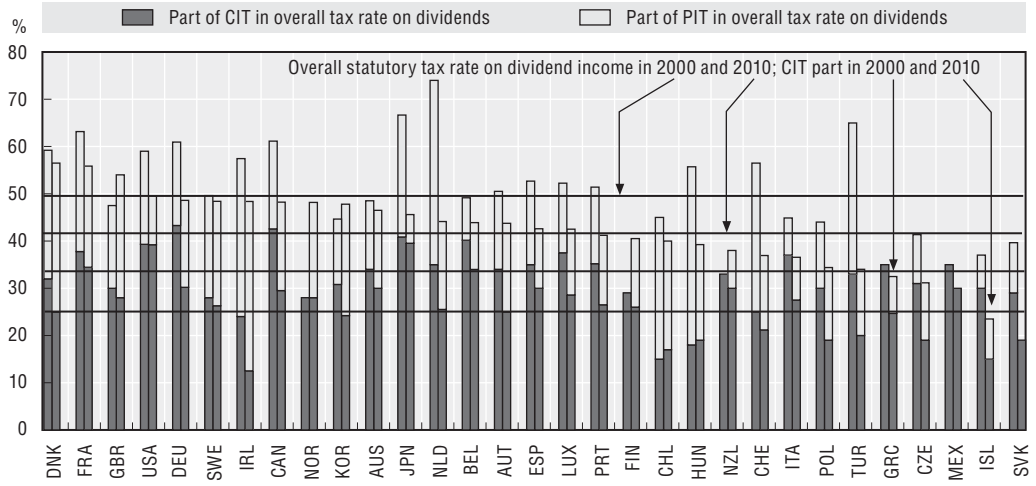
Figure 2.12. **Statutory corporate income tax rates**



Source: OECD *Tax Database, www.oecd.org/ctp/taxdatabase.*

may be reduced by introducing imputation systems, tax credits or reduced tax rates on dividends).

Figure 2.13. **Overall statutory rates on dividend income (2000 and 2010)**



Source: OECD *Tax Database, www.oecd.org/ctp/taxdatabase.*

Many European countries have moved away from full imputation systems to systems where dividends are taxed at a lower rate at the personal level.[8] Germany introduced the so-called half-income system in 2002, whereby 50 per cent of dividends are taxed as personal income.[9] Several other countries have introduced or are introducing similar partial inclusion systems where some proportion of dividends are taxed as personal income, *e.g.* Finland, France, Italy, Portugal and Turkey.

On average, the top marginal tax rate on dividends in OECD countries was reduced by more than 8 percentage points between 2000 and 2010 to 41.7 per cent (Figure 2.13). The largest part of this reduction is attributable to the reduction in the corporate income tax rate. The part of the tax that is paid as corporate income tax has decreased by more than

6.5 percentage points to 25.9 per cent on average in the OECD. A smaller part of the reduction in the statutory tax burden on dividends is due to the decrease in personal income tax rates. Since 2000, the top marginal tax rate on dividends has increased only in Finland and Norway (as a result of the introduction of the partial inclusion system in Finland and the allowance for shareholder equity tax system in Norway) and in Korea and the United Kingdom.

In many countries, interest payments are taxed at the household level at higher rates than dividends in order to (partly) offset the corporate tax rate that has been levied on equity income while interest payments are deductable from the corporate tax base. Also, capital gains are taxed at the household level differently from dividends in many OECD countries (Table 2.4).

In the OECD, ten countries levy a reduced corporate income tax rate on the profits of small businesses that are below a certain ceiling (Table 2.5). In order to benefit from the reduced rate, other conditions have to be fulfilled as well. In some countries, small businesses benefit from other special corporate tax provisions, such as expensing of investments.

A growing feature of corporate tax systems is the use of tax credits or special deductions for research and development (R&D) expenditures. These are now available in more than half the OECD countries. Figure 2.14 reports the value of the tax subsidies for R&D that is provided by these measures.[10] Norway, Turkey, the Czech Republic, Portugal, Spain and France are the countries that provide the most generous R&D tax treatment. Some countries provide more generous tax subsidies for R&D in small- and medium-sized enterprises than for large companies. This is especially the case in Canada and the Netherlands.

So how similar have tax reform trends been to the "tax and growth" recommendations?

This chapter showed to which degree OECD countries have followed strategies with regard to the composition of tax revenues and changes in statutory tax rates that are similar to those subsequently encapsulated in the "tax and economic growth" recommendations. This summary section will focus on main trends within the OECD instead of evaluating the tax reforms in each country.

In summary, the reviewed and empirical evidence suggests that of the four broad groups of taxes – consumption, property, personal income and corporate/capital income taxes – the last group has potentially the most damaging effects on economic performance, through its effects on investment and entrepreneurship, followed by personal taxes. Growth can be increased, at least in the short-to-medium run, by shifting the balance of taxation away from income taxes and towards a mixture of consumption taxes and taxes on immovable property, particularly on residential property. The design of individual taxes is also important. A change in the tax mix towards the greater use of VAT would be more effective in increasing growth if the design of the VAT were improved at the same time – by removing exemptions, zero-rating and reduced rates. Reductions in the top CIT and PIT rates seem to be especially good to stimulate economic growth; the reduced CIT rate is rather ineffective and R&D tax incentives are growth-enhancing although their impact is modest.

The empirical evidence shows that many countries have cut top personal income tax rates. The average tax wedge, however, has only decreased slightly over time, partly because the lower personal income tax rates have not been reduced in the same way as the top statutory PIT rate and because of the increase in social security contributions. The reduction in top PIT rates seem to have been partly financed by a narrowing of the personal

Table 2.4. **Taxes on capital income at the household level in selected OECD countries (2004/2005)**

	Dividend tax treatment at the shareholder level (2005)	Tax treatment of capital gains on portfolio equity shares (as of 1 July 2004)	Tax treatment of capital gains on principal residence (as of 1 July 2004)	Taxation of interest payments (2005)
Australia	Dividends taxed at marginal ordinary PIT rates (0%-17%-30%-42%-47%) but imputation credit is provided for corporate tax already paid (full imputation system).	Shares held < 1 year: capital gain included in assessable income. Shares held ≥ 1 year: 50% of capital gain included in assessable income. Capital gain taxed at marginal ordinary PIT rates.	Exempt (partial capital gains inclusion to extent used for business or rent).	Taxed at marginal ordinary PIT rates (0%-17%-30%-42%-47%).
Belgium	25% flat rate in general; 15% flat rate under certain conditions.	Shares purchased with speculative intent: 33% flat rate. Other shares: exempt.	Exempt. If gains deemed as speculative, taxed at 16.5% flat rate.	15% flat rate
Canada	Dividends taxed at marginal ordinary PIT rates (federal and provincial) but partial credit provided for corporate tax already paid (partial imputation system)	Half (50%) inclusion in net taxable capital gains. Taxed at marginal ordinary PIT rates.	Exempt. Recognition of no more than 1 principal residence per family at any one time.	Taxed at marginal ordinary PIT rates.
Finland	43% of the dividends from a quoted company are exempt, with the remaining 57% being taxed as the shareholder's income from capital (taxed at 28% rate).	Inclusion in income from capital, separate taxation at 29% flat rate (28% in 2005).	Exempt if owned and permanently occupied by taxpayer for ≥ 2 years prior to sale. Otherwise: 29% flat tax rate is levied (28% in 2005).	Taxed at flat rate of 28%.
Germany	50% of dividends are exempt (half-income system).Other 50% are taxed at ordinary progressive PIT rates.	Shares held ≤ 1 year: half of the profit is tax-exempt; other half is taxed at ordinary progressive PIT rates on taxable income. Shares held > 1 year and of less 1% of the nominal capital: exempt (if more than 1% of the nominal capital: taxed as shares held ≤ 1 year).	Exempt if occupied by owner for a minimum period of time. No exemption where residence is used in a business.	Taxed at marginal ordinary PIT rates.
Ireland	Taxed at marginal ordinary PIT rates (20%-40%)	Taxed at flat 20% rate	Exempt with land of up to 1 acre.	Taxed at marginal ordinary PIT rates (20%-40%).
Netherlands	Presumptive capital income tax treatment: a return of 4% is deemed to be received on the value of the underlying "ordinary" shares (irrespective of actual return received); this deemed return is taxed at a rate of 30%; 25% flat rate on dividends from a substantial shareholding.	Same presumptive capital income tax treatment as dividends. Realized capital gains on shares that form a substantial shareholding: flat 25% rate.	Exempt, provided the residence is not used as business asset.	Same presumptive capital income tax treatment as dividends.
Norway	Dividends are included in taxable income and taxed at the flat 28% rate; the shareholder is entitled to a full tax credit for the underlying corporate tax paid.	Variable partial inclusion in taxable income, taxed at 28% flat rate, under the so-called RISK system, which steps-up acquisition cost of each share by pro-rate share of retained (after tax) profits.	Exempt, provided seller has owned residence for ≥ 1 year, and has used it as principal residence for at least one of two previous years, and provided the residence is not used as a business asset.	Taxed at flat 28% rate.
Slovak Republic	Exempt.	Included in net taxable income, taxed at flat 19% rate.	Exempt if owned/used as primary residence for ≥ 2 years. Taxable at 19% flat rate if used for business or was rented out.	Included in net taxable income, taxed at flat 19% rate.
United States	Qualified dividends taxed at a flat 15% rate (reduced to 5% for taxpayers with marginal PIT rate of 10% or 15% for ordinary tax purposes).	Shares held ≤ 1 year: taxed at marginal ordinary PIT rate. Shares held > 1 year: taxed at flat 15% tax rate (reduced to 5% for taxpayers with marginal PIT rate of 10% or 15% for ordinary tax purposes).	Gain is included in net capital gain (net of an exempt amount) and taxed at lower capital gains rate if owned and occupied by taxpayer as principal residence for ≥ 2 years over prior 5 years.	Taxed at ordinary marginal PIT rates.

Source: OECD Tax Database (*www.oecd.org/ctp/taxdatabase*), OECD (2006c) "Taxation of capital gains of individuals" and *European Tax Handbook* (2005).

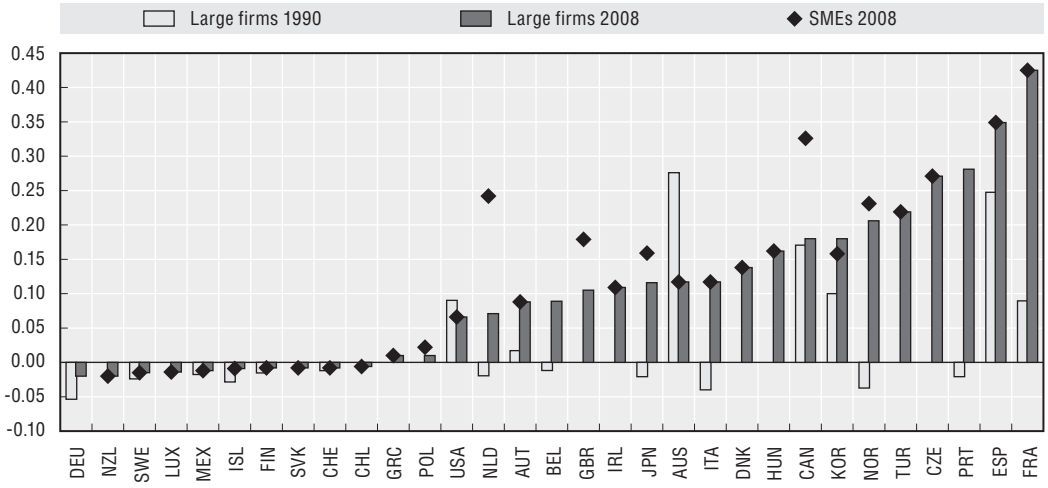
Table 2.5. **Standard and reduced (targeted) corporate income tax rate for small businesses (2010)**

	Standard corporate income tax rate (%) (2010)[1]	Small business corporate tax rate(s) (%) (2010)[2]	Range of taxable income where the reduced rate applies (2010)	Other conditions to benefit from the reduced rate(s) and/or additional qualifications (2010)[3]
Belgium	33.99	24.9775: 31.93: 35.535:	EUR 0-25 000 EUR 25 000-90 000 EUR 90 000-322 500	The company cannot be an investment company; entitlement to the reduced rates is not granted to companies of which at least 50% of the shares are held by one or more other companies and to companies whose dividend distributions exceed 13% of the paid-up capital at the beginning of the financial year.
Canada	29.52	15.5[4]	CAD 0-500 000	
France	34.43	15.0	Profits: EUR 0-38 120	Firms owned at least for 75% by individuals and with a turnover of EUR 7 630 000 or less.
Hungary	19.0	14.0	HUF 0-50 000 000	The taxpayer is *i)* not enjoying any corporate tax reliefs, *ii)* employing at least one person, *iii)* paying a minimum of social security contributions, *iv)* paying corporate income tax at least on the basis of the minimum income/tax base, and *v)* fulfilling certain legal requirements that are related to the employment of workers. The benefit that arises as a result of the preferential 10% rate has to be used for investment or employment purposes.
Japan	39.54	24.79: 25.57:	JPY 0-4 000 000 JPY 4 000 000-8 000 000	Reduced rates only for corporations with capital of JPY 100 million or less.
Korea	24.2	11.0	KRW 0-200 million	
Luxembourg	28.59[5]	27.55[5]	EUR 0-10 000; Firms with taxable income between EUR 10 000-15 000 pay 20.8% on profits up to EUR 10 000 and 23.92% on remainder such that at EUR 15 000, they pay an average rate of 21.84% (standard central CIT rate). The sub-central rate of 6.75% has to be added to these rates[5]	
Netherlands	25.5	20	EUR 0-200 000	
Spain	30	25	EUR 0-120 202.41	
United Kingdom	28	21: 21/29.75	Profits: GBP 0-300 000; Firms with profits between GBP 300 000-1 500 000 pay 21% on the first GBP 300 000 and 29.75% on the remainder so that by GBP 1.5 million they pay an average rate of 28%.	All limits for taxable profits are proportionately reduced in cases where there are associated companies, and where the accounting period is less than 12 months.
United States	39.21	20.16[6]	USD 0-50 000	

1. Combined central government and sub-central government standard (top) corporate tax rate.
2. Combined central government and sub-central government corporate tax rate typically applying for or are targeted at "small (incorporated) business", where such "targeting" is on the basis of size alone (*e.g.* number of employees, amount of assets, turnover or taxable income) and not on the basis of expenditures or other targeting criteria.
3. This table summarises the main arguments presented in the explanatory annex to Table II.2 of the OECD Tax Database.
4. Includes a sub-central government small business tax rate which is an average of provincial corporate income tax rates, weighted by the provincial distribution of the federal corporate taxable income taxed at the small business rate.
5. Includes the representative sub-central government corporate income tax rate for Luxembourg City. The rate is 3 per cent (general rate) times 225 per cent ("taxe communal").
6. The federal income tax rate of 15% applies to taxable income under USD 50 000; 25 per cent applies to taxable income over USD 50 000 and under USD 75 000; 34 per cent applies to taxable income over USD 75 000 and under USD 10 million; and 35 per cent applies to taxable income of USD 10 million or more. The benefit of lower rates is recaptured for taxable incomes between USD 100 000 and USD 18 333 333. The federal rates have to be increased with the sub-central rate, which is a weighted average state marginal income tax rate.

Source: OECD Tax Database, www.oecd.org/ctp/taxdatabase.

Figure 2.14. **Tax subsidies for one USD of research and development in OECD countries**[1]



1. This figure shows the amount of tax relief for a unit of R&D expenditure compared to the benchmark situation of the immediate expensing of the R&D expenses. Negative values do not necessarily imply that R&D is not taxed favourably but only imply that R&D receives a tax treatment that is less generous than would be the case under full immediate expensing.

Source: OECD Scoreboard.

income tax brackets, implying that on average across the OECD the number of taxpayers that are taxed at the top rate might have increased.

Statutory corporate income tax rates have decreased strongly. Countries have broadened the corporate income tax base, for instance through the implementation of less generous tax depreciation allowances. One-third of the OECD countries implements a reduced corporate tax rate for small and medium-sized corporations; the experience indicates that removing reduced CIT rates – but this conclusion holds for other reduced rates and tax privileges as well – turns out to be very difficult once implemented. Many countries also have a generous tax treatment of R&D investment; these provisions have become more generous over time. There is no strong evidence that the reductions in CIT rates have been compensated by higher capital income tax rates at the personal shareholder level. On average, countries seem to have reduced the tax burden on capital at the personal level in an attempt to improve the country's entrepreneurial and investment climate.

On average, the empirical evidence shows that there has been an increased use of VAT and a general trend to higher VAT rates but, on average, there has not been an increase in the use of indirect taxes, mainly as a result of the reduction in the share of excise duties and other taxes on specific goods and services. Moreover, the increase in the share of VAT in total revenues has been small in many OECD countries when comparing the change in revenues over the last 10 years. There has also been growing interest in the use of environmentally-related taxes, but there has not been a general upward trend in their revenues. The share of property taxes has stayed relatively constant over time, confirming that recurrent taxes on immovable property are clearly the taxes that face the largest implementation obstacles.

Notes

1. Social expenditure to GDP ratios are also influenced by the tax system because most countries have significant taxes on benefits. Adema and Ladaique (2005) found that adjusting gross social spending for the impact of direct taxation cross-country divergences in aggregate social spending are much smaller than implied by the raw numbers. The implication is that a similar relation would hold in the area of taxation, with raw numbers of tax burdens exaggerating cross-country differences.
2. If the average is only applied to the countries for which data were available in 1981, the 1994 percentage becomes 50 and the 2009 percentage becomes 45.
3. The average production wage refers to the gross wage earnings of full-time workers in the manufacturing sector (Sector D in the ISIC Rev. 3.1 Industry Classification). As from the 2005 edition of the *OECD Taxing Wages Report* onwards, tax burdens are no longer reported for workers in the manufacturing sector but for workers in the private sector (Sectors C-K in the ISIC Rev. 3.1 industry classification) instead. The 2009 edition of the *Taxing Wages Report* (OECD, 2010) provides information for this broader wage definition for the 2000-2009 period.
4. The measure of progressivity used is the difference between the marginal and average personal income tax rates, divided by one minus the average personal income tax rate, for an average single production worker. A higher number indicates higher progressivity at the earnings of an average production worker.
5. The tax wedge measures the amount of personal income tax, employees' and employers' social security contribution and payroll taxes less cash benefits as a proportion of labour costs, defined as the wage plus employers' social security contributions and payroll taxes.
6. The averages did not consider the figures for Mexico where the top PIT rate was levied at very high multiples of the average wage in 2000.
7. Some OECD countries (*e.g.* the United States and Mexico) have implemented an alternative minimum tax, which is a tax that eliminates many tax reliefs and so creates a tax liability for an individual or corporation with high income who would otherwise pay little or no tax.
8. Under a full imputation system, dividends paid by a resident firm out of income that has already borne company tax can be passed on to resident shareholders by giving imputation credits for company tax paid
9. This was abolished in Germany as part of the 2008 corporate tax reform.
10. Figure 2.14 shows a negative value for tax subsidies in some countries. This is because the baseline of the definition (which gives a value of zero for the measure) represents the immediate deductibility of the capital costs for R&D from the corporate tax base (immediate expensing), which is more generous than the typical tax treatment given to capital costs for other activities. Therefore, a negative value in the figure does not imply that the tax treatment of R&D is less favourable than for other forms of investment.

PART II

Making Growth-oriented Tax Reforms Happen

PART II

Chapter 3

Obstacles to Fundamental Tax Reforms

Countries often succeed in implementing fundamental tax reforms. Sometimes, however, tax reform proposals never leave the drawing boards of studies departments or ministries of finance. In other cases, the tax reforms that are implemented have been revised to such an extent during the reform process that they no longer – or only partially – serve the original tax reform objectives. It also happens that the initial reform objectives are scaled down "pre-emptively", as policy makers anticipate the obstacles that will have to be overcome and conclude that the cost would be too high or the prospects for success too uncertain to justify risking their political capital. In order to make growth-oriented tax reforms happen, policy makers have to be aware of the major challenges they are likely to face during the tax reform process. This chapter therefore explores the most important environmental factors that influence the reform process, focusing on the circumstances that explain when these objectives and environmental factors may become an obstacle to the design and implementation of tax reforms.

When reforming tax systems, policy makers must try to balance the different goals that tax systems aim to achieve. This implies a need to make difficult trade-offs. Policy makers will have to balance the efficiency and growth-oriented objectives/impact of tax reforms with the distributional objectives/impact of these tax reforms, while also taking into account the impact on revenues, tax avoidance and evasion opportunities, and the costs of compliance, administration and enforcement – bearing in mind that those costs also feed into the marginal social cost of public funds. When reforming labour taxation, they must also consider the interplay between taxes and benefits. International tax issues, questions of fiscal federalism, the transitional costs of changing the tax system and complex timing issues also have to be considered, as do complex implementation, legal and administrative issues. The design and implementation of tax reforms are also influenced by the institutional context. Finally, political economy factors will have an impact on the outcome of the tax reform process, for instance because elected politicians may seek to use the tax system to favour particular interest groups and increase their probability of re-election. Hence, the successful pursuit of tax reform involves not only public finance considerations but also administrative, institutional and political economy factors.

The remainder of the text identifies first the obstacles to fundamental tax reform by looking at issues of policy design (Section 3.1), at tax administration issues (Section 3.2) and afterwards at political economy and institutional factors (Section 3.3).

3.1. Obstacles to fundamental tax reforms: issues of tax policy design

This section identifies the main obstacles to the implementation of fundamental tax reform by looking at tax reform from a public finance perspective (see also Bird, 2004). Tax reform is not only shaped by efficiency and international tax concerns but also by questions of horizontal and vertical equity (fairness)[1] and revenue potential. Tax avoidance and evasion considerations, fiscal federalism relations and transitional tax reform cost considerations are a key issue in the public finance analysis of tax reform as well.

Tax reform must balance efficiency and equity considerations

Taxes are efficient if they distort agents' economic decisions as little as possible. However, efficiency-enhancing tax reforms may at the same time face efficiency drawbacks which create obstacles to their effective implementation. For example, make-work-pay policies that reduce personal income tax rates and/or employee social security contributions for lower-income workers tend to increase labour force participation but can discourage taxpayers already in employment from working more or trying to find a better-paid job. This is because, if targeted tax reductions are phased out as income increases, then lowering the average effective tax rate for those at the bottom of the earnings distribution may confront them with rapidly rising marginal effective rates as their income increases. A reduction in the corporate income tax rate may increase economic growth but policy makers have to consider that the overall burden on capital income cannot be too much out of line with the top personal income tax rate; otherwise, the self-employed will face incentives to incorporate purely for tax reasons.

A shift from direct towards more indirect taxes – a "tax and growth" reform as discussed in Chapter 2 – through an increase in the statutory VAT rate might increase tax evasion and cross-border shopping and might stimulate the informal sector. It might also result in pressures for wage increases, leading to inflation and a corresponding loss of competitiveness and leading to an increase in the unemployment rate. If, however, the VAT rate increase is offset by a reduction in the direct taxation of labour, then the overall effect on competitiveness could be positive: this is because domestic producers will reap the full benefit of the cut in direct taxes, but the increase in VAT will be "shared" with foreign competitors, because exports are zero-rated for VAT purposes and imports are taxed at the same rate as domestically produced goods. A shift from direct to indirect taxes might therefore be achieved by broadening the VAT base as well as increasing the VAT rate, although there is much to be said for a general rule of trying to keep most bases broad and most rates low.

Tax reforms may aim at improving equity. Some tax reforms that are intended to improve economic performance, however, may be seen to benefit particular groups disproportionately while other groups pay a disproportionate share of the costs. The adverse redistributional impact of these tax reforms would then reduce the tax system's equity. Distributional considerations might therefore become an obstacle to implementation. Also, because the efficiency gains from tax reform typically do not arise immediately but accrue over time, policy makers will not immediately be able to use these efficiency gains to compensate the losers from tax reform. In any case, the initial losers are not necessarily the final losers. The redistributional impact of tax reforms has therefore to be assessed in a dynamic and not in a static setting.

The question, of course, arises as to which degree governments would want to use the tax system to redistribute income. Non-tax policy measures that stimulate education, for instance, increase individuals' earning capacity and may therefore contribute to a more equal income distribution. A considerable part of income is redistributed within the same family types but over different periods in their life-cycle, for instance between periods with and without children. A reduction in the progressivity of the rate schedule compensated by a reduction in child tax credits and similar provisions, for instance, might leave many families relatively as well off when the entire life-cycle is considered.

The redistributional impact of tax reforms has to be analysed in the context of a country's entire tax and benefit system and not evaluated in isolation. This is especially true of the tax treatment of capital assets (Leape, 1990). Because taxes and tax provisions are capitalised in the prices of the assets, the current owners of tax-privileged assets are not necessarily the beneficiaries of these tax provisions. The price of owner-occupied houses, for instance, will be influenced by the presence and generosity of mortgage interest relief and the possible absence of a capital gains tax. The final incidence of these tax provisions will then depend on how the gains of the tax privileges are shared between sellers and buyers. Leape (1990) therefore concludes that whether or not one would propose preferential treatment for housing if one were designing a tax system from scratch, there is good reason to be very careful when altering or abolishing such preferences, because of the inequities that would result. This argument holds not only for owner-occupied housing but also for pensions, because pensioners no longer have the opportunity to adjust their labour-market behaviour in response to change in the PIT. These examples also point to the need for predictable and consistent tax rules as the basis for long-term private-sector planning of labour, saving, investment and consumption decisions.

Corporate income tax

It is often argued that reductions in the statutory corporate income tax rate or other tax reforms that reduce the effective corporate tax rate are unfair on the grounds that corporations should pay their "fair" share of taxes. This argument fails to recognize the fact that all taxes are ultimately borne by individuals – by shareholders through a reduction in the after-tax return on capital, by the labour force through lower wages and/or by consumers through higher prices for the corporation's products and services. Economic analysis suggests that especially in small open economies the corporate income tax is borne, to a large extent, by labour and consumers. Investors simply require a higher before-tax return on their investment in order to offset the impact of the corporate tax (OECD, 2007).

There are, however, genuine distributional considerations that might become an obstacle to the reduction of the corporate income tax rate. A reduction in the corporate tax rate implies a reduction in the overall tax burden on equity income, which could mainly be beneficial to higher income earners who typically earn a larger share of capital income than lower income earners. As capital income is not distributed equally across income levels, a reduction in the tax burden on capital income is often considered to be unfair.

However, the increase in the after-tax return on investment as a result of a corporate tax rate decrease is not necessarily fully distributed to shareholders in the form of a higher after-tax return. A decrease in the statutory corporate tax rate, if it is not compensated by base broadening measures that leave the firm's effective tax burden unchanged, can therefore also be beneficial to both low-income and high-income wage earners if the rate reduction gives rise to wage increases; the wages of different types of workers in different types sectors will not necessarily increase to the same degree as a result of a reduction in the CIT. Moreover, a large proportion of company shares are owned by pension funds, so after-tax profits go to benefit a fairly broad range of workers when they retire. Depending on the type of pension savings (defined contribution, defined benefit or any other type of pension savings), a reduction in the corporate tax rate might then create a windfall gain for pensioners and individuals that are saving for a pension and which have invested in shares. A corporate income tax rate reduction might therefore be beneficial to many households.

Personal income tax

A reduction in the top statutory PIT rate reduces the progressivity of the tax system; the adverse distributional impact might therefore create an obstacle to the reduction of the top PIT rate. However, the top statutory PIT rates are not levied at the same income level across the OECD (see Figure 2.11). The distributional impact of a reduction in the top statutory PIT rate will therefore differ across countries.

Moreover, some OECD countries levy a high tax burden on personal income but provide at the same generous tax expenditure provisions, as for instance for work-related costs, pension savings and mortgage interest payments. These tax allowances might reduce considerably the effective burden faced by many households. However, in addition to the distorting impact on behaviour, these tax provisions imply a reduction in horizontal equity if not all taxpayers are able to benefit from these allowances to the same degree. Moreover, because the value of the tax allowances are increasing in the PIT rate, the richer gain more than the households that face a lower marginal tax rate, which then violates the vertical equity tax principle. In fact, a reduction in the top PIT rates might then improve the fairness of the tax system as the value of the tax allowances will decrease for taxpayers with high marginal tax rates. Chapter 1 of this report argued for tax base broadening in order to reduce the inefficiencies, inequities and compliance and enforcement costs linked to tax expenditures. However, broadening the tax base might be difficult if at the same the rates are not reduced, especially because the tax allowances might compensate for the high statutory tax burden on households that face the highest statutory tax rates.

Value-added tax reform

Many countries use differentiated consumption taxes to reduce income inequality by exemptions,[2] zero ratings and reduced VAT rates on certain goods and services such as basic foods and merit goods as for instance medicine. The underlying explanation for the reduced rates is the regressive nature of consumption taxes as lower income households spend a larger share of their income on these goods than richer households do. The implementation of VAT base broadening measures might then face obstacles as a result of the perceived distributional impact of these measures. However, as the richer benefit in absolute terms more from the reduced rates than the poorer households (in particular pensioners, low-paid workers and social security beneficiaries), the actual distributional impact of these reduced VAT rates is unambiguous.

Similarly, an increase in the standard VAT rate implies a stronger increase in the average tax burden as a percentage of total income for lower-income households than for higher-income families who on average save a larger proportion of their income than lower-income households. But in absolute terms, the richer will very likely pay more as a result of an increase in the standard VAT rate.

This regressivity argument particularly holds for countries facing major constraints on administrative capacity and without well-developed social security systems. In many general low-income countries, significant and stable differences in consumption patterns between high and low-income groups allow for an easier and more efficient alleviation of regressivity of consumption taxes through rate differentiation. In particular, in these countries low-income families purchase most of their goods from local small-scale producers whose output must either be exempted or escapes taxation, while high-income families are likely to buy more factory-made or imported goods that can be taxed more

effectively (Copenhagen Economics, 2007). However, even in low-income countries, progressivity in consumption taxes could be better achieved through the selective use of excise duties on goods that are typically consumed by richer households.

Recurrent taxes on immovable property

Distributional and fairness considerations become an obstacle to the increase of recurrent taxes on immovable property as well. Recurrent taxes on immovable property are often levied at a proportional instead of progressive rates. An increase in the tax rate then implies that all property owners would face an increase in the tax burden. However, the richer might pay relatively more because they very likely will live in more expensive homes, although significant exceptions may be noticed, for instance in case of people whose income has dropped but who continue to live in the family home purchased when they were working.

Moreover, recurrent taxes on immovable property are not necessarily related to the taxpayer's ability to pay. In addition, the amount of property tax paid is in most, though not in all countries, decided by the capital or imputed rental value of the real property with little or no regard to the personal circumstances of the individual taxpayer or family. Adjustments could however be made through family-based rebates, for instance. Taxpayers who are subject to little or no income tax because of low taxable income perceive the property tax to be high in relation to their income. The classic example is that of an elderly widow who is living in the house where she raised her children, which is now too large for her and has a value that is out of proportion to her current income. Many countries have measures which attempt to ameliorate this problem, but it is still one that is raised in most countries when the level of property taxation is discussed.

More generally, the link between property tax paid and income may be perceived as being weak, which in some cases may indeed be so. However, it is probably true that for most households there is a strong correlation between the value of property owned and the income and wealth of the owner(s). In practice, a recurrent tax on residential property could therefore be considered to be a reasonable proxy for an income or wealth tax (Messere, 1993).

On the other hand, to owners that have a large mortgage on the property, recurrent taxes on immovable property may seem like an exorbitant rent paid to government (Messere, 1993). In fact, also transaction taxes could be considered to be extremely unfair given that many taxpayers have to pay the tax even though one could argue that, from an economic perspective, it is the bank who owns the property. In case of a transaction tax, many households will even have to borrow to pay the tax, which makes this tax even more unfair. Adjustments could however be made by levying recurrent taxes on immovable property only on the net value of the property (so allowing to deduct the debt) or by providing rebates.

Moreover, the tax burden on property is often linked to the cost of the provision of local public goods often related to immovable property, such as land-use, fire and police protection, maintenance of areas for pedestrians and cyclists and roads and public parks (Messere, 1993). The tax is often held to exemplify the "benefit principle", which implies that it may then be considered as the price paid for the services provided by the local government. The tax is therefore not linked to the taxpayer's ability to pay. A tax burden on property that exceeds the benefits that taxpayers receive from the local public goods might then be difficult to justify. The benefit principle also implies that the progressivity of recurrent taxes on immovable property is irrelevant to its fairness.

However, because an owner-occupied house provides for basic shelter, it is also argued that the owner-occupied property should not be taxed, especially for low-income households. The very poor, however, will very likely not be owners of their own house. Moreover, there is no reason in principle why these taxes could not be mildly progressive, by applying a tax free allowance that would effectively exempt low-income housing. However, most countries have not done this and, in fact, some have property valuation systems that reduce the effective tax rate paid on expensive dwellings.

Another major reason why taxpayers frequently regard recurrent taxes on immovable property as unfair is the possible arbitrariness of the valuation (Messere, 1993). Tax liabilities might depend on whether the tax base is the annual actual or estimated rent of the real property (annual rental value basis) or the amount for which the property has recently been sold or constructed or an estimate of these values (capital or sales value basis). In a stable economic environment, both tax bases would be closely related. In reality, however, this might not be the case as a result of, for instance, changing economic conditions or expectations about future price and/or rent increases or decreases (Messere [1993]).

Regarding the arbitrariness of property values, Bird and Wallich (1992) note that different types of property are often assessed differently. Older properties are often under-assessed compared to newer properties that recently have been bought and for which the price might be assumed to reflect the arm's length market value. The valuation is especially difficult when the property has some unique characteristics. Since taxpayers can easily compare the recurrent taxes on their real property with those of similar properties in their neighbourhood, differences in taxes can lead both to costly assessment appeals both for the taxpayer and the tax administration and to general pressure for tax relief.

Messere (1993) notes that taxpayers' perceptions about recurrent tax liabilities on immovable property may also be influenced by the fact that in many countries, taxes have to be paid only once a year – in case of instalment payments these rarely exceed four per year – and that they are not withheld at source like, for instance, the personal income tax. Moreover, because real property is re-evaluated very infrequently in many countries, re-evaluations might lead to very large changes in tax liabilities. This will reduce the attractiveness of recurrent taxes on immovable property even further.

Increases in taxes on immovable property are also difficult to manage as they are usually taxes that belong to sub-central governments. This means that any attempt to use these taxes to replace central government taxes could require changes to the financial relationships and the distribution of the tax burden between levels of government and therefore taxpayers.

Revenue and tax-avoidance concerns

Tax revenue considerations become an obstacle to the implementation of tax reforms if the reforms would reduce tax revenues – in the short and/or medium term – or increase uncertainty about the level of tax revenues that governments will collect in the future. This might be the case if the impact of proposed reforms on agents' behaviour is difficult to predict. Such reforms will therefore face stronger implementation obstacles from a tax revenue perspective. And even where there is an apparent tax "give-away" as a result of the tax reform, this might reflect the use of fiscal drag or restraint on the growth of public expenditure rather than tax reform windfall gains.

The behavioural response to tax reforms merits consideration in another context as also tax avoidance and evasion considerations might create obstacles to the implementation of tax reforms. As noted above, in-work benefits can reduce average effective tax rates while confronting those affected with steeply rising marginal effective rates. This gives workers an incentive to conceal income in order not to lose part of the in-work tax credit – by under-reporting earnings from their primary job or by taking a second job in the informal sector instead of working more in the official economy. An increase in the standard VAT rate may increase informal-sector trade and cross-border shopping, and an increase in the top PIT rate will reduce work incentives and might provide self-employed businesses with a tax-induced incentive to incorporate. Again, there is much to be said for a general rule of trying to keep most bases broad and most rates low because, in general, tax base broadening measures will reduce the tax compliance costs and the opportunities for agents to engage in tax-minimizing behaviour and the benefits of evading taxes. The tax reform obstacles created by tax avoidance and evasion considerations will especially be minimized if the increase in tax revenues as a result of base broadening leads to a reduction in tax rates.

International rules and commitments may limit reform options

International tax rules, European Court of Justice Judgements and EU Directives (applicable only for OECD countries that are also members of the EU), internationally agreed tax practices and bilateral or multilateral tax agreements can put constraints on the tax reforms that policy makers can implement. Consumption taxes, for instance, have to be levied on a destination basis under WTO rules, and international tax agreements concluded within an OECD context imply that countries cannot engage in harmful tax practices/competition[3] and have to exchange information on request.

The financial and economic impact of foreign tax systems may also impose constraints on the tax reforms that countries might want to implement. By reducing the CIT rate, for instance, governments might try to attract foreign direct investment. However, a corporate tax rate reduction in the host country will only transfer tax revenues to countries that tax their multinational enterprises (MNEs) on their worldwide income but allow foreign tax credits for the corporate taxes paid at source (OECD, 2007), without changing the effective tax burden – or the investment behaviour – of MNEs. This argument of course ignores the impact of tax deferral as MNEs can defer the taxation in their residence country until the moment when profits are repatriated. The international tax environment also imposes constraints on the amount of tax simplification that can be achieved with respect to such taxes as the CIT. In order to protect the domestic corporate tax base, many countries implement thin capitalisation rules, transfer pricing rules, controlled foreign corporation (CFC) rules and additional anti-avoidance tax rules.

Fiscal federal relations may complicate tax reform

Fiscal federalism might create obstacles to the implementation of tax reform. Many countries have "tax sharing" agreements between central and sub-national governments, which imply that the latter are directly affected by reforms of shared taxes, possibly leading to financial or other compensation measures that could reduce the efficiency of the reform. Tax-sharing agreements often include complex equalisation formulae to obtain horizontal equity among sub-central jurisdictions. Tax reforms might have an impact on these formulae, possibly leading to complex negotiations and corresponding

costs. The fact that some taxes might fall entirely within the jurisdiction of sub-national governments could become an obstacle to the implementation of reforms. A shift from direct towards indirect taxation, for instance, will be more complicated if direct and indirect taxes are levied by different levels of government. This is especially the case for property taxes which are often levied at the state, regional or local level, while income taxes are usually levied at federal level. A shift from income to property taxes, which could be beneficial for growth, would then imply an increase in tax revenues for the sub-national authorities and a fall in revenues for the national/federal level. This change might then have to be compensated by revenue transfers or changes in the tasks that have to be financed by different levels of government.

Tax reform at federal/national level requires co-ordination between the taxes levied and the tax and other reforms implemented at lower levels. For instance, if different states/regions within a country face different economic problems, it might be difficult to solve these problems only by changing the tax system at the federal level; tax reform that is good for some might not necessarily be good for all. This is for instance the case in Belgium where the Flemish region faces relatively high unemployment amongst older workers while the Walloon region has relatively more young unemployed. Tax measures that tackle the problems of some states/regions might then have to be accompanied by other tax reductions that tackle the problems of the other regions. This might be very costly in terms of tax revenues foregone. Where sub-central governments have discretionary power over rates and/or bases, special attention must be paid to prevent harmful tax competition between them, especially if sub-central tax rate and revenue reductions are automatically compensated – partially or fully – by higher transfers from central to sub-central levels. Tax reforms therefore require that different levels of government and different regions within the country act coherently. The implementation of income redistribution policies could also be at risk if different taxes are levied at different levels of government, because, as noted above, distributional goals cannot be achieved on a tax-by-tax basis but should be considered in the context of the tax and benefit system as a whole, irrespective of the level of government that levies a particular tax. This is for instance the case in countries where indirect taxes – mainly recurrent taxes on immovable property and/or VAT – are levied at the regional level while income taxes are levied at the federal level.

The transitional costs of growth-oriented tax reforms

Additional obstacles to the implementation of tax reforms may arise as a result of the transitional costs that they entail. The implementation of a tax reform involves a period during which new rules are implemented and firms and households adjust their behaviour in response to the new tax situation. These tax-induced changes in behaviour can be highly distortionary and very costly for the agents involved. High transition costs could be expected if, for example, the CIT were replaced by a corporate cash-flow tax, which no longer permitted the deduction of interest payments from taxable corporate earnings. In the absence of transitional measures, firms that were highly leveraged might then suddenly face a sharp increase in the cost of finance, which could lead to bankruptcy for some. The corporate cash-flow tax literature shows that most of the efficiency gains from having a corporate cash-flow tax might be lost during the transition period (OECD, 2007), because the new tax rules would have to be phased in gradually in order to prevent large economic disruptions. The provisions governing the transition period might have a big impact on the final tax reform outcome. For instance, increases in consumption taxes and

Box 3.1. **The announcement effect of an environmental tax on VOCs in Switzerland***

Announcing a new environmentally related tax (or an augmentation to an existing one) provides immediate incentives for pollution abatement. Yet, when it is announced and implemented in a relatively close time period there is little, if any, actual opportunity for firms to abate immediately. Experimenting with new techniques, installing new equipment, making new products, or switching inputs all require time to fully implement. The tax therefore is effectively levied on the current emissions (which are based on historical behaviour given the inability for capital assets to be quickly replaced or for processes to be immediately changed) even as they attempt to reduce the emissions. Credible announcements that environmentally related taxation will be implemented in the near future (one to two years, for example) can still provide firms with the abatement incentives of the tax without collecting revenue – and therefore without imposing a tax burden on businesses and consumers – based effectively on pre-tax production arrangements. Such a lead-in may also to help ease the implementation of environmentally related taxes that have strong constituencies arguing against its introduction. This is highly dependent on the government's credibility of imposing the tax in the future.

The Swiss tax on volatile organic compound (VOC) emissions utilised such an approach. VOCs are solvents used in industries that require quickly evaporating substances, such as paint making and metal cutting. Besides human health effects, VOCs also contribute to ground-level ozone formation (summer smog).

The law entered into force in January 1998 with the tax on VOCs of CHF 2 per kilogram (rising to CHF 3 per kilogram in 2003) only being levied starting in January 2000. Government decided to impose this 2-year implementation period in response to suggestions from the industry as well as from the relevant government authorities that there was a need for time to build industry competencies and infrastructure for effective tax administration.

The tax has been effective, as emissions of VOCs have decreased significantly. In the 1998-2000 period, emissions on taxed products already declined 12 per cent. Emissions dropped a further 25 per cent during 2001-2004 when the tax was fully implemented. In response to the credible future imposition of the environmental tax on VOCs, some abatement even started in 1998.

There were significant variations in the reactions of firms to the new charge. Larger firms generally innovated and adopted new technologies rather quickly, while smaller firms, due to financial or informational constraints, were less likely to act. The role of cantonal officials also varied, with some viewing their role as facilitative and administrative (and who helped with information and technology diffusion), compared to others who only viewed their role as tax administrator.

* This analysis is based on OECD, 2010c, *Taxation, Innovation and the Environment*, OECD: Paris (forthcoming).

excise duties could give rise to an increase in the inflation rate, especially if price increases automatically led to wage increases through the wage bargaining process. Other institutional factors, such as the presence and level of minimum wages, might strongly influence the impact of tax reforms during and after the transition period.

The mere announcement of a tax reform can have an impact on agents' behaviour even before it is implemented. The impact on short-run growth might be negative if, for instance, agents postponed investment decisions until the new tax rules were in force.

Problems may also arise if, on the contrary, agents rush to make the most of a tax distortion before it is removed.[4] The opposite result holds as well: the reduction or abolition of a growth-friendly provision could have positive short-term growth effects. For example, the announcement of the reduction of an investment tax credit in the near future could bring forward investment and thus stimulate growth in the short-run. Similarly, the announcement of a future increase in the VAT rate, for instance, will bring forward purchases of durable consumption goods. Whether or not this is desirable will, of course, depend on the structural position of the economy at the time. Announcement effects can thus create obstacles to the implementation of tax reforms or give rise to unanticipated distortions, especially if government cannot implement the reform immediately.

The time between the announcement of a tax policy change – possibly via the setting of an aspirational tax policy goal – and the actual implementation of the reform then becomes an important factor in tax policy. The appropriate length of time will depend in part on the degree to which the reform will alter the affected taxpayers' circumstances. Changes in taxes that have a particularly "regulatory" character may have particularly pronounced "announcement effects". The announcement of new environmental taxes or higher environmental tax rates, for example, might induce businesses to invest in better equipment so that they can avoid paying these taxes. The length of this period might depend on the time that firms need to replace their existing capital stock with new machines that are less bad for the environment. This, in turn, might depend on the actual age of the current capital stock and on whether better technologies are available or have to be developed first. The environment tax on VOCs in Switzerland, for instance, was announced two years before government actually started levying the tax (see Box 3.1).

3.2. Tax administration issues

Reformers need to be sensitive to the impact of reform on the tax administration itself, from an organisational perspective, including any major changes in the tasks performed by the tax administration. These tasks include the collection of information and the identification of taxpayers, the calculation of the tax liabilities, the collection of tax revenues, the communication with taxpayers, the provision of assistance and the enforcement of the tax laws. The tax administrative approach also focuses on any additional compliance costs imposed on taxpayers. Tax administrative issues might become an obstacle to the implementation of tax reforms if change would entail additional costs to the tax administration and taxpayers. Tax reform might be costly if it necessitates organisational changes in the tax administration, the development or adjustment of existing computer systems, the training of officials or the development of new compliance-monitoring systems. The new tax rules might also lead to an increased compliance burden on taxpayers. An increase in recurrent taxes on immovable property, for example, might require extensive – and expensive – revaluation of property. Property valuations are out of date in many OECD countries, and appropriate property valuation methods are lacking in some, although there are exceptions as, for instance, is the case in the Netherlands and Denmark.

3.3. Political economy and institutional factors

The political economy analysis of tax reform includes voters, political parties, lobby groups and politicians in the public finance models and analysis. The incorporation of voter preferences and the incentives facing politicians in the analysis allows a better

understanding of the formation of tax policy and the role of different political institutions in shaping it (Persson and Tabellini, 2002).[5] The democratic political process is such that a number of its characteristics might create obstacles to the implementation of tax reforms. This section discusses the main political economy arguments advanced to explain why socially beneficial tax reforms are not always implemented (see also Olofsgard, 2003). The underlying issue concerns the heterogeneity of agents: if all taxpayers had similar activities, endowments and preferences, then tax and expenditure policies would affect all alike, and it would be relatively easy to agree on optimum policies (if governments would have perfect information such that it would not be possible for taxpayers to free-ride, for instance). The different endowments and/or preferences of different groups mean that tax reforms will have a differential impact on them, and even socially beneficial reforms may contradict the interests of many. This heterogeneity finds expression in the political process, not least because it structures the incentives of politicians seeking election.

The visibility of tax-policy decisions is crucial

Politicians have an incentive to implement tax reforms that benefit large numbers of voters. However, they may not need to give equal weight to the interests of all voters, preferring instead to focus on attracting "swing voters", who are more likely to change their votes in response to a reform that favours them (Profeta, 2003). Tax reforms that benefit swing voters, though, are not necessarily in the general interest. Politicians might face incentives to reform the tax system in order to signal to particular groups of voters that they care about taxpayers' welfare. This might give rise to a sequence of incremental tax reforms that target specific groups and try to create winners without making losers. However, if piecemeal reforms are undertaken for the sake of reform and without any strategic vision to guide them, politicians might not understand or take into account the long-term implications of these measures, such as potentially negative impact on future tax revenues or the possibility that tax complexity might breed further tax complexity (Bradford, 1986, 1999). This entails the risk of making the tax system more complex without tackling the underlying economic problems and tax issues in the most efficient way. This process would seem to underlie the trend observed in various OECD countries at various times towards increasing tax expenditures. It is important to recognise, in this connection, that the visibility of tax policy changes may be highly asymmetrical: politicians may find it easy to adopt tax breaks that bring significant, visible benefits to specific groups (who are thus aware of the change and will support it) but result in an increase in the overall tax burden on other groups that is so small as to pass unnoticed. This asymmetry contributes to the incentives to increase tax expenditures and thus the complexity of the tax system overall.

In general, politicians face an incentive to enact reforms whose gains are visible at the time of the next election – and, if possible, whose costs are not. If the gains from tax reform are visible when the election takes place, politicians will maximise the probability of being rewarded for having undertaken them. This is, of course, on the assumption that individuals – regular as well as swing voters – will associate the politician(s) responsible with the benefits of the reform. Because growth-oriented tax reforms usually take longer to realise than incremental changes to the tax laws and are sometimes so complex as to leave voters uncertain of how to evaluate them, politicians operating with electoral time horizons in mind might prefer highly visible *ad hoc* measures to more fundamental reforms, especially when the next election is relatively close.

Tax reform visibility has other implications as well. If politicians view voters as strongly averse to increased taxation, they might want to choose forms of taxation that are less visible to the decisive (swing) voters. This partly explains why recurrent taxes on immovable property, which are highly visible, are rarely increased by politicians (Alt, Preston and Sibieta, 2008). This conjecture also seems to imply that employer social security contributions are more likely to be increased than employee social security contributions and that PIT cuts may be offset by increases in less visible indirect taxes. Another tax reform visibility example is linked to inflation. Alt, Preston and Sibieta (2008) argue that policy makers have an incentive to place greater reliance on taxes that need not be increased each year in order for revenues to remain constant in real terms. Policy makers therefore have an incentive to rely more on *ad valorem* taxes on capital and labour income and on VAT, instead, for instance, on ad quantum excise duties. The tax reform visibility argument offers an additional explanation for the phenomenon of "bracket creep" in many OECD countries. OECD (2007) concludes that most OECD countries do employ some form of adjustment, such as indexing tax band limits for inflation, in order to prevent large PIT burden changes as a result of inflation. These adjustments are, however, incomplete or infrequent in most countries. Because inflation might create a relatively hidden increase in the tax burden, the political process creates an incentive *not* to operate a system of full, automatic inflation adjustments ("full indexing"). Instead, the increase in tax revenues as a result of "not fully indexing" creates the opportunity for a highly visible tax reform after a number of years.

Uncertainty of the distributional consequences of tax reform may impede change

There can be considerable uncertainty about who will win and who will lose from a tax reform and whether (how) voters will change their voting behaviour in response. In fact, risk-averse taxpayers might vote against tax reform even if they knew that a majority would gain from the reform (Fernandez and Rodrik, 1991). This status quo bias reflects the fact that, while some of those who stand to gain or lose from the reform may be easily identifiable, the median or swing voter may not know *ex ante* whether he/she will join the winners, because the tax reform benefits will become clear only in the future. This individual uncertainty then generates a double hurdle for reforms: a reform must attract majority support both *ex ante* (to win adoption) and *ex post* (to be sustained). Olofsgard (2003) points out that this result hinges on the assumption that the winners from reform cannot credibly commit *ex ante* to compensate the losers *ex post* As a result of this uncertainty, voters might become reluctant to vote for a tax reform that was expected to increase overall welfare.

Policy makers could also face tax reform outcome uncertainty as a result of uncertainty regarding the impact of reform on agents' behaviour, income distribution, tax revenues, etc. In the presence of high levels of uncertainty about the number of winners and losers and the extent to which they are (positively or negatively) affected by the tax reform, policy makers might become more careful in taking a decision to engage in tax reform.

Other types of electoral uncertainty can hinder the implementation of growth-oriented tax reforms. Policy makers face uncertainty about who will be in power after the elections and whether the new government can reverse or stop a tax reform that was started before the election. Tax policy annulations or reversals might have an impact on who actually wins and loses from the tax reform. Policy makers may also be uncertain about the quality of information available concerning the likely impact of reform. They

have to base decisions on the information provided by their staffs, by the research departments of state bodies and/or political parties, by the social partners and by the academic community. The greater the uncertainty about information quality and the greater the divergence between the information obtained through different channels, the harder it will be for politicians to draw conclusions and to make decisions regarding the actual implementation of the tax reform.

Uncertainty about the divergent impact of tax reform on different parties in the governing coalition (or different groups within the ruling party) might create an obstacle to the implementation of welfare-enhancing tax reforms, especially if the constituents of one of the coalition parties bear most of the costs. Ashworth and Heyndels (2001) analyse the impact of political fragmentation in OECD countries over the period 1965-1995. They find that countries where political power is more dispersed change their tax system less frequently. When they do occur, tax reforms in such countries tend to be compensated by other changes in order to be acceptable to different parties. Hence, the more fragmented the government coalition, the harder it is likely to be for political parties to engage in fundamental tax reform.

Special interests may be very effective at influencing tax policy

An alternative political economy approach focuses on the political influence of the tax reform losers that may block the implementation of the tax reform. They might exert influence either directly, through their ability to block enactment of reforms within the parliament, or indirectly, by persuading politicians to opt for the *status quo* instead of launching a tax reform (Olofsgard, 2003). The potential beneficiaries of tax reform are often silent in contrast to the losers. This is typical of many structural reforms: for a variety of reasons, including loss aversion and endowment effects, agents are, ceteris paribus, more likely to mobilise against a proposal that threatens them than in support of one that offers them benefits. In the field of tax reform, this is typically the case when tax breaks are worth a great deal to special interest groups, but their abolition would bring only a small reduction in the total tax burden for most taxpayers.

Politicians might be more willing to listen to particular special interest groups if they receive direct or indirect campaign contributions from these groups or if these special interest groups consist of swing voters that have an influence on the outcome of the next election (Olofsgard, 2003). Different groups of taxpayers might also face different transaction (lobbying) costs (Holcombe, 1998). As a result, tax policy reform will be biased towards reforms that are favoured by influential lobby groups, which then might create an obstacle to the implementation of tax reforms that would be welfare-enhancing overall.

Alt, Preston and Sibieta (2008) note that policy makers should be aware that the enactment of new tax expenditures and the introduction of special tax treatment for particular groups of taxpayers might create new special interest groups. The removal of the special tax treatment might then turn out to be very difficult and might give rise to additional or extended special tax treatment provisions over time. Even when taxpayers did not lobby for a particular tax measure in the first place, they may lobby for its persistence and extension, even if the result is a less efficient, less fair, more complex and less growth-oriented tax system. Ashworth and Heyndels (2001) see tax expenditures, in particular, as a tool to serve swing voters and special interest groups. The underlying rationale for this is linked to the fact that, as noted above, the benefits from tax expenditures can be targeted while the costs – the reduction in overall tax revenue – can be

spread over all taxpayers. While there are good arguments for introducing tax expenditures in some cases, politicians that introduce tax expenditures do not necessarily internalise all tax expenditure costs. The political process might therefore lead to excessively high levels of tax expenditures which, once introduced, become very difficult to abolish.

The structure of the policy process can shape tax reform outcomes

Tax reforms may be blocked and changed, sometimes significantly, at the legislative stage (Bird, 2004). Sound tax policies might therefore lose many of the desired tax design characteristics. The growth-enhancing economic impact and/or the equity characteristics, for instance, of a tax reform might be reduced as a result of the changes made to the proposals during the parliamentary process. Tax reformers must therefore pay close attention to these critical aspects of the policy process and, in particular, to the ability of special interests to influence parliamentary behaviour.

Tax reform outcomes reflect not only the political rules of the game, but also the institutional context within which alternative tax policies can be analysed and evaluated and within which final tax policy decisions can be made (Hettich and Winer, 1999). This institutional tax reform perspective points to particular legislative rules of procedure, committee systems and other aspects of institutional design that can help or hinder the implementation of growth-oriented tax reforms. Much may depend on who decides to evaluate particular reforms – and when this evaluation decision is made, which tools and type of analysis will be applied in the evaluation and who will be asked to conduct it. Weingast and Marshall (1988) argue that the assignment of legislators to committees and the institutional arrangements that create agenda power for each committee are key issues in explaining tax reform outcomes. The tax reform process also depends on who has the authority to invite experts to appear before tax committees or otherwise to participate in the policy process, and who will participate in setting the future tax reform agenda. Other key factors are the institutional settings that determine how expert analyses will be submitted – and to whom – and what will be done with their evaluations. In particular, it may matter whether or not the government commits to making these evaluations and (intermediate and/or final) reports public and when.

The publication (or not) of such analyses is, in turn, linked to the reformers' communication strategy. A key objective of such a strategy might be to create public awareness of, and support for, tax reform. This might be achieved through public debates, consultation rounds involving the social partners or other representatives of civil society, etc. The ways that these communication processes are managed might have an impact on the tax reform outcome. The communication strategy of tax committees or other bodies charged with crafting reform proposals will be shaped by the rules governing their conduct: how can tax committee members communicate about the work done by the committee and who decides on these rules etc.

Similarly, the scope for tax officials or other civil servants to provide input in the tax reform debate and/or to make reform proposals should be considered. Tax administrations, for instance, are generally able to provide good quality input in the tax reform process, and their role, involvement and support for reform is crucial, as they will have to implement and enforce the new arrangements. Tax administrations will generally be particularly sensitive to the administrative and compliance aspects of reform, about which others may know relatively little. They can therefore identify problems likely to arise

during the transition period following a reform or warn of the dangers that may exist where proposals that are economically sound in principle may be administratively very problematic in practice. For example, proposed reforms may threaten to add to compliance burdens or to create new opportunities for tax avoidance and evasion.

Notes

1. Horizontal equity from a tax perspective implies that taxpayers in an equal situation should be taxed in an equal manner as they have the same ability to bear the tax burden. The tax policy objective of vertical equity prescribes that taxpayers with better circumstances should bear a larger part of the tax burden as a proportion of their income. Vertical equity then implies that the distribution of after-tax income should be narrower than the distribution of before-tax income, or that the average tax rate should be increasing in income (OECD, 2006).
2. Exemptions are employed by all OECD countries not only for social and distributive aims but also because countries face difficulties in levying the VAT, for instance on services provided by the financial sector.
3. More information can be found on the OECD website of the Centre for Tax Policy and Administration: *www.oecd.org/ctp* under the heading " harmful tax practices ".
4. In 1988, for example, the announcement of changes to the rules governing mortgage interest relief at source, which were to take effect only four months later, triggered a rush to complete mortgage deals before the change entered into force. As a result, an already over-heated housing market was pushed still further, only for the boom to end in a house-price bust a short time later.
5. Of course, tax is only one issue among many determining voters' choices and it is by no means always the most salient, although elections may sometimes turn on major tax reforms.

PART II

Chapter 4

Strategies for Successfully Implementing Growth-oriented Tax Reforms

Policy makers can follow certain strategies to make growth-oriented tax reform happen. These strategies help them overcome or circumvent obstacles to tax reform and allow policy makers to reconcile the different efficiency, fairness and wider tax policy objectives. Even though these strategies do not offer a menu that automatically can be applied to all possible tax reforms in OECD countries, the analysis that follows will offer insights that policy makers may find useful in facing the challenging task of implementing growth-oriented tax reforms.

4.1. A clear strategic vision and solid tax policy analysis

As a starting point, governments might try to obtain a consensus on broad, long-term tax reform objectives. These might include reducing the country's debt-to-GDP ratio, increasing domestic saving and investment, attracting foreign investment or increasing the labour supply. A broad consensus on tax reform goals will facilitate the discussion and evaluation of different tax reform proposals that attempt to realise these broad objectives. Clear communication regarding long-term objectives might facilitate the creation of a broad social consensus that favours the introduction of the most desirable tax reform measures. When designing a reform that achieves the broader reform objectives, governments might have to find a balance between such different tax design criteria as efficiency, equity, simplicity, enforceability, revenue-raising ability, etc. Clear communication with the public about these trade-offs and the choices that have to be made might help in obtaining support for the reform.

Even in the absence of a broad strategic consensus on tax reform, governments can reduce uncertainty and begin to guide tax reform debates by announcing aspirational tax reform goals before presenting specific proposals. In Australia, for instance, the aspirational tax reduction goals are announced before the start of the fiscal year. The goals can be postponed in case of a worsening of the economic or budgetary situation. The setting of aspirational future tax reform goals can also be applied to announce future tax rate increases or future shifts in the tax mix, for instance. This approach allows policy makers to set long-term tax policy goals that go beyond the current government horizon. It also creates incentives not to deviate from these goals and to resist, for instance, to the pressure of certain lobby groups during or after the implementation of part of the announced tax reforms, because the government's credibility is at stake. Moreover, aspirational tax reform goals provide a measure of predictability even where the entire reform cannot be implemented immediately. This provides agents with the opportunity to adjust their behaviour over time, which will avoid large shocks in behaviour. This reduces the costs for the agents involved and the distortionary impact of reform on the economy as a whole.

Once the broader tax reform objectives have been set, governments can start evaluating specific reform proposals and studying the degree to which these proposals achieve the desired objectives. The evaluation of tax reform proposals should focus on their behavioural impact, their revenue implications, their distributional impact, their implications for compliance and enforcement costs, and any tax avoidance and evasion

issues that may arise. In order to be able to draw well-founded tax policy conclusions, it is important that all aspects of the proposed reform are analysed. Different types of models can assist in assessing the impact of new tax measures on revenues and welfare. Static tax policy models are simple and can provide a first indication of the effect of a reform on revenues and welfare but do not model its behavioural impact. This is especially important in the case of reforms that are intended to increase efficiency since they "work" by changing behaviour. However, behavioural tax policy models are more complex to build and operate. They provide a more complete view of the impact of tax policy changes on revenues and economic performance, though their predictions may be subject to a wide margin of error. General equilibrium models are not based on disaggregated taxpayer information but do consider the interaction between different markets and prices as a result of the tax policy reform and are therefore useful as well.

4.2. Framing tax policy debates when equity issues arise

The evaluation of tax policy reform implies addressing the impact of the tax reform on income distribution. However, policy makers should bear in mind – and communicate to the electorate – that distributional goals should not be assessed on a tax-by-tax basis. Alt, Preston and Sibieta (2008) argue that in order to pursue sensible tax policy, it is essential to see the tax system as a system rather than to consider its different elements in isolation. Disconnected tax debates may be particularly counter-productive for the implementation of growth-oriented tax reforms. Broadening the VAT base, for example, might be difficult if the discussion of VAT reduced rates on particular goods takes place in isolation. The framing of the debate on recurrent taxes on immovable property in isolation will likewise hinder its adoption. Alt, Preston and Sibieta (2008) argue that such framing could result from a lack of public understanding of the actual impact of different taxes and of the interconnectedness of the tax and benefit systems. Discussing tax policy reforms in isolation could reinforce this lack of understanding by allowing the tax reform discussion to focus on individual taxes only. Lobby groups might have an incentive to frame particular tax policy reforms in isolation, but this approach is unlikely to be in the interest of the general public.

4.3. Advancing reform and *ex ante* constraints

Accepting certain constraints up front might help governments to build support for tax reform. A government could, for example, commit to implementing only reforms that were judged to be redistribution-neutral, reforms that did not lower total tax revenues or reforms that did not change the favourable treatment of, say, mortgage interest deductions. However, explicitly accepting some up-front constraints regarding key tax objectives might imply ruling out some Pareto-improving reforms. Ackerman and Altshuler (2006) argue that it is nearly impossible to design a tax reform that relies on base-broadening measures to finance rate reductions and is nevertheless both revenue- and distribution-neutral. They argue that, although imposing up front constraints on the tax reform process can be beneficial, the trade-off is a greater likelihood that the reform that actually is implemented will not dramatically alter the tax system. Policy makers should therefore be careful in setting strong constraints up front, because they may dictate the outcome of any reform effort.

That said, accepting constraints on the reform process might also make it easier to implement reform. The more negotiable are the reform details, the higher is this incentive, and the greater is the likelihood of delay (Alesina and Drazen, 1991). Thus, governments must sometimes put themselves in a situation where burden shifting across groups is

impossible. This is why affirming certain constraints on the reform *ex ante* might make it easier to pursue. Common examples include the reliance of national governments on international constraints, such as those coming from the IMF or the European Commission, to persuade stakeholders that some measures are inescapable or on tax reform principles that were agreed upon during prior tax reform processes, as was the case in Norway at the start of the 2006 tax reform process (see Box 4.1).

Box 4.1. **The "split model" in Norway: from diamond in the dual income tax reform crown to the tax system's "Achilles heel"***

The 1992 dual income tax reform in Norway introduced a flat personal income tax rate of 28 per cent on personal income. The same rate is used for corporate income. In addition to the flat rate, a progressive surtax is levied on gross income from wages and pensions above a certain threshold. Double taxation of distributed profits was prevented through a full imputation system. Double taxation of retained profits was prevented through the so-called RISK scheme.

In order to ensure an equal tax treatment of wage earners and the self-employed, the dual income tax system splits the income of the self-employed into a labour income component, as a reward for work effort, and a capital income component, which is the return to the savings invested. The capital income component is calculated by imputing a return – the sum of a risk-free market interest rate plus a risk premium – to the business's capital stock; the labour income component is then residually determined as total business income net of capital income. The part considered as labour income is taxed according to the progressive rate schedule. The part considered as capital income is taxed at the flat rate. This approach is also used to avoid active owners of closely-held corporations transforming their highly taxed wages into lower taxed capital income, given that at least ⅔ of the owners classified as active owners (OECD, 2006). The split-model gave rise to a lot of tax-planning activities aiming to shift the amount of highly-taxed labour income into lower-taxed capital income. The most obvious loophole was to invite a minimum of ⅓ silent partners in order to escape the mandatory income splitting. In many cases, the reduced tax bill alone paid for a giveaway of ⅓ of the shares (Riis Jacobsen, 2007).

In 2002, the right wing Bondevik-II government appointed an expert committee, led by former Finance Minister Arne Skauge. The mandate of the committee was broader than only the income shifting problems connected to the split model; the committee had to consider reforming the tax system in order to make it more robust in light of the increased international capital mobility and the European Economic Area (EEA) agreement. Tax simplification and strengthened redistributive properties were additional tax reform objectives. The committee's tax reform suggestions had also to be in line with the dual income tax principles that were established during the 1992 tax reform process.

The Skauge committee considered several tax reforms. The least radical change that was discussed was a tightening of the existing split model. Narrowing the gap between the marginal tax rates on labour and capital income combined with a tight split model would probably have been the easiest way to address the income shifting problems. However, the committee did not have much faith in the robustness of such a reformed tax system, mainly because the problems with the former tax system were not due to the split model in itself, but arose because politicians used the system to achieve (personal) political economy objectives that undermined the functioning of the tax system. Because the committee did not believe that politicians would refrain from doing so in the future, this tax reform proposal was not implemented. Instead, the allowance for shareholder equity tax system was implemented (OECD, 2007).

* This analysis is based on Riis Jacobsen (2007) and OECD (2006b).

4.4. *Ex post* evaluation and international dialogue

Ex post evaluation of tax policy changes might provide valuable insights and offer an opportunity to learn from tax reforms that have been implemented in the past, thereby increasing the probability of better reforms in the future. Countries might evaluate *ex post* whether the tax reforms have achieved their objectives and analyse why certain objectives were or were not met. They might also assess the impact of tax reforms in terms of efficiency, equity, compliance, evasion and revenues. This will offer an opportunity to improve tax reforms that already have been implemented and might yield valuable insights for future tax reforms. *ex post* evaluation might lead to a set of country-specific best tax policy practices and clarify the need for specific tax policy evaluation tools and models that have to be developed. Policy makers might commit to an *ex post* tax reform review by a specific date in order to help legislation pass (see the example of the Netherlands in Box 4.3). This commitment will also provide a motivation for evaluation. Another related mechanism is the use of "sunset clauses", which implies that tax rules have to be confirmed. This might then provide an incentive for *ex post* tax policy reform evaluation as well.

Countries might also learn from other countries' best practices. International organisations like the OECD play an important role in offering a platform for sharing experiences and discussing international best practices. In fact, the focus in such fora should not only be on best practices, but also on countries' (partial) reform failures in order for other countries to learn and reduce the probability that they will make similar mistakes.

The potential for cross-border spillovers in connection with tax reform reinforces the case for such international engagement: the implementation of tax reforms might have repercussions for other countries and might depend on whether other countries implemented similar type of reforms. The introduction of a comprehensive business tax (CBIT), for instance, is probably only feasible if many countries implement the same corporate tax reform at the same time; otherwise, such a reform will discourage investment in the reforming country as the CBIT will strongly increase the cost of debt-financing at the corporate level. Small countries that increase the statutory VAT rate might simply lose revenues as a result of increased cross-border shopping, unless neighbouring countries also increased their VAT rates. Co-ordination of tax policy, especially among neighbouring countries, can therefore be important. Co-ordination might also prevent countries from engaging in race-to-the bottom tax competition or implementing harmful tax practices that would undermine the efficient working of the overall tax system. The role of international organisations in this context is important, as they play an important role in creating a forum where countries can share information and views about tax (and other) issues.

The OECD's work on the Model tax convention, the transfer pricing guidelines, the work on harmful tax practices and on the international tax information exchange agreements contribute to the creation of a level playing field. The OECD's tax work avoids international double taxation but also attempts to prevent no-taxation; it reduces tax evasion possibilities, contributes to the reduction of tax compliance costs, helps create an environment where individual taxpayers and businesses have greater certainty about the tax rules they will face and improves the tax system's equity as it helps ensuring that all taxpayers pay their fair share of the tax burden. Moreover, these international tax rules

help broaden tax bases, thereby creating opportunities to lower the tax rates and therefore a "pro-growth" tax environment. The participation of both OECD members and non-member countries in the OECD's tax work is therefore in itself part of a "making growth-oriented tax reforms happen" strategy.

4.5. The proper timing of reform

Good reform proposals that are put forward at the wrong moment may be blocked.[1] For instance, politicians will have to decide when to bring the reform proposals to the attention of the broader public, when to explain the impact of the reform and when to implement it. New governments that have campaigned for election on a platform of tax reform can use their electoral mandates to make rapid progress. Other issues of reform timing, however, may depend more on the state of public finances than the political conjuncture. Experience shows that it might be easier to implement growth-oriented tax reforms when a country is running budget surpluses that could absorb possible revenue losses or could be used to partly compensate the losers from tax reform. The implementation of counter-cyclical growth-oriented tax reforms could anticipate possible economic downturns and mitigate their impact by putting the economy on a higher growth path before the downturn hits. In short, governments face incentives to engage in growth-oriented tax reforms when times are good. However, it might not be possible to obtain support for fundamental reform in a cyclical upswing. An economic downturn might then create an opportunity to introduce growth-oriented tax reforms and put the economy on a higher long-run growth path. Recessions sometimes expose very clearly the weaknesses of the economy and thus the need for reform. As a result, taxpayers and voters might more easily accept the necessity of reforms that tackle the underlying economic problems. The problem then, however, is that the deterioration in public finances brought about by the downturn may reduce the fiscal space available for financing reforms that might involve up-front costs.

It can sometimes pay to prepare ideas for tax reform in advance and wait for a good moment to launch them into the political arena. Politicians might, for instance, try to obtain political support within their own political party and gather data that provide support for tax reform before they express their tax reform ideas in the public domain. Governments might also have an incentive to postpone the presentation of tax reform ideas until they are ready to answer the most difficult questions and respond to the most severe criticisms. Aggregate tax reform uncertainty might create an option value to learning. Policy makers' and other stakeholders' understanding of economic problems might be improving over time, as more and better information becomes available. In that case, it may be better to defer an apparently worthwhile reform until further information confirms the tax reform gains. This might then lead to tax reforms that are implemented late, but vigorously and quickly.

4.6. "Bundling" reforms into comprehensive packages

In devising an approach to tax reform, policy makers face a difficult choice between "bundling" and "sequencing" – that is, between attempting to adopt a comprehensive tax reform more or less at once, in what is sometimes referred to as a "big bang" approach and pursuing a more incremental strategy. Both offer advantages and disadvantages, and the question of which is to be preferred depends not only on the institutional and political context, as well as on the goals of the reform and the obstacles that might be foreseen. In

general, however, the literature seems to suggest that comprehensive reform is preferable, at least when it is possible. Examples of comprehensive tax reforms in the Slovak Republic and the Netherlands are presented in Boxes 4.2 and 4.3, respectively.

Box 4.2. **The 2004 Comprehensive Tax Reform in the Slovak Republic**

The 2004 "comprehensive" flat tax reform in the Slovak Republic aimed at improving labour market flexibility and increasing work incentives as well as attracting more foreign direct investment under the condition that the tax reform had to be broadly budget neutral. Before the tax reform, the personal income tax system had five income brackets, with marginal tax rates varying from 10 per cent to 38 per cent. The "average" production worker faced a marginal personal income tax rate of 20 per cent. The corporate tax rate was 25 per cent; it was 40 per cent before 2000.

The introduction of the 19 per cent flat tax rate on corporate and personal income – the flat rate was set below the marginal rate faced by average workers – was combined with certain base broadening measures and with a large increase in the basic allowance – it more than doubled – in order to offset the increase in the marginal tax rates for lower income households. At the same time, the government reduced social assistance benefits, introduced additional reforms that "make work pay" and shifted the tax burden from direct to indirect taxation. The value added tax rates of 14 per cent and 20 per cent were replaced by a single 19 per cent tax rate – the new VAT rate being slightly below the top statutory VAT rate of 20 per cent might have helped gaining political support for the reform – and certain excise taxes were increased.

The tax reform turned out to be broadly revenue neutral as a result of the shift from direct to indirect taxation. A comparison of the estimated tax revenues that would have been received in 2004 in the absence of the tax reform and the actually received tax revenues in 2004 in per cent of GDP demonstrates that the decline in personal income tax revenues (from an estimated 3.3 per cent of GDP to 2.5 per cent of GDP) and corporate income tax revenues (from an estimated 3.0 per cent of GDP to 2.2 per cent of GDP) has almost entirely been compensated by the increase in VAT revenues (from an estimated 7.2 per cent of GDP to 8.0 per cent of GDP) and excise revenues (from an estimated 2.8 per cent of GDP to 3.4 per cent of GDP).

There are various elements of the 2004 Slovak tax reform which tend to change the income distribution in favour of the more affluent households (OECD, 2005). However, the issue of fairness in taxation cannot be separated from the issue of efficiency. As the tax reform aimed at increasing the capital stock and improving the allocation of capital, labour productivity might increase; this will raise real wages so that workers, including the low-skilled, will over the longer-term also benefit from lower taxes on capital. As these benefits only arise over time, an increase in the basic tax-free allowance was crucial to obtain the lower-income workers' political support for the tax reform.

For a start, bundling reforms may make it easier to address distributional issues. There are examples of "bundled" tax reforms, involving the simultaneous adoption of multiple changes in taxes (and sometimes benefits) that will mitigate the costs of reform for groups that might otherwise be hard-hit by individual measures. VAT base-broadening measures, for example, increase tax revenues that can be used to compensate poorer households through increased direct benefits. This approach was followed in Chile. Alternatively, the

Box 4.3. **The 2001 comprehensive tax reform in the Netherlands**

The 2001 tax reform in the Netherlands aimed at reducing corporate and personal income tax rates financed by broader tax bases, shifting from direct to indirect taxation and by "greening" the tax system, replacing tax allowances by tax credits and replacing the wealth tax and the taxation of personal capital income with the taxation of an imputed return on capital at the individual level. This "presumptive capital income tax" aims to ensure that all forms of personal capital income are taxed equally. It prevents taxpayers from realizing capital income in the form of tax-free capital gains, as was the case before 2001. Instead of a tax on the actual return on capital, a 30 per cent proportional tax rate is applied on a notional return of 4 per cent on the net value of the assets owned by the personal investor. A basic tax-free allowance introduced a progressive element in the presumptive capital income tax (Brys, 2006, 2009).

The reform process that resulted in the 2001 tax reform started in 1997 when the tax rules for closely-held corporations were revised. This reform resulted in the "Taxes in the 21st century" report that was presented to Parliament in 1997 and which identified the main problems with the old tax system and presented possible contours of a new tax system. The conclusions of this report were afterwards integrated in the coalition agreement of the second cabinet of Prime Minister Kok.

The 2001 Income Tax bill and the accompanying explanatory memorandum were put forward in Parliament in September 1999. Different roundtable conferences were organized and the Netherlands Bureau for Economic Policy Analysis (CPB) released its report "Economic consequences of the 2001 Tax Reform". The bill was amended several times and was accepted in Parliament in May 2000.

The coalition partners agreed that the 2001 tax reform would be evaluated after 4 years. Particular elements of the new Income Tax law which did not work out as planned were already reformed before the end of that 4-year period. The evaluation report (269 pages!) was discussed in the House of Representatives at the end of 2005, leading to a number of tax reform adjustments.

impact of VAT base-broadening could be offset by a reduction in PIT rates in the lowest personal income tax brackets or increases in the threshold at which PIT begins to bite. A statutory CIT rate reduction could be accompanied by an increase in taxes on capital income at the personal shareholder level. An increase in the recurrent taxes on immovable property or VAT could be used to finance a reduction in employee social security contributions. Bundling reforms also allows governments to allocate the benefits of reform to particular types of taxpayers, for example through direct increases in benefits or indirect tax cuts. By choosing the details of the tax reform package, governments will increase the probability of finding sufficient political support to implement the reforms. However, the compensation of particular groups of taxpayers will only be necessary if these groups have the power to block reform or are seen as possible swing voters in the next election.[2] The potential to advance reform in combinations like these highlights the importance of viewing the tax system as a whole rather than considering individual taxes in isolation. In order to advance growth-oriented tax reforms, governments may need to combine tax and benefit reforms in different areas in order to achieve a balance among the broader reform objectives of efficiency, growth, equity and revenue.

While much attention is often paid to the very real difficulties of engineering a "big bang" reform, there are times when it may offer a far easier way forward than a more gradual approach in order to obtain sufficient support for growth-oriented tax reforms. Olofsgard (2003) points out that bundling reforms may be necessary if there are a number of potential "veto players" whose support is crucial. Martinelli and Tommasi (1997) argue that often, and particularly in Latin America, reforms are an all-or-nothing process. Gradual reforms may be impossible, whereas big bang reforms may be feasible, even if only at some opportune moments. They propose a model in which each group has veto power such that divide-and-rule tactics cannot work: each individual reform measure pleases two groups and hurts one, so every single reform will be vetoed. Yet there is a "grand reform" that corrects all distortions at once. In that case, the strategy of bundling many reforms together becomes the only politically feasible strategy. In short, in countries where many groups, agents or institutions have *de facto* veto power over tax policy, reforms might be delayed until the time when the distortions of the status quo hurt all groups, who then accept a grand reform.[3]

The comprehensive (big bang) approach to tax reform might be preferred over the incremental tax reform approach for a number of other reasons (Olofsgard, 2003). Comprehensive reform might prevent the formation of lobby groups powerful enough to stop the reform or to adjust the reform proposals in such a way that its main goals are no longer (or only partially) achieved. By acting quickly, governments might actually increase the probability that growth-oriented tax reforms are implemented. Olofsgard (2003) also argues that the big bang approach may also be preferred if the full tax reform package is necessary in order to realise the long-term benefits of reform or if there is a risk that the tax reform will be stopped or reversed. Tax reform support may be withdrawn if the realisation of long run benefits becomes uncertain because of the risk of getting stuck at a partial reform equilibrium. Finally, a good comprehensive tax reform package is, if it can be accomplished, better than an incremental approach, which runs the risk of losing focus and degenerating into *ad hoc* measures that do not lead to the "pro-growth" change that might be needed.

As noted above, policy makers have a greater incentive to engage in tax reform if the gains will be visible by the time of the next election. Given the four- or five-year political cycle in most democratic societies, growth-oriented tax reforms – especially the comprehensive reforms that require more time before the tax reform gains become visible – will have to be introduced at the beginning of a government's mandate in order for the gains to be tangible by the next election.

4.7. Incremental growth-oriented tax reform approaches

The attractions of comprehensive reform notwithstanding, there are circumstances in which sequencing reforms may be the desirable – or even the only feasible – strategy. In fact, even if a comprehensive approach is followed, governments could still implement the comprehensive reform on a tax-by-tax basis instead of implementing all tax reforms at once. The distinction between the adoption of a grand reform and its implementation should not be overlooked, because the greater the complexity of the changes adopted, the more likely it is that implementation will take time. Yet there are also arguments for taking a more gradual approach to the adoption of reforms.

Uncertainty constitutes one such argument. Dewatripont and Roland (1995) propose a model in which a major reform can be split into two smaller, complementary reforms, both of which must be implemented to realise the benefits of the complete reform. However, uncertainty surrounds the benefits of reform. Implementing the entire reform at once would produce all benefits and costs immediately. The gradual strategy, however, would introduce only one of the smaller reforms in the first step. Once the outcome of that smaller reform was observed, the population would decide whether to implement the second reform or to return to the status quo. The costs of reversal are increasing in the magnitude of the reforms already implemented. Thus, the gradual strategy dominates if the first reform has a sufficiently high probability to reveal that the whole process should be stopped: this saves on reversal costs. Because of the option value of an early reversal, gradualism also facilitates social acceptance of the whole reform process, particularly if the second part of the reform is "politically difficult". In fact, the second reform will only be implemented if that the experience of the first reform suggests that its benefits will be sufficiently great. Thus, some of the *ex ante* opposition to a comprehensive reform may be quelled by proceeding in stages and providing a possibility to block the entire process at the interim stage. Dewatripont and Roland (1995) also show that reformers should first implement the reforms that have *i)* the highest expected payoffs, *ii)* the highest risk for any given expected payoffs, and *iii)* a high probability of revealing information about the value of the entire reform process; the first and second reform should also be complementary.

It may also pay to unbundle reforms that cannot overcome the status quo bias, and hence to spread the implementation of the (comprehensive) tax reform over time (Dewatripont and Roland, 1992). The idea is simply to divide the reform in two steps that do not harm the same voters (or interest groups). The first measure targets a sufficiently narrow group of the population and thus enjoys the *ex ante* support of a majority. Once this first reform is passed, the group that opposed it may come to support the second step, which will target voters not threatened by the first. In essence, the strategy of sequencing here aims to divide and conquer those who would unite to reject a fundamental reform if it were undertaken all at once. Moreover, if the reform sequence proceeds in a consistent way, the process as a whole will gain credibility and agents will become gradually more accepting of subsequent reforms, not least because some will start to adapt their behaviour in anticipation of the changes that are in prospect.

If, however, there is too much uncertainty about when the next step in the tax reform will be implemented, taxpayers might wait to adjust their behaviour instead of immediately anticipating the reform. Moreover, the approach does provide taxpayers with an opportunity to start lobbying against reforms that are planned for the future. A proper design of the different phases of the tax reform – which type of tax reform will be implemented when, and what are the conditions for tax reform deferral – is therefore crucial. Thus, a sequenced approach to tax reform would still benefit from the kind of overall strategic reform vision discussed above. Otherwise, there is a risk that policy will become increasingly *ad hoc* and inconsistent.

An incremental tax reform approach also makes fewer demands on scarce policymaking and administrative resources and may therefore be more likely to succeed (Bird, 2004). By first introducing relatively popular reforms, politicians might obtain a good tax reform reputation and build up support for the implementation of the more controversial measures (Olofsgard, 2003). However, Stiglitz (2002) argues that tax reform will generally be accepted if there is some kind of tax reduction in prospect. He therefore

advises not to reduce the rates before the more complex issues have been put on the reform agenda. In any case, a comprehensive tax reform does not necessarily rule out the necessity for incremental follow-up measures. A big-bang tax reform might create new loopholes, it might need to be corrected or amended subsequently, or it might exacerbate existing distortions that were not tackled by the original reform plan. The further "fine-tuning" of the tax reform will then require incremental tax reform.

A sequenced approach to reform may also better suit politicians with an eye on the electoral calendar. A comprehensive tax reform, even if it is implemented at the beginning of the electoral cycle, might take longer than 4-5 years to generate visible gains. Because politicians run then the risk of not being rewarded for the reform at the next election, they might prefer to follow the incremental approach, especially if there is a substantial probability that the next government in power will reverse the tax reform. Reforms that are more difficult to design, for which it takes longer to obtain sufficient political support and that take longer to implement might therefore be enacted first.

4.8. Transitional arrangements

Governments may sometimes allow for "grandfathering rules" that allow the old tax rules to continue to apply to some existing situations while the new tax rules will apply to all future situations. This strategy might be considered if agents no longer have the opportunity to adjust their behaviour in response to the new tax rules because they are, for example, already retired and therefore no longer have the opportunity to adjust their labour-market behaviour. However, grandfathering rules that are not well-targeted will reduce the gains that can be realised by reforming the tax system, particularly if agents are able to take actions that will lock-in the old rules. Moreover, grandfathering rules increase the complexity of the tax code, which results in increased compliance and enforcement costs. They can create tax evasion opportunities where new and old rules co-exist and they may reduce the revenues gains from growth-oriented tax reform. The old rules might be phased out over time, implying that after a number of years only one set of tax rules will apply. Government would then have to decide upon the proper length of this phase-out period.

Governments need to be careful not to implement transitional or other temporary policies that will in fact be difficult to reverse. The removal of special tax treatment for particular groups can be difficult, even if it was never intended to be permanent, because of pressure from those who benefit from special treatment. Temporary measures thus have a tendency to become permanent. However, the introduction of temporary tax measures can be beneficial in particular circumstances. If a government does introduce temporary measures, it might be advantageous to include the expiry date in the original legislation (sunset provision or clause). The special tax treatment can, of course, be confirmed by law for a new period of time if need be, but it will be harder to lobbyist to resist a return to the *status quo ante*. This approach signals the temporary nature of the special tax rules.

4.9. The quality of the institutions charged with reform design and implementation

Bird (2004) discusses different strategies for "institutionalising" the process of tax reform. The recommendations in this section largely reflect the analysis in Bird (2004) and his review of McIntyre and Oldman (1975). The latter argue that countries that put in place appropriate institutional arrangements for tax reform would both improve the quality of

tax reforms proposed and increase the likelihood of their adoption and successful implementation. Appropriate institutional arrangements are necessary in order to ensure the adequate drafting of the tax legislation, the collection and analysis of relevant tax and other data, proper tax reform planning and effective communication with the broader public. They argue that better planning will increase political support through improved transparency and public understanding. It will be possible to make changes in reform proposals for political (or other) reasons more quickly, while at the same time remaining faithful to the underlying objectives and rationale of the reform. It is easier to resist politically appealing and populist arguments against reform where proposals are backed up by high-quality tax policy analysis. Moreover, politicians introducing reforms will have more control of the process in terms of timing and presentation.

Good institutional planning of growth-oriented tax reforms is a precondition for their successful implementation. However, it is also necessary for improving both the design of the many technical rule changes that might have to be made to accommodate tax rules to the changing environment (Bird, 2004). Moreover, good planning is also important to prevent the implementation of tax rules – or small changes to these rules – in ways that undermine the proper functioning of the tax system. Effective tax analysis departments can help reduce the uncertainty about the outcome of reform. Governments with tax reform ambitions therefore need to provide adequate resources for the development and maintenance of tax models that can provide good-quality analyses of the impact of tax reform on agents' behaviour and tax revenues and by investing in the human capital of its staff. Governments might also want to share the results of this work with the broader public on a continuous basis. Tax analysis departments then have the opportunity to establish credible reputations for providing high-quality work. Growth-oriented tax reforms that take into account the recommendations of the tax analysis department might then become easier to implement.

Governments might also ask independent bodies to calculate the effects of tax reform proposals on firms' and households' behaviour, tax revenues, income distribution etc. Alt, Preston and Sibieta (2008) argue that external organisations – whether domestic or international – provide some level of scrutiny and accountability. This can help improve the draft legislation and make it more likely that the economic impact of reform proposals is fully thought through.

Policy advice could also be provided through specific tax policy reform committees and commissions, such as the Tax Commission in Denmark, which has set a new benchmark to form a basis for the political negotiations on the 2010 tax reform (Box 4.4). The membership of such a committee may consist of academics and experienced politicians of high political stature, as well as senior officials. Their recommendations may provide valuable inputs to the tax reform process and might help selling the tax reform proposals to the legislature and the general public.

4.10. Communication and the transparency of tax reform processes

The way that taxation and public spending are perceived by the public or reported by the media may be decisive in winning public support for a particular tax reform. However, voters are typically imperfectly informed and they do not often have the information and/or skills needed to assess the effects of tax policies. Imperfect information may allow politicians to run their own agendas, which may not be in line with the preferences of the median voter.[4]

Box 4.4. **The 2010 tax reform in Denmark**

In Denmark, a Tax Commission was appointed in early 2008 with a former minister for taxation as chairman and a number of primarily academic tax experts as members. The Tax Commission met academics, representatives of business and industry, labour leaders and OECD officials during the first six months of its work. On 2 February 2009, the Commission's presentation of its report on tax reform was broadcast live on television. Tax cuts and financing were around 36 billion DKK, corresponding to approximately 2 per cent of GDP. Three weeks later, the government put forward proposals based on the Commission's recommendations, and on 1 March, a political agreement on the 2010 tax reform was reached. Some of the more controversial elements of the Commission report were either modified or dropped from the final proposals. The total value of the reform was also reduced to around 30 billion DKK. The changes made to the Commission proposals were mainly due to concerns about distributional issues and the burden on the business sector. However, the inclusion of some relatively ambitious and controversial elements in the Tax Commission proposal was important to the end result. It might be argued that the Commission proposal set a new benchmark for the tax system, on the basis of which political negotiations could proceed.

In structuring the tax reform, the authorities was sought to balance financing and tax cuts among groups of taxpayers that were, or might be perceived as being, connected. This had much to do with the perception that the reform was fair and acceptable. First, the top marginal PIT rate was cut by 5.5 percentage points, while the tax threshold was increased. These measures were financed by cutting the tax value of interest deductions in excess of 50 000 DKK, by introducing a limit to yearly tax-favoured pension savings and a tax on large pension income, and by reducing tax expenditures for business and industry. Secondly, the government followed a similar strategy by connecting a reduction in the bottom PIT rate and the introduction of "green cheques" (a standard cash transfer) with general increases in energy and environment taxes and reductions in the tax value of deductions of expenses like labour union fees and commuting expenses.

The most important issue in the public debate following the Tax Commission was the proposed reduction in the tax value of interest deduction in personal income taxation by 8 percentage points; a measure which was needed in order to finance a substantial part of the tax cuts. The government was able to implement this tax reform measure by building several safeguards into the reduction. First, the reduction of the tax value from 33.5 per cent to 25.5 per cent is to be phased in gradually from 2012 to 2019, while the tax cuts are taking effect from 2010. Secondly, the reduction is only effective for the interest deductions in excess of 50 000 DKK (100 000 DKK for married couples) a year. This threshold is nominally fixed and thus will be gradually reduced in real terms. Finally, a special compensation scheme was introduced whereby individuals are to be compensated if the loss from the reduced value of interest deductions (and other personal deductions) exceeds the gain from the cuts in the PIT. Overall, the success of the reform owed much to its reliance on a rate-reduction and base-broadening approach that balanced tax cuts and financing within broad income groups. The distributional analysis that underpinned the reform proposals focused not only on the immediate impact of the reform but also on its longer-run distributional impact, which made it possible to take into account the longer-run tax reform efficiency gains. In addition, the timing of the tax cuts and financing was important in light of the international economic crisis. The emphasis on improving fiscal sustainability in light of the crisis therefore worked to implement this fully financed tax reform.

At the same time, it may also induce voters and other political actors to block beneficial tax policy reforms. A proper tax reform communication strategy and a dialogue with business, unions and other social partners, special interest groups, academics and the broader public may help to overcome the obstacles to the implementation of growth-oriented tax reform. Clear communication about tax reform objectives and measures might facilitate the creation of a broad social consensus that favours the introduction of these reforms. A proper communication strategy will also help if the impact of the tax reform turns out to be different than foreseen. It will help to point out why the outcome could not have been foreseen and to explain why the outcome differs from the expected outcome.

Governments might inform stakeholders of how tax revenues are spent, for example, by including such information with the tax returns that citizens must complete. This strategy might be followed at all levels of government. Such information sharing could be done on a regular basis and not only when governments plan to raise taxes. Information sharing will also help to build tax morale and improve tax compliance. Many taxpayers might lack a proper knowledge of which taxes are levied and why. For instance, in many countries, a large part of the tax burden on labour income consists of social security contributions levied to finance social security benefits (pensions, unemployment insurance, health insurance, etc.). Taxpayers are not necessarily perfectly informed about the level of these social security contributions, especially when employers pay a large share on their behalf.

Transparency is also a key element of government accountability. Governments and politicians are accountable to citizens (voters) for their performance in general and for the effective and efficient use of public resources in particular. Increased government accountability will weaken political incentives to manipulate tax and expenditure policies for purposes of electoral gain. Moreover, periodic assessments of existing policies – and clear communication about these assessments – may enable governments to make well informed decisions concerning ineffective or outdated policy measures that need to be eliminated and to strengthen and update those that are retained. This need for periodic reviews, including tax expenditure reporting (Box 4.5), has been reinforced by the fiscal imbalances resulting from the international financial crisis.

That said, talk can be cheap (Olofsgard, 2003), and one-line slogans may catch the public's attention but are not necessarily a reflection of the truth. Tax reform discussions are complicated and cannot always be summarised in short, pithy statements. Governments that want to introduce complicated tax reforms will therefore have to adapt to the modern media landscape which seems to provide less opportunity for deep analysis and discussions. Tax reform discussions within parliaments are therefore still very important. Dialogue on the substantial tax reform measures with business, unions, etc. also helps to signal the quality of the reform and the reform intentions of the policy makers involved.

4.11. Co-ordination of reform across levels of government

Sub-central governments in many countries are seeking additional resources for improving the services they provide; channelling these demands into the path of growth-oriented tax reform is a policy challenge. This strategy could help sharing the burden of fundamental tax reforms between the different levels of government, making the implementation of these reforms more politically acceptable. Many obstacles to do so could be envisaged but a justification of tax reform based on the need to be closer to citizens could actually contribute to the success of the tax reform process.

Box 4.5. **Tax expenditure reporting**

Fiscal information is critical to the overall transparency of tax policy. Yet substantial gaps often exist. In general, governments provide sufficient documentation regarding taxes collected and direct spending, mainly through the budget documentation. However, the publication of comprehensive information on spending through the tax system (tax expenditures)* is an area for potential improvement in many OECD countries (OECD, 2010). Many have no provision for systematic reporting of tax expenditures. Tax expenditures (TEs) have a significant effect on overall tax burdens and also on the budget (due to the tax revenue forgone). They also reduce fiscal flexibility, due to the opportunity cost of the revenue forgone. At the same time, TEs contribute to the growing complexity of the tax system and thus tend to raise administration and compliance costs. In contrast to direct spending programmes, tax provisions are not generally submitted to periodic scrutiny and they may be largely "invisible" to the electorate at large. However, like any other tool for achieving policy goals, TEs can be put to good use or abused.

Many OECD and non-OECD countries produce and publish regular tax expenditure reports, which include a list of their main tax provisions and estimates of the cost of such reliefs in terms of tax revenue forgone. Some governments even bring TEs into the budgetary process. However, systematic and periodical assessments of the effectiveness and efficacy of TEs are still the exception rather than the rule in most of the OECD. Greater transparency of and accountability for TEs might be ensured by reporting better information on their rationale, objectives and performance. If properly designed and implemented, a TE report makes tax expenditures more transparent by providing information on the government's use of public resources and whether these measures are achieving their intended purposes and designed in the most efficient and effective manner. A TE report also encourages accountability by enabling policy makers, voters and other political actors to evaluate individual tax expenditures – in terms of their net social benefit and distributional impact – and to make well-informed decisions about whether to eliminate or continue them. Finally, a TE report contributes to the management of budget allocations and the overall fiscal position by estimating the opportunity cost of these reliefs in terms of higher taxes, reduced spending and/or higher deficits.

* A tax expenditure can be seen as a public expenditure implemented through the tax system by way of a special concession (exclusion, exemption, allowance, credit, preferential rate or tax deferral) that results in reduced tax liability for certain groups of taxpayers (Altshuler et Dietz, 2008).

It is clear that fiscal federalism could complicate matters but it may also provide new opportunities to have a more globally efficient tax system. For instance, the assignment of a country's taxing powers to the appropriate institutional level might imply that taxes could be reformed in a more efficient and equitable way. Blöchliger and Petzold (2009) have discussed the criteria for assigning particular taxes to different government levels. They write:

> The conditions for a sub-central tax to be growth-enhancing are the same as for a national tax, but some additional constraints apply to make a "good" sub-central government tax. There is quite a broad consensus on what makes an effective sub-central tax mix. As a basic principle, sub-central government should rely on benefit taxation, *i.e.* taxes that provide, for households or firms, a link between taxes paid and public services received (Oates and Schwab, 1988). The criteria derived from this principle include: sub-central government taxes should be non-mobile and non-redistributive (to avoid tax erosion), non-cyclical (to avoid sub-central government

running stabilisation policy through debt and deficits), should not be exported to other jurisdictions (to avoid distortions in the tax burden), and the tax base should be evenly distributed across jurisdictions (to avoid strong disparities and/or the need for huge fiscal equalisation systems). Based on these criteria, the property tax would occupy an even more prominent place in the sub-central than in the central tax mix, particularly for local governments (King, 2004). Sub-central personal income taxes would lose out because of their redistributive properties, and sub-central consumption taxes, especially sales taxes, would lose because they divert taxes among jurisdictions. Sub-central corporate income taxes come last: corporate tax revenue is mobile, highly cyclical, geographically concentrated and tends to shift the tax burden to non-residents.

In assigning particular taxes or discretionary powers on rates and/or bases fully or partially to sub-central governments, it is important to avoid stimulating regions to compete in a harmful way. A compromise must be achieved between the possible gain in efficiency as a result of a higher level of tax decentralisation and the need for a coherent and non-distortionary tax distribution. Discretionary control over a particular tax base could also have important trade-offs between efficiency and compliance/administration costs for the whole tax system. Discretionary control over tax rates may be provided within tax bands; that is, states/regions are given the freedom to change rates within these bands. This should ensure that the overall links between taxes levied at different levels are maintained: *e.g.* that CIT rates are not reduced too far below the top PIT rate or that taxes on owner-occupied housing are not too far above or below the tax burden on other investment opportunities, at the cost of limiting the sub-central discretionary powers on taxes.

The co-ordination of tax reforms between different regions is important. There is a need for different levels of government to act coherently. Any tax reform must take into account existing taxes at the federal and sub-central level and shared tax agreements. This implies that the impact of tax reforms on other regions or levels of government is considered. Governments should create appropriate institutional settings that allow for tax reform evaluations across levels of government and regions. There might also a need for mechanisms that allow for inter-regional compensation, for instance if particular federal tax reforms have a positive impact on some but a negative impact on other regions.

4.12. Strong leadership

The implementation of growth-oriented tax reforms might require a political champion who can create circumstances that are favourable to their implementation. A political champion will recognize when there is a tax reform momentum and use this opportunity to introduce a tax reform. Bird (2004) states that the essential requirement for successful tax reform is a strong political will exemplified by one or more political champions who are prepared to put their reputations on the line. Their involvement will very likely increase the support for growth-oriented tax reform. In order to obtain sufficient political support for fundamental tax reforms, politicians may want to identify the winners and losers and the degree to which voters will win or lose as a result of the tax reform. Clear communication about winners and losers might be especially important for the implementation of growth-oriented tax reforms if many taxpayers think they will lose while they effectively will not (or not as much as they expect). In fact, the need for providing good quality information becomes more important the higher the costs for taxpayers to collect information.

Another strategy that may help introducing fundamental tax reform is to focus on the inequities of the current tax system. This may persuade voters that tax reform is necessary. For instance, levying reduced property taxes on out-of-date housing values will imply that some taxpayers that are entitled to be taxed at the reduced rate cannot benefit from this provision. Focusing on this inequity, politicians might build support for reassessing the property values of all houses. Here, too, the quality of information available to politicians and the public may be critical to prospects for "selling" the reform. Detailed reporting of the cost of tax expenditures, for example, may strengthen the case, on equity and other grounds, for reforms aimed at simplifying income taxation, in particular.

In the absence of sufficient political support, politicians may want to adjust the original tax reform proposals in such a way that political support increases. For example, a larger part of the tax reform benefits could be allocated to the losers from reform or they could receive offsetting benefits through the reform of other policy measures. Compensation will, however, only be necessary if the tax reform losers have the political clout to block reform or are considered to be the swing voters in the next election. It may also be warranted on equity grounds, if there is a widespread public perception that the benefits they may be losing were in some sense justified. The compensation of losers will divert the benefits of reform towards particular groups of voters. Compensation packages might then reduce the overall tax reform gains. Policy makers might therefore have to trade-off the benefits of compensating losers in order to obtain sufficient political support against the costs as a result of the reduction in the overall tax reform gains for society. If too many voters will have to be compensated in order to be able to implement the tax reform, it might even be more beneficial not to implement the fundamental tax reform.

Barbaro and Suedekum (2006) argue that symmetric tax reforms – the same individuals gain and lose as a result of the growth-oriented change in the tax mix – are easier to implement than asymmetric tax reforms where the winners and losers are not the same individuals. An asymmetric cut in tax privileges might hurt a relatively small group of taxpayers strongly while a large group will be affected positively. Assuming a revenue-neutral tax reform, their gain might be small and have therefore no impact on their voting behaviour. The group of taxpayers that loses substantially faces a strong incentive to lobby hard against the reform. However, if the benefits and costs of tax reform are diffuse, there is a lower probability that new interest groups will be formed. Barbaro and Suedekum (2006) therefore conclude that tax reforms that share the burden of foregone privileges evenly among many groups or, alternatively, compensate losers for their losses, have the greatest probability of being implemented.

Politicians might try to link explicitly the abolition of a tax expenditure that is inefficient and beneficial only to some taxpayers with the introduction of tax measures from which most taxpayers will gain. This strategy might make the silent majority awake because they explicitly gain if the new tax policy is introduced, though it is likely to remain the case that the gains of the many will, at an individual level, be small compared to the losses of the minority.

Notes

1. Countries that have successfully implemented growth-oriented tax reforms in the past would not necessarily have been successful when (economic, budgetary, political, etc.) circumstances in the country would have been different. Or, countries that have not been successful in implementing growth-oriented tax reforms in the past may successfully implement tax reforms in the future.
2. At least this is what standard voting models seem to imply. Policy makers may of course also provide benefits or tax reductions to taxpayers purely on equity grounds, for instance, even if they know that this will not (strongly) affect these taxpayers' voting behaviour.
3. In contrast, when the executive is sufficiently powerful to exploit divide-and-rule tactics *à la* Dewatripont and Roland (1992), as discussed below, then the gradual strategy might allow an earlier start to the reform process.
4. In some cases, however, imperfect information might allow policy makers to introduce "controversial" fundamental tax reforms that are in the general interest.

PART III

Further Analysis of the "Tax and Growth" Tax Policy Recommendations

PART III

Chapter 5

Tax Design Considerations

Chapter 5 discusses in more detail to which degree it is optimal to implement the "tax and growth" recommendations discussed in the first chapter of this report. The chapter mainly focuses on the implementation of tax-cut-cum base broadening reforms with respect to property, consumption, personal and corporate income taxes. The discussion in this chapter clarifies that the "tax and growth" recommendation to broaden the different tax bases does not necessarily imply that it would be optimal to abolish all tax expenditures. The growth-oriented VAT base broadening recommendation, for instance, does not exclude that some goods and services receive a different tax treatment, either by taxing them at reduced rates or by not including them in the tax base. Note, however, that this analysis is not an attempt to undermine the "tax and growth" recommendations. On the contrary, a nuanced analysis of the pros and cons of specific growth-oriented tax reforms might reduce some of the (mainly political) obstacles against these reforms. In addition, the analysis will present and discuss also tax-specific strategies that might help overcoming the obstacles against the implementation of the "tax and growth" recommendations.

Section 5.1 discusses the rationale for base broadening and points out that, in some circumstances, there are indeed good reasons to implement tax expenditures. Section 5.2 discusses the reasons and scope for VAT base broadening, focusing also on whether it is desirable to include financial services and immovable property in the VAT base. Section 5.3 discusses when and how countries could increase the recurrent taxes on immovable property. Section 5.4 briefly discusses additional corporate and personal income growth-oriented tax reform strategies.

5.1. Tax base broadening *versus* the use of tax expenditures

There are four main efficiency and cost-related arguments in favour of broad tax bases as a growth-oriented tax strategy:

- *increased allocative efficiency:* implementing a broad base minimises the distortions and resulting dead weight losses that arise if different tax rules apply to similar types of taxpayers or types of activity;
- *reduction in administrative, enforcement and compliance costs:* broadening the tax base will simplify the tax system and will result in lower tax administration, enforcement and compliance costs for taxpayers;
- *increased tax compliance:* a broadening of the tax base might lead to higher rates of tax compliance, mainly because the opportunities for tax-arbitrage behaviour are reduced;
- *lower tax rates:* a broadening of the tax base increases tax revenues which can finance tax rate reductions, leading to further efficiency gains and reductions in tax avoidance and evasion incentives.

A broadening of the tax base will also strengthen the fairness of the tax system. Tax base broadening will improve not only the horizontal equity – similar taxpayer no longer are taxed in a different way – but possibly also the vertical equity of the tax system. In general, richer households seem to benefit more from, for instance, the personal income

tax expenditures not only because many of them are expense related but also because their value often increases with the household's marginal personal income tax rate. A tax reform package that broadens the personal income tax base and reduces all but especially the top PIT rates might therefore even be redistributional neutral.

As pointed out, base broadening measures are often implemented as a way to finance tax rate reductions. This seems especially true for the corporate tax rate. However, rate reductions will also reduce the obstacles against the broadening of the tax base. A reduction in the statutory corporate income tax rate, for instance, reduces the value of the interest payments deductibility and will therefore reduce the obstacles against measures that treat debt and equity more equally at the corporate level. Rate reductions might therefore also increase the tax base broadening opportunities.

Moreover, tax expenditures are often badly targeted and their objectives can more efficiently be obtained through alternative measures. An obvious example is the case of richer households which consume more than poorer households and therefore benefit more from the reduced VAT rates. Governments can support poorer families more efficiently through direct benefits and targeted personal income tax credits, for instance.

However, base broadening measures are not necessarily always growth-oriented tax measures. A restriction of the interest deductibility in the corporate income tax, for instance, would not necessarily be "pro-growth" especially because of the enormous transitionary problems that would arise from such a fundamental change in the corporate income tax system. Moreover, CIT and PIT base broadening measures would increase the share of these taxes in the tax mix; this will be a growth-oriented strategy (only) if the increased tax revenues are used to lower the CIT and PIT rates. Moreover, R&D tax provisions are "pro-growth" but imply that the CIT base becomes narrower.

Rationale for tax expenditures

In some cases there might indeed be good reasons for implementing tax expenditures. First, the tax administration costs of broadening the base might exceed the corresponding efficiency gains. This argument is often used for not including financial services in the VAT base (see further below). Second, the tax provisions might have the same purposes as social benefits. This is for instance the case of tax allowances or credits for dependent children. The removal of these tax provisions would typically require their replacement by ordinary expenditure programmes and would therefore not result in an opportunity to lower the tax rates. However, the natural question to ask is then why these tax provisions are not delivered as ordinary expenditure programmes. Leaving aside the possible political advantages of a lower recorded tax-to-GDP ratio and reduced legislative oversight, the two most obvious reasons are: *i)* these tax provisions reflect ability to pay, and *ii)* it is administratively more efficient to provide them through the tax system, as discussed in the following paragraphs.

An equitable tax system implies that the value of the tax expenditures depends on the taxpayer's ability to pay. Taxpayers should therefore be able to claim a deduction from their taxable income that depends on the actual costs that they bear and to the extent that these costs constitute a burden for them. However, because of the progressive PIT rates in most countries, the financial benefit of the tax expenditures is greatest for those taxpayers that face the highest marginal tax rates. These are also the taxpayers that are best able to meet these costs. Many countries have therefore replaced tax allowances with refundable (non-wastable) tax credits. In that case, the tax provisions become then almost equivalent to a direct expenditure programme.

The administrative argument is that delivery of assistance through the tax system is more efficient than through an ordinary expenditure programme. In some countries, this appears to be because the tax administration is seen as more efficient than the social welfare administration, but this can be expected to vary between countries and could be tackled by improving the efficiency of the welfare systems directly. A more convincing argument in favour of using the tax system for delivery of assistance is two-fold. First, to the extent that there is any income targeting in the assistance, the tax authority already collects this information. Moreover, it allows the interaction of these assistance measures with other tax provisions in the personal income tax system. It also avoids that social welfare departments would have to perform complicated calculations in order to derive the precise value of the benefits that have to be provided. Second, many tax authorities use a system of taxpayer self-assessment combined with rather infrequent audits, which is less costly than the more detailed controls that social welfare departments typically use. Note also that in case of make-work-pay policies, for instance, taxpayers might associate the provided assistance more closely with work. The benefits can also be reflected directly in the taxpayer's monthly take-home pay, although some countries make these payments after the end of the tax year. On the other hand, the use of the tax administration to deliver social benefits would require that more resources are made available for dealing with low-income households, who frequently have very different problems from the higher-income households with whom the tax administration is more familiar. It might also require detailed information that is not directly available for tax auditors and can therefore be handled more efficiently through other channels.

A third rationale for the implementation of tax expenditures is that they might operate as tax incentives that correct for market failures or provide incentives to internalize positive external effects. Examples of such tax provisions are tax incentives for R&D and deductions for healthcare expenses.

Hettich and Winer (1999) offer a fourth argument in favour of tax expenditures. They argue that the enforced closing of special tax provisions may well lead to lower levels of tax revenue in the medium run rather than higher levels as is often implicitly assumed. According to their political economy argument, abolishing tax expenditures implies that government will be less able to discriminate among heterogeneous taxpayers and voters, which will lead to an increased overall opposition to taxation. Despite the increase of tax revenues in the short run, reducing tax expenditures may then lead to lower levels of taxation in the medium and longer run.

Tax expenditure reporting

This and the following sections will show that, in many cases, base broadening is a growth-oriented tax reform strategy. However, in some cases, there are indeed good reasons to implement a narrow tax base, for instance through the use of tax expenditures. However, in order to ensure that tax expenditures are rather the exception than the standard rule, governments might assess the need for tax expenditures on a regular basis. Governments could design a set of criteria which have to be met before they actually decide to introduce a particular tax expenditure. These rules should aim at demonstrating that tax expenditures constitute good tax policy and that they are a better way forward than standard tax-cut-cum base broadening measures.

Another strategy would be to commit to proper tax expenditure reporting. In order to reduce the amount of tax expenditures, countries might publicly report the costs of the tax

expenditures on a yearly basis. Political ideas that are presented before or at the time of elections might also be evaluated in terms of their tax revenue foregone and their redistributional impact either by the government's administration or by independent research institutes, as for instance is the case in the Netherlands.

5.2. VAT base broadening

Governments might consider broadening the VAT base by abolishing the zero and reduced rates. VAT rate differentiation, which is implemented in most OECD countries, distorts individual's spending decisions by creating tax-induced incentives to choose goods and services that are relatively lightly taxed and by favouring some sectors over others.

Countries implement reduced VAT rates on necessities such as basic food and clothing in order to reduce indirectly the tax burden on low-income households. Other reasons for reduced VAT rates is that governments want to stimulate consumption of goods with positive externalities (*e.g.* energy saving appliances) and do not want to tax merit goods[1] – medicine and health services, housing, education, music and cultural events, books, and newspapers – at high rates.

The OECD (2008) *Consumption Tax Trends* publication lists the lower rates applied across OECD countries. Whilst there are some reduced VAT rates that are common across many countries and which seem to be targeted at the poor and merit goods, other reduced rates seem less targeted. Amongst these are admissions to cultural events, including circuses and cinemas, hotel accommodation and cut flowers. The reasons for these reduced rates might be rooted in a country's socio-economic history, but their validity may be questionable within a general tax on domestic consumption of goods and services.

Reduced VAT rates on necessities such as food and clothing are available to all consumers. Thus a richer person will benefit from a reduced rate. In fact, the richer gain more from the reduced rate on food as they spend more on food and clothing than poorer people do. As a result the wealthy gain most in absolute terms from a reduced rate. Poorer people do, of course, derive considerable benefit in that their expenditure on food and other goods that are taxed at a lower VAT rate represents a much higher proportion of their income. However, using VAT to allocate benefits is a particularly blunt instrument and it would be preferable to target such benefits at those who are genuinely in need of them.

This argument against reduced rates is even stronger for (most of the) merit goods. Reduced rates on, for instance, cultural events might have the unintended effect of subsidizing the consumption of these goods by high-income households who tend to consume more merit goods rather than leading to an effective increase in consumption by lower-income households. This might lead to or strengthen a so-called "Mattheus effect" according to which social distribution flows from lower-income households to higher-income households.

It is sometimes argued that correcting externalities might justify VAT rate differentiation; for example, higher rates on goods that generate pollution or reduced rates on energy-saving appliances. In these cases, rate differentiation may improve efficiency if it means that private marginal costs of an activity are brought more into line with society's marginal costs. However, VAT is a rather blunt instrument for correcting environmental externalities, as it may be hard to target the actual source of pollution. For example, reduced rates on energy-saving appliances, by reducing the private marginal cost of these goods may boost demand for them and, therefore, stimulate consumption of these goods.

However, the overall effect on CO_2 emissions is ambiguous. The reduced VAT rate may give incentives to shift from more to less energy consuming items (consumers might replace their old fridge with a new one, for instance), but at the same time may also lead to an increase in the purchase of energy-intensive products (*i.e.* consumers may replace their old fridge with two or more new fridges) (Copenhagen Economics, 2007). In fact, governments may levy higher rates to correct for negative externalities rather than lower rates on goods with positive externalities. For instance, a higher VAT rate on high energy-consuming appliances will be good for the environment but may also have the advantage of raising tax revenue which could be used to reduce rates of other distortionary taxes, leading to further efficiency improvements.

An effective redistribution policy is not implemented through each tax in isolation but should be implemented by considering the entire tax system as well as the benefit system. Because the redistributional impact of the reduced VAT rates is ambiguous, the income distribution goals could better be achieved through means of targeted PIT relief and/or targeted benefits. Deaton and Stern (1986) for instance show that direct lump-sum payments to households depending only on their socio-economic characteristics are better for both equity and efficiency. Ebrill *et al.* (2001) argue that direct targeted transfers to low-income households are more effective in enhancing equity than VAT exemptions, zero and reduced rates.

Moreover, much low income observed at a point in time is temporary and need not reflect low lifetime living standards. While it is true that some people are persistently poor, many have volatile earnings. Over a lifetime, income and expenditure must be equal – apart from inheritances, which are generally small – and indeed annual expenditure is arguably better than annual income as a guide to lifetime living standards. If we were to look at the effect of taxes on lifetime income inequality, the contrast between "progressive" direct taxes and "regressive" indirect taxes would be much smaller. However, it would still be the case that personal income taxes are more progressive than consumption taxes.

An argument in favour of different VAT rates on different goods and services is that governments can increase efficiency if they impose a lower rate on work-related items such as commuting costs and a higher rate on leisure-related ones in order to offset the overall disincentive to work created by taxation. However, the IFS (2009) review suggests that even in this case, it is not sure that the potential efficiency gains from differentiating VAT rates in this way would outweigh the costs of greater complexity and the advantage of a single rate in making it easier to resist political pressures to provide favourable treatment to particular sectors or items (IFS, 2009: Mirrlees Review).

Abolishing a wide range of reduced rates prevents the "me too" syndrome. By granting a reduced rate to one sector, other sectors will inevitably lobby hard for inclusion. This can even become an international issue with lobbyists quoting a reduced rate in country A as a means of pressing the government in country B to follow suit. The recent extension of reduced rates to labour-intensive services within the EU provides a good example with sectors, such as restaurants, lobbying hard for inclusion.

A uniform VAT rate avoids also significant administrative costs of having to define and monitor for each and every good and service which rate has to be applied. These costs seem to be particularly large for the food sector due to its multitude of products and the grey zone between sale of basic food and prepared food, for instance.

VAT base broadening and simplification will reduce the compliance costs especially for smaller businesses. As an indirect tax, business has to collect VAT and remit it to authorities on behalf of their customers. Especially for smaller businesses this can create significant compliance burdens and costs; since compliance costs are largely independent of the amount of tax payable, they fall more heavily on smaller traders. VAT is often a complex tax with an array of different rates, exemptions, special schemes as well as requiring comprehensive reporting arrangements. Tax base broadening as part of a tax simplification strategy and increasing the threshold for registration might then reduce the tax compliance costs.

A high VAT rate will also encourage certain easily hidden activities to move into the underground economy and will increase the self-supply rather than the purchase of these services on the market (mainly home improvement and repair services, gardening, services of hairdressers, etc.). Some countries have taken the view that the way to deal with this is to apply a lower rate of tax to the goods and services these activities produce. However, it is difficult to exactly identify the goods and services that fall into this category. Also, it should be noted that even the underground economy pays a non-zero rate of VAT as it is unable to reclaim the VAT paid on its inputs. VAT then offers an effective way to tax the informal sector but at the same time creates a barrier to the growth of small businesses (IFS, 2009). In these circumstances it may be administratively easier to counter the incentive to enter the underground economy by a combination of avoiding excessively high rates of tax – which also avoids a too high tax burden on services that households can perform themselves – having a fairly high VAT threshold and a well-targeted audit programme than by a multi-rate VAT system (Heady *et al.*, 2009).

Some countries also extend reduced VAT rates to sectors employing many low-skilled workers such as, for example, hotels, bars and restaurants. While the theoretical and political motivation for these reduced rates is to increase low-skilled labour demand by stimulating the demand for such services, other policy instruments such as labour market reforms could be more efficient on achieving this objective.

It is also important to consider the international dimension when assessing the advantages and disadvantages of a shift towards a broader VAT base and especially a higher statutory VAT rate and excise duties. Higher consumption taxes in one country may induce individuals to consume in other countries with lower taxes, though cross-border shopping is relatively small-scale except in cases where large population centers are close to a border or the tax differences are very large (which happens most commonly for excise duties on tobacco and alcohol[2]) (Heady *et al.*, 2009).

Financial services

Financial (banking and insurance) services are generally exempt from VAT mainly because of technical difficulties in determining the VAT tax base. Ideally, the VAT would only be levied on the intermediation charge, which reflects the actual value added created by the financial institution and not on the interest rate, premium or return that has to be paid by the financial institution's customers. However, in practice, this distinction is not easily made, especially for tax administrations. Although it would improve efficiency, a VAT on financial services might also lead to high tax compliance, administration and enforcement costs. It therefore is unclear whether broadening the VAT base by including the services provided by the financial sector could be considered as a growth-oriented tax policy reform.

The exemption of financial services from VAT creates a number of distortions with respect to both consumer and business decisions. Exemptions cause a break in the VAT chain, meaning that financial institutions incur significant amounts of (unrecoverable) VAT paid on their inputs but which they cannot recover as they cannot charge VAT on their sale of services. This provides financial institutions with a tax-induced incentive to self-supply services to avoid that they have to pay unrecoverable VAT, which would be the case if they would obtain these services from other firms. Banks might therefore provide in-house legal, accounting and tax advice services. The tax system then provides an incentive for vertical integration. This break in the VAT chain also distorts the international competition between financial institutions as the (unrecoverable) VAT rate, which differs across countries, will affect the rates that will have to be charged to customers. Business and private consumers might also face an incentive to excessively consume financial services compared to other goods and services because no VAT is explicitly levied, although the unrecoverable VAT might be included in prices. In fact, the VAT payments might be embedded in the charges that financial institutions make to their business customers, in the services that final (personal) consumers pay and it might lead to lower wages for their employees or lower profits for the bank itself (and therefore for its capital owners). The actual tax incidence of the unrecoverable VAT has to be analysed empirically.

If the tax would be fully embedded in the charges that banks make to their business customers, the VAT will be carried through to final prices for domestic consumption, resulting in a "tax on tax" that (very likely) will be paid by final consumers. As most financial services are business-to-business, it seems likely that this will be the case, at least to some extent. To correct for this cascading effect would mean either "zero-rating" business-to-business financial transactions or charging VAT (assuming that the base is readily determined) and allowing input tax credit in the normal way. This might be a significant cost in terms of revenue foregone, especially in countries with major financial service sectors. However, this reform could be qualified as being good tax policy as it would reduce the tax-induced distortions and would bring the VAT closer to a "pure" tax on final consumption.

A similar conclusion holds in case the unrecoverable VAT would be (directly) borne by final consumers. Note that also in this case, including financial services in the VAT base might not strongly increase VAT revenues. It might neither lead to strong changes in the after-tax prices of financial services for personal consumers. Including financial services in the VAT base would however increase tax compliance, administration and enforcement costs. In fact, if the unrecoverable VAT is borne by the final consumers, one might argue that there is no need to bring the financial sector into the reach of the VAT because the consumers pay the tax anyway. In this case, the VAT is just prepaid by the financial sector – as banks and other financial firms do not receive input tax credits for the VAT they have paid – instead of being paid directly by final consumers. However this argument is not entirely correct because the value added created by the financial sector would not be taxed, implying that there still would be a reason to tax financial services under the VAT. Note also that not all financial services might bear the unrecoverable VAT in the same degree. It might well be the case that financial services that are offered in a highly competitive market pay less than other services. In addition to the under-taxation of financial services compared to other goods and services, not including financial services in the VAT would then also distort the consumers' choice for financial services.

Finally, if the irrecoverable VAT would lead to lower profits of the financial sector – so without affecting the prices of business and consumer services and wages – it can be

considered to be a tax on the financial sector. Given the huge losses that many of these firms have realized over the last years, it may well imply that this additional tax will be the only tax that firms in the financial sector will pay in the years to come. In that case, an increase in the statutory VAT rate could also be considered as an additional tax on the financial sector.

Note that not only the inclusion but also the exemption from VAT creates additional administration and compliance burdens. This is especially the case when input VAT has to be assigned to taxable and exempt outputs for producers selling both types of outputs, where a credit for the VAT paid on the inputs is available for the former but not for the latter transactions.

Immovable property

The VAT treatment of immovable property differs across countries. In general, construction, alteration and maintenance of immovable property are taxed under the VAT. The tax treatment of sale and rental of immovable property distinguishes between residential and non-residential property. Most countries levy VAT on sales and rental of non-residential property. In contrast, exemption and zero-rating is a common practice for sales and rental of residential property.

If the house would be considered as a consumption good, the consumption value of housing services would be yearly taxed under the VAT. The main practical problem – in addition to the strong political resistance – is the high administrative and compliance costs of obtaining a good and fair estimate of the consumption value of housing services for owner-occupied housing. Most countries do therefore not include these services in the VAT base. As a result, the residential rents are not included in the VAT base either. However, some countries such as Belgium and France levy VAT on the first sale of residential properties on the basis that the price reflects the present value of the stream of services that housing is expected to yield. In fact, this approach is also applied to other durable goods such as refrigerators or televisions. Because of the upfront taxation, the yearly consumption services should not be included in the tax base. The sale/purchase of the property does not lead to new value added and should therefore not be taxed in the VAT base either. Also residential rents should then not be included in the VAT base as the VAT has been prepaid and the rents reflect these total costs (implying that the rents implicitly include a part of the VAT that has been paid on the original construction price of the property).

The main problems regarding the introduction of a VAT levied on the construction price of new property relate to the increase in the price of newly constructed buildings. As no VAT is and has been levied on existing buildings, the price of these buildings would then be lower than the price of newly constructed buildings merely because of the different VAT treatment. The resulting increased demand for this existing property would then lead to price increases and therefore windfall gains for existing property owners. Moreover, households that enter the housing market would have to pay VAT on household services in contrast to households that entered the market before the VAT was levied on the construction price. This would clearly undermine the equity of the tax system. A partial solution to this market distortion would be to tax the VAT on all property when it comes on the market (but to tax it only once). This, in turn, would then imply that the tax system will discourage people to sell and purchase a new property which is, for instance, situated closer to their workplace or is more convenient given their family situation (more children, etc.). This is because a change in the residence implies that consumption taxes on housing

services would have to be paid (up-front) from that moment onwards. This distortion would be avoided if housing consumption services would be taxed on a yearly basis for the properties for which no VAT has been paid yet. This, however, would require that government has to determine the consumption value of housing services for many buildings. As this value is (possibly) linked to the market value of the property, levying the VAT on housing services might be possible if government would have these values at its disposal. This, however, seems more likely if government considers the real property as an investment good rather than as a consumption good. The valuation of all property would be a very expensive operation, especially because these values would no longer be used to calculate the yearly consumption value of housing services once the property would have been sold (and VAT would have been levied up-front).

Note that if the house is treated as a consumption good, there is no strong rationale for the deduction of mortgage interest payments from the personal income tax base, which might be considered when countries aim at broadening the personal income tax base. This is especially the case if no similar tax subsidy is given for the consumption of other durable goods. It however also implies that there is no rationale for levying income taxes, recurrent taxes on immovable property or a transaction tax when the property is bought, perhaps with the exception of the value of the land on which the house is build. The land value might then be taxed under a property tax or, if the value of the land and the house cannot easily be separated, a certain percentage of the total value of the property could be taxed with a recurrent tax on real property.

VAT base broadening and "double growth dividends"

In summary, broadening VAT bases by bringing exempt activities into VAT and by increasing zero and reduced rates would be an attractive option except in a number of specific cases. However, the present rate structure reflects perceptions about fairness and strongly entrenched views about "merit goods", although many countries have zero or reduced rates that are more difficult to justify. VAT base broadening might therefore have to be accompanied with other reforms that offset the distributional impact of the VAT reforms. For instance, VAT base broadening measures that go along with the introduction or extension of current make-work-pay policies that stimulate labour participation might then lead, if these policies are designed efficiently, to a double growth dividend.

5.3. Recurrent taxes on immovable property

Before discussing some of the strategies that might overcome the obstacles to an increase in recurrent taxes on immovable property, this section starts by pointing out that recurrent taxes on immovable property are only part of a second-best solution. A growth-oriented tax reform would increase taxes on immovable property, especially because houses are currently taxed at lower effective rates than other investment opportunities. This however not necessarily implies that countries have to levy recurrent taxes on immovable property, as will be discussed below.

Residential property can be considered not only as a consumption good, as discussed above, but also as an investment good for which services flow to the homeowner in the form of actual rental payments or imputed income in the case of owner-occupied housing. In this last case, the net imputed return on housing will have to be included in the tax base. The net imputed return is defined as the imputed rent, which could be calculated by imputing a return on the value of the property or by using the rental payments that would have to be

paid if a similar property would be rented on the market, net of depreciation allowances and mortgage interest payments. Ideally, the distortion between housing and other investments should be removed by taxing housing income in the same way as other capital income. An efficient tax system would therefore equalize the overall tax burden on (either debt or equity-financed) investment in housing and other investment opportunities (taking into account the tax burden at the corporate and personal level). This implies that the imputed income, net of depreciation allowances and mortgage interest payments, has to be taxed under the (progressive) personal income tax or the capital income tax that is levied at the personal level (for instance in case of dual income tax systems). Capital gains and losses would then respectively be taxed or deductible in case the country would also levy a capital gains tax that provides a full loss offset on other investments. Note also that countries might consider ring-fencing rules to limit the deduction of mortgage interest payments such that they can only be off-set against income from the corresponding real property.

Note that the up-front taxation with VAT of the building and renovation costs is not necessarily against the investment good perspective. The return on all other investment goods is usually taxed first at the corporate and personal level and afterwards with the VAT when this return is consumed. In case of housing, the VAT is taxed up-front and the return on investment is taxed afterwards.

In most countries, owner-occupied housing receives a favourable tax treatment compared to other forms of investment. Many countries do not tax the imputed rental income because of problems to measure it accurately while countries that do often underestimate the rental value or only tax it partially. Capital gains are often tax-exempt as well but mortgage interest payments are often deductible from personal income at high rates. In such circumstances, the denial of mortgage interest relief and the use of property taxes – instead of taxing the imputed return under the (personal or capital) income tax – can provide a "second best" approach (Heady *et al*., 2009).

Note that governments might levy recurrent taxes on immovable property at mildly progressive rates. Progressivity can also be achieved by having a basic tax-free allowance corresponding to the basic-shelter quality of the owner-occupied house. A lot of progressivity can be created by having a basic tax-free allowance, as was demonstrated in OECD (2006b) for the flat personal income tax. This allowance could be made dependent on particular family characteristics as the number of dependents or children that live in the owner-occupied house. Moreover, it is the overall progressivity of the tax system that matters and not the progressivity of each individual tax.

Messere (1993) points out that, when the amount of the property tax payable for a year exceeds a stated percentage of an owner-occupier's income, then in some countries legislation or administrative discretion enables local authorities to waive or rebate part of the excess. Higher levels of government usually reimburse local governments for lost revenue. Messere points out that this measure may be available to all who meet a well-defined income requirement or only to those above a certain age or having a certain family status in addition to meeting the specific income requirement.

Instead of waving the property tax, countries might also implement systems that defer the payment of the tax. Messere (1993) notes that such systems may also be used as a means of providing personalised taxpayer relief. The unpaid tax liability may remain a lien on the property – the deferred taxes might also increase with an appropriate interest rate – and may not be allowed to exceed more than a certain percentage of the capital value

of the property after deducting existing mortgage loans secured by the property. Deferred payment may be available only to those who qualify on the basis of low income, age, or some other financial disability (Messere, 1993).

Perhaps governments could also consider making recurrent taxes on property dependent on the energy-efficiency of the real property. In that case, the tax-free basic allowance might have to be designed such that the poorer households who likely live in houses that are less insulated do not pay a too high share of the tax. The combination of energy-dependent recurrent taxes on immovable property with housing renovation premiums or tax credits might then be considered.

Finally, note also that especially developing economies might not want to levy recurrent taxes on immovable property – or any other tax on real property – in case of an under-supply of houses with an appropriate quality. Providing a tax-favoured treatment for investment in real property will then reduce the property price, it will stimulate investment and solve the under-supply and might make the price of real property affordable for many households.

Valuation of real property values

A proper valuation of real properties is crucial in developing a fair and efficient property tax system. However, many OECD countries use out-dated property values because they do not regularly revalue the real property in their country. There are however exceptions as, for instance, is the case in the Netherlands and Denmark. One of the main reasons is that the revaluation of real property is very costly in terms of administrative resources and tax compliance costs. Moreover, once the values are no longer accurate and underestimate the real market value, the political costs of revaluation become very high, therefore possibly leading to even less accurate values over time. The market value of real property is not following a stable trend over time, as the recent housing bubble and corresponding collapse in prices have demonstrated in many countries. This creates an additional difficulty in using the market value of real property as a taxable base. Alternatively, the tax administration could use its own set of property valuation rules that is not directly (or only partly) linked to the market value. Moreover, government might decide to tax only a certain percentage of the official property value; also this strategy will reduce the number of taxpayer appeals.

Possible strategies that might help minimizing the valuation costs are: 1) value the property on the basis of a number of key characteristics. A very detailed evaluation will take very long, lead to a very large amount of tax payer appeals and will not significantly increase tax revenues; 2) create a real property valuation department that acquires expertise and is able to perform the tasks at minimum costs; 3) use the value of the property for different tax purposes, including tax compliance (one might expect that taxpayers that earn very little taxable are not able to acquire expensive real property; in case they do, a tax audit seems appropriate), and in different tax bases (recurrent taxes on immovable property, income tax, transaction tax, inheritance tax, etc.). Government might even decide to sell the property values to external parties as, for instance, insurance companies.

5.4. Corporate income tax reform strategies

Corporate income tax rate reductions and CIT base broadening are growth-oriented tax reform strategies, as discussed in Chapter 1. Corporate tax base broadening measures have been successful in financing the corporate tax rate reductions in the past to a large

extent, especially through reductions in the generosity of tax depreciation allowances. However, continuing this base broadening strategy seems not to be possible without having to lower the tax depreciation rates below the economic depreciation of the assets in many countries, which would be inefficient. Other CIT base broadening measures might however be implemented.

First, countries might gradually shift part of the tax burden from the corporate to the personal bondholder and shareholder level. This process might be strengthened by the recent process of increased exchange of information which tackles international tax evasion.

Second, the OECD's tax and growth empirical study (see Annex B) showed that the reduced CIT rate targeted at SMEs is not very effective in creating growth. This result then implies that abolishing the reduced CIT rate for SMEs while using the revenue to lower the statutory CIT rate will very likely increase economic growth. Increasing the reduced CIT rate for SMEs might however be difficult to implement from a political economy perspective.

Third, limiting the interest deductibility is a strategy that might be considered in order to broaden the CIT base. Entirely abolishing the interest payment deductibility seems not to be good tax policy as it will entail such large transitionary costs which will outweigh the future efficiency gains of such a fundamental tax reform. Also moving towards a Comprehensive Business Income tax (CBIT) – allowing for CBIT entities and non-CBIT entities – seems a strategy that can only be implemented on a world-wide basis. However, countries could limit the deduction of interest on debt to finance participations, especially if the return on these participations will not lead to taxable income in the country that provides the interest deductibility. Moreover, countries could limit the interest deductibility by linking the deductibility to the level of profits as recently implemented in Germany and Italy. Note that these kind of interest deductions are not only a response to domestic distortions but could also be seen as a response to international tax trends, as for instance the plans that are studied in the Netherlands to introduce a mandatory group interest box (see below).

As of 1 January 2008, both Italy and Germany continue to allow full interest deductibility from received taxable interest payments. However, any excess interest payments is deductible up to a maximum of 30 per cent of gross operating income, which are the earnings out of the core business of the company before deduction of interest, taxes, depreciation and amortization (EBITDA). Any excess interest payments that cannot be deducted may be carried forward indefinitely. In Germany, this interest barrier is only applicable to companies belonging to a group of related companies[3] while in Italy the interest limitation applies to all companies including holding companies, but not banks, insurance and finance companies.

The economic impact of limiting interest payments depending on the profitability of the firm implies that the debt/equity ratio of firms is decreasing in the interest rate that has to be paid on debt and is increasing in the profitability of the firm, implying that very profitable firms will continue to find it attractive to finance a large part of their investment with debt. In the absence of economic rents – implying that the average return on all investment equals the interest rate – the debt/equity ratio will be 3/7. It also implies that in economic downturns, firms that face a strong decrease in profits can deduct less interest payments from taxable corporate profits. Linking the interest deductibility to the firm's profits might also create a competitive disadvantage for start-ups.

However, countries are not only implementing base broadening measures but CIT base narrowing tax reforms can be observed as well, as for instance the implementation of R&D tax credits. The tax and growth empirical study (see Annex B) concluded that R&D tax provisions are good for economic growth, although their effects appear relatively small outside R&D intensive industries. The positive effect of R&D tax credits obviously nuances the CIT base broadening recommendations discussed in this report. Recent OECD work (Palazzi, 2010) however argues that R&D tax credits provide incentives for the creation of intangibles without ensuring that this newly created intellectual property (IP) will actually be adopted to its full potential and without ensuring that the new IP increases taxable income within the same country, for instance because multinationals find ways to locate their IP in a low-tax country. Firms might also try to re-qualify ordinary costs as R&D costs in order to benefit from the R&D tax provisions. There are also high tax administration costs of implementing and monitoring the proper use of the R&D tax provisions and high compliance costs for businesses. Moreover, they are often targeted at the manufacturing sector and not at the increasingly important service sectors. Moreover, if tax provisions that attract R&D activities of multinationals in one country are matched by similar benefits offered by other countries, the overall loss in tax revenue may exceed the benefits to be obtained locally from R&D externalities or knowledge spillovers. The question then rises whether R&D tax credits are actually more "pro-growth" than a statutory CIT rate reduction? The use of R&D tax credit allocation rules might link the provision of R&D tax credits with the actual increase in taxable profits as a result of the provided tax incentives to undertake R&D activities; the implementation of R&D tax credit allocation rules would then imply a broadening of the CIT base.

Some countries like Belgium, Ireland and the Netherlands tax royalty income at a reduced rate instead of providing very generous R&D tax credits (see also Palazzi, 2010). Belgium exempts 80 per cent of royalty income from corporate taxes, thereby reducing the effective tax rate on royalty income from the statutory CIT rate of 33.99 per cent to 6.8 per cent. The Netherlands taxes royalties and the profits realized when patents are sold at a reduced 10 per cent CIT rate in the patent box. Moreover, the profits earned by using the patent are also included in the patent box if the patent contributes at least 30 per cent to the creation of these profits. Ireland exempts the patent income from CIT if the research has been carried out in the EU, limited to EUR 5 million per year.

The actual impact of reduced CIT rates on royalty income on economic growth has not yet been assessed. There are however some strong arguments that a reduced CIT rate on IP income might increase economic growth (above the impact of a general CIT rate reduction) by stimulating the adoption of IP into newly developed products and services that are sold on the market and at the same time providing incentives to create new IP. It is for instance often argued that countries should not only be concerned of where MNEs carry out their research and development, but also whether MNEs use the new IP in the production of goods and services within that country. Both stages of the innovation process (research and development activities and the following adoption/incorporation of the R&D output in the production) lead to an increase in investment and economic growth. The research and development phase may attract high skilled workers and investment in physical capital while the adoption of the intangible into the production process increases employment and induces the creation of other surrounding economic activities that will have a positive impact on economic growth.

Providing a reduced CIT rate on IP income (royalties or remuneration embedded in the sales of patented products/services) would then nuance the base broadening recommendations of the tax and growth report as this provision effectively narrows the statutory CIT base. However, one might also argue that these CIT rate reductions are implemented for tax competitiveness reasons and are mainly implemented in order to attract IP holding companies. Reduced CIT rates on IP income will then not necessarily lead to an increase in total R&D and IP across countries but would, instead of leading to more overall economic growth, attract only other country's taxable base.

The broad base and low CIT rate recommendation might also have to be nuanced when focusing on the allowance for corporate equity tax system, as implemented in Belgium. The allowance for corporate equity provides a deductible allowance for corporate equity in computing taxable profits. This allowance equals the product of shareholders' funds, which generally equals the company's total equity capital including taxable profits net of corporate tax and other reserves and an appropriate interest rate. Belgium also does not provide the ACE on assets that do not generate a return that is fully or largely taxed in Belgium as, for instance, shares that belong to a participation and jewellery. The allowance therefore approximates the corporation's normal profits. The corporate tax is thus confined to economic rents because corporate profits in excess of the ACE remain subject to corporate tax.

The ACE is considered to be very favourable as it exempts the normal return on investment from tax at the corporate level. However, the Belgian experience shows that the revenue costs can be quite large, also because of the many tax-planning opportunities that have arisen. Belgian banks, for instance, sold their shares that did not qualify for the ACE to foreign fully-owned subs as the cash that was received in return did qualify for the ACE. Tax-planning opportunities have also arisen in a pure domestic setting. Instead of borrowing directly from a bank, Belgian companies face a tax-induced incentive to have a fully-owned Belgian sub borrow (first dip). The funds are then used to buy shares of the parent which then uses these funds to finance the investment. This implies a double dip as the parent can benefit from the ACE. More work needs to be done to analyse whether the tax-planning opportunities under the ACE in Belgium arise because of the specific design characteristics of the Belgian ACE or whether the problem is more fundamentally linked with the ACE itself.

Finally, it is not entirely clear whether the mandatory group interest box proposal in the Netherlands would narrow or broaden the CIT base (and would therefore fit within the tax and growth recommendations). This box has not yet been implemented but the Netherlands obtained recently the approval of the European Commission (July 2009) for its implementation; the box is no longer considered as providing state aid. In this box, the balance between group interest received and group interest paid would be taxed at a rate of 5 per cent rather than at the statutory CIT rate of 25.5 per cent. The interest paid that exceeds the group interest received would be deductible at a rate of 5 per cent (only). A reduced 5 per cent rate would also apply to interest income from short-term deposits, which are subsequently used to acquire participations of at least 5 per cent in other companies. Firms that are externally financed still can deduct interest payments at the rate of 25.5 per cent.

The purpose of the mandatory group interest box is twofold. First it reduces the incentives for foreign parents to finance their Dutch subsidiaries excessively with debt. Second, the box is aimed to attract finance and holding companies and headquarters of

MNEs, including the headquarters of firms that previously had left the Netherlands. The proposal implies that companies that on balance use loans not externally financed face an 80 per cent interest non-deductibility. These groups face a tax-induced incentive to locate their finance company in the Netherlands, such that the interest payments that the finance company receives are also taxed at the reduced rate of 5 per cent. The interest payments that are paid from countries outside the Netherlands would however be deductible at higher rates in the source country (except in countries like Germany and Italy, depending on the profitability of these subsidiaries, as a result of their interest limit barrier). The Netherlands would therefore become an attractive location for finance companies of MNEs. Note that this proposal does not entirely solve the earnings stripping in the Netherlands as a result of excessive debt financing because firms, under the current proposals, would still be able to borrow debt from an external source, deduct the interest payments at the top statutory CIT rate and use the funds to finance domestic and foreign participations.

This scheme will broaden the CIT base in the Netherlands. The proposal reduces the tax rate on received interest payments but also reduces the rate at which interest can be deducted. Strong tax revenue gains might however be expected if the Netherlands would attract many group finance companies as a result of the reform and because Dutch subsidiaries that are financed with debt provided by the foreign parent will no longer be able to deduct the interest at the high CIT rate; the interest paid by Dutch subsidiaries to foreign parents would very likely be taxed at higher rates in the parent country's of residence. This therefore implies that the mandatory group interest box broadens the CIT base in the Netherlands but, if MNEs would relocate their finance companies, would narrow the CIT base in other countries.

5.5. Personal income tax reform strategies

Another main conclusion of the tax and growth empirical study (see Annex B) is that a reduction in the top personal income tax rate is a growth-oriented tax reform mainly because it will stimulate entrepreneurship. However, further reductions in the top PIT rate faces strong obstacles, which are even enforced because of the global economic crisis. In fact, many countries are considering increasing their top PIT rate. A second-best solution to stimulate entrepreneurship and economic growth that tackles the growth-oriented tax reform obstacles might then be the implementation of more generous loss-offset provisions. In fact, an increase in the top PIT rate that is accompanied by a full-loss offset might increase risk-taking by risk-averse entrepreneurs.

The combined personal income tax and social security burden on labour income is high in many countries. In addition to a reduction in the top PIT rates, the use of in-work tax benefits and the broadening of the PIT base, countries might also strengthen the link between social security contributions and the corresponding benefits. This could be done by making social security contributions less of a tax but more like fully requited payments. The high tax burden on labour income might then create fewer distortions if taxpayers understand that social security contributions are a kind of compulsory savings which entitles the beneficiaries to a fair return on the savings made.

Taxpayers at lower income levels face high marginal personal income tax rates in many countries, thereby reducing incentives to participate in the labour market, to follow training and to look for better paid jobs. Governments also face pressures to reduce the tax

burden on high-skilled and high-income taxpayers which are increasingly becoming mobile, thereby reducing the innovative capacities of the country and putting tax revenues further under pressure. Both problems at the low-end and the top-end of the income distribution might be tackled by reducing the total tax burden on labour income at all income levels instead of introducing more targeted tax relief measures. An overall rate reduction might be financed by personal income tax base broadening measures – for more information on provisions for retirement savings, for instance, see OECD, 2010b – especially because in many countries PIT (as well as VAT) base broadening measures have not been part of the tax policy agenda.

Notes

1. Richard Musgrave's concept of "merit goods" refers to goods which are judged that an individual or society should have on the basis of some concept of need, rather than ability and willingness to pay.
2. Note that the automatic indexing of excise duties will increase indirect tax revenues without government having to raise the tax rates.
3. In Germany, the interest barrier does not apply if the debt/equity ratio of the company is not higher than the debt/equity ratio for the group. However, regardless of this escape clause, the interest barrier does apply if more than 10 per cent of the interest expenses are on related-party debts.

PART III

Chapter 6

Taxation, Economic Growth and Sustainable Tax Revenues

The tax and growth recommendations as well as the strategies to overcome the growth-oriented tax reform obstacles are of special interest because of the global financial and economic crisis. On the one hand, it is sometimes argued that the crisis might facilitate tax reform. The political economy obstacles against fundamental tax reform might be easier to overcome during a crisis, especially because of the increased pressure to raise more tax revenue in order to restore public finances and because of the pressing need to tackle the economic problems and to put the economy back on a high-growth path.

Olofsgard (2003) argues that a crisis might make the implementation of tax reform more likely because it undermines the power of vested interest groups and it might imply that opponents of reform may change their perspective because they start to gain of reform as well. He argues that a crisis might create a sense of urgency which creates a "window of opportunity" for reform which otherwise would have been blocked. Harberger (1993) argues that a severe crisis may be necessary in order to convince policy makers that their view of what is "good" tax policy may not be entirely correct, that there are other alternative tax systems available and that growth-oriented tax reforms are necessary. On the other hand, the crisis might make fundamental tax reform even more difficult to implement, especially because large groups of taxpayers have and will be strongly affected by the crisis.

6.1. Implemented tax reforms during and after the crisis

Many countries have implemented tax measures and reforms in order to alleviate the impact of the financial and economic crisis and subsequent sharp downturns in demand and economic activity. There are of course many country-specific differences in the tax measures that have been implemented during the crisis, but also a number of common themes, including:

- **Measures to support private sector liquidity.** One effect of the financial crisis has been a reduction in the availability of credit to businesses (as banks sought to deleverage, reduce their balance sheets and cut their risk exposure). A number of countries have sought to alleviate cash flow/liquidity of business by giving them longer to pay over tax, paying refunds more quickly, allowing greater carry back of losses, etc. Such effects should have just a "one-off" effect on the public finances.
- **Temporary measures to stimulate spending.** Outlays on capital goods and consumer durables fell most sharply in the downturn of 2008 Q4 and 2009 Q1. Many countries have introduced temporary accelerated tax depreciation provisions for capital investment, reliefs for housing investment, cuts in VAT, schemes to boost purchases of new cars, etc. If these measures really are temporary their effects on tax receipts should (broadly speaking) be reversed when they end.
- **Cuts in personal income tax.** Many countries have cut personal income tax by more than they would otherwise have done to stimulate household spending. Many countries have increased personal allowances in real terms and some have made cuts in rates,

particularly countries that were developing/implementing personal income tax reforms before the crisis broke. Many countries have also increased support for children and poorer families.

- **Cuts in tax on capital/business income.** Countries that already had plans to cut their main rate of corporation tax have implemented such changes. Other measures have tended to focus on lowering the tax burden on SMEs and increasing the tax credits available for R&D.
- **Other reforms.** A few countries have made cuts in social security contributions, especially for younger and older workers.

Some of these measures have been in line, while others have gone against the tax and growth recommendations. The latter may not be particularly significant, given that the main aim of these tax measures was to boost aggregate demand. The main determinants of choice of measures were thus short-term economic impact and how easy measures would be to reverse when the stimulus was no longer needed. More recently, some countries have started to consider tax base broadening measures in order to increase tax receipts without having to increase tax rates, especially because countries are very careful not to negatively influence the first signs of recovery.

6.2. The tax and growth recommendations are unchanged

Countries have now multiple reform agenda's. Tax revenues have strongly declined, business profits and investment levels have decreased while costs of capital have increased as a result of higher risk premiums despite the current low interest rates, innovation activities have decreased and unemployment rates continue to increase. Confidence is only slowly returning to normal levels and the financial sector is not yet entirely stabilized. At the same time, problems of ageing societies are becoming more pressing and environmental measures are urgently needed.

The question then rises whether the tax and growth recommendations, which have been derived from analysing OECD economies before the crisis, are still valid and whether the tax and growth recommendations offer a direction that policy makers could follow in order to strengthen their economies. This section will argue that this is indeed the case. In fact, the discussion will demonstrate that the tax and growth recommendations are even more valid than before the tax reform, although in the short run, implementing some of the measures might be counterproductive.

First, countries have a genuine interest in stimulating economic growth in order to increase tax revenues, to reduce their deficits and to ensure their debt levels are sustainable. Clearly, the higher is the growth rate relative to the effective interest rate on government debt, the easier it will be to bring debt ratios under control again (as the size of the required primary budget surplus is smaller).

The crisis has weakened the credit-driven economic growth which many countries experienced before the crisis. The higher capital requirements of banks and other financial institutions imply that it will be very unlikely that the same borrowing patterns will be observed again in the near future, either because less credit will be available or higher interest rates will be asked. However, these high levels of borrowing, both by businesses and households, have led to high growth rates in the past. Moreover, many financial institutions, businesses and households are still deleveraging. Economic growth might therefore have to come from increased business investment, innovation and entrepreneurship, which can be

best supported by lowering the top PIT rate and especially the CIT rate. This strengthens the arguments for implementing the tax and growth recommendations, as these recommendations have been a source of growth in the past.

Countries are facing high unemployment rates which continue to increase. Tax policies will therefore have to be redesigned in order to have more labour intensive growth. This clearly implies a shift away from direct taxation by lowering PIT rates and social security contributions, as recommended by this report.

The implementation of the tax and growth recommendations is also desirable because it will help put countries on a higher long-run growth path. This is necessary as the growth potential has been affected by the crisis – for instance because many innovative firms went bankrupt because of a lack of venture capital, implying that the crisis has not only a short-run impact but also a medium and long-run impact.

The tax and growth empirical work (see Annex B) did not strongly emphasise the role of environmental taxes. Given the objectives to improve the environment, governments might consider increasing environmental taxes – which could also be considered to be an increase in the indirect tax burden, especially because environmental taxes are not (necessarily) bad for growth. This is especially the case if they are designed such that they provide a green growth stimulus while they increase taxes on environmentally bad goods.

The tax and growth study focused on a revenue neutral world, while countries now need more tax revenues. This observation, however, does not undermine the tax and growth recommendations but strengthens the role for these recommendations that were tax revenue raisers as, for instance, the base broadening measures. Corporate income tax rate reductions might be considered in order to increase investment levels and stimulate innovation but broadening the CIT base is important as well.

However, in the short run, the crisis seems to have created new obstacles that might imply that the immediate implementation of some of the recommendations is hampered. The increase in recurrent taxes on immovable property at a time when house prices have decreased a lot must be handled carefully, especially because it will put house prices further under pressure, thereby possibly triggering further economic problems. The same argument holds for increases in VAT rates, which might reduce consumption, and an increase in the reduced CIT rate for SMEs as many of them might be credit constrained.

This however does not imply that governments should not start preparing the implementation of the tax and growth recommendations that are difficult to implement in the short run, especially because some of the reforms seem to require preparatory time before they can be implemented. In order to increase recurrent taxes on immovable property in an equitable way, for instance, governments need to set up a proper system for the valuation of real property. A broadening of the VAT base by abolishing many of the VAT exemptions and reduced rates requires that the distributional impact of such a reform is determined; this allows governments to consider accompanying measures that could compensate the losers of the reform such as low-income workers and pensioners.

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ANNEX A

The 2010 Tax Reform Process in Denmark

In the spring of 2009 the Danish Parliament adopted a major tax reform with the main goal of reducing the relatively high top marginal personal income tax rates. The reform is fully financed by offsetting tax increases and it is expected that both tax cuts and tax increases will have positive structural effects, to a wide extent, on labour supply, savings, the allocation of capital and the environment. It is estimated that the Gini coefficient will increase by 0.45 as a result of the tax reform.

The elements and effects of the Danish tax reform are described in more details in a separate paper presented at the November 2009 meeting of Working Party 2 of the OECD's Committee of Fiscal Affairs. But how did the Danish government succeed in implementing a fully financed major tax reform with the apparent obstacles such a reform faces with regard to distributional effects and increased tax burdens on specific groups of households and businesses?

The main explanations that may be offered are *i)* that the reform was announced well in advance, *ii)* that the reform and especially the financing of the reform is phased in gradually so that tax cuts exceed financing during the first years of the reform, *iii)* that special concessions were made to accommodate distributional issues and *iv)* that the reform involved a rate reduction and base broadening approach that made it possible to balance tax cuts and financing within broad income groups.

The process towards the tax reform started in late 2007 after the general elections. Until then the government enforced a tax freeze implying that no tax could be increased, thereby preventing a tax reform involving tax increases to finance tax cuts. Until then, tax cuts had also been focused on the bottom and middle income tax brackets to address distributional issues. After the elections the government announced that a Tax Commission was to present a proposal for a tax reform at the beginning of February 2009 with the main goal of reducing the highest marginal income tax rates. After the reform the tax freeze would then again be enforced.

The Tax Commission was appointed in early 2008 with the former social democratic minister for taxation Carsten Koch as chairman and a number of primarily academic tax experts as members. The secretariat was supplied by the Ministry of Finance, the Ministry of Taxation and the Ministry of Economic and Business Affairs.

The appointment of the Tax Commission initiated a broader public and political debate about changing the highest marginal tax rates. At the same time the chairman was able to use his political network to explore some of the different opinions on some of the

tax reform ideas that were considered to be included in the final Tax Commission proposal. Given the short time horizon of the Tax Commission, no interim reports, working papers or intermediate proposals were published. But the Tax Commission met several interested parties during the first 6 months of their work; the commission met other academics, representatives from business and industry, labour unions and the OECD. The Tax Commission's work also seemed to have created some silence within the political arena as parties were waiting for the Tax Commission's report and recommendations.

On 2 February 2009, the Tax Commission's presentation of its report on tax reform was broadcast live on television. Tax cuts and tax measures to finance these cuts were around 36 billion DKK, corresponding to approximately 2% of GDP. On 24 February 2009, the government then put forward proposals based on the Commission's recommendations, and on 1 March, a political agreement on the 2010 tax reform was reached.

The government's tax reform plans either modified or excluded some of the more controversial elements of the Tax Commission's recommendations. The total value of the tax reform was also reduced to around 30 billion DKK. The changes made to the Commission proposals were mainly due to concerns about distributional issues and the tax burden on the business sector.

The most important issue in the public debate was the Tax Commission's proposal to reduce the tax value of the (mortgage and other) interest deduction in personal income taxation by 8 percentage points. This element was included in the Tax Commission's recommendations for a number of reasons; 1) in general, this reform would increase private savings, 2) it would create a better correspondence between the taxation of owner-occupied housing and the deduction of interest rates on mortgages, 3) it would reduce the financing of tax-preferred pension savings through loans and 4) it would provide a substantial amount of tax revenue that could be used to finance tax cuts. However the media, politicians and also the electorate were very critical towards reducing the value of interest deductions. The main argument heard was that such a reform would be very harmful to house owners especially at a time when house prices were falling and because of the substantial financial and economic insecurity as a result of the international economic crisis.

However, excluding this tax reform would imply that government would not be able to finance a substantial part of the tax cuts, thereby foregoing part of the potentially positive structural effects of both the tax cuts and the reduction in the value of the interest deductions. It was therefore crucial to find a way to maintain this element in the tax reform.

The government was able to implement this tax reform measure by building several safeguards into the reduction. First, the reduction of the tax value from 33.5 per cent to 25.5 per cent is to be phased in gradually from 2012 to 2019, while the tax cuts are taking effect from 2010. Secondly, the reduction is only effective for the interest deductions in excess of 50 000 DKK (100 000 DKK for married couples) a year. This threshold is nominally fixed and thus will be gradually reduced in real terms. Finally, a special compensation scheme was introduced whereby individuals are to be compensated if the loss from the reduced value of interest deductions (and other personal deductions) exceeds the gain from the cuts in the personal income tax. These additions made it possible to maintain more than 60 per cent of the revenue effect of the Tax Commission proposal and most of its positive structural effects.

Another important element was the reduction in the top marginal income tax rate. The Tax Commission proposed a cut in the top marginal tax rate of 1.5 percentage points from 15 to 13.5 per cent. During the political process, this reduction was abandoned mainly because it would have directed too much of the total tax cuts towards the very high income households. Instead, the bottom tax rate was reduced by an extra 1 percentage point, thereby shifting some revenue to the lower income groups. The Tax Commission proposed a highest marginal tax rate of 54.7 per cent instead of the 63.0 per cent in the current tax system. The final outcome is a top marginal tax rate on labour income of 56.1 per cent in 2010.

Looking at the entire reform process, it seems that the inclusion of some relatively ambitious and controversial elements in the Tax Commission proposal was important to the end result. It might be argued that the Tax Commission proposal set a new benchmark for the tax system, on the basis of which political negotiations could proceed.

In structuring the tax reform, government tried to balance financing and tax cuts among groups of taxpayers that were, or might be perceived as being, connected. This has much to do with the perception that the reform was fair and acceptable. First, the top marginal PIT rate was cut by 5.5 percentage points, while the tax threshold was increased. These measures were financed by cutting the tax value of interest deductions in excess of 50 000 DKK, by introducing a limit to yearly tax-favoured pension savings and a tax on large pension income, and by reducing tax expenditures for business and industry. Secondly, the government followed a similar strategy by connecting a reduction in the bottom PIT rate and the introduction of "green cheques" (a standard cash transfer) with general increases in energy and environment taxes and reductions in the tax value of deductions of expenses like labour union fees and commuting expenses.

The distributional analysis that underpinned the reform proposals focused not only on the immediate impact of the reform but also on its longer-run distributional impact, which made it possible to take into account the longer-run tax reform efficiency gains. In addition, the timing of the tax cuts and financing was important in light of the international economic crisis. The emphasis on improving fiscal sustainability in light of the crisis therefore worked to implement this fully financed tax reform.

ANNEX B

The OECD Tax and Growth Study

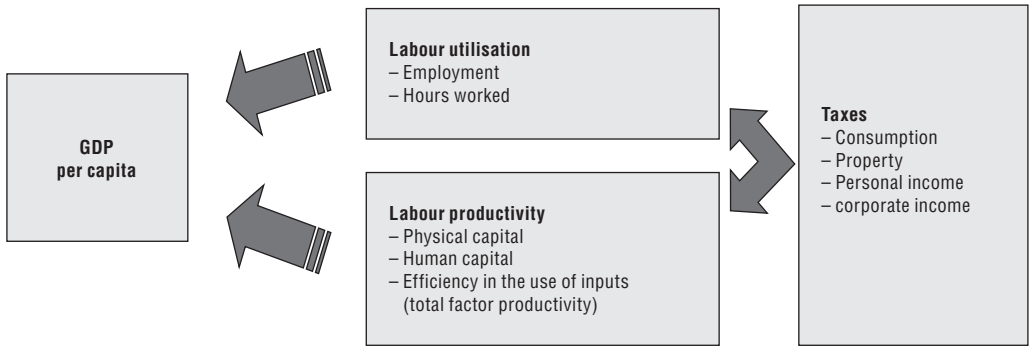
This annex shows Section 3 and 4 of the joint ECO/CTP Tax and Economic Growth Study. The first section of that Working Paper is included as Chapter 1 and Section 2 is used as input for Chapter 4 of this report.

B.1. Effects of different taxes on GDP per capita

As discussed in the previous section, there are large differences in both tax levels and tax structures across OECD countries. Economic theory suggests that these differences may play a role in explaining differences in economic performance. The structure of the tax system can have an impact on GDP per capita by affecting the amount of hours worked in the economy (labour utilisation), and the amount of output that is produced per hour (labour productivity) or both. However, it is generally difficult to assess the overall effect of a tax reform on output performance for several reasons. First, changes in any single tax may simultaneously affect several determinants of GDP per capita. For instance, a reduction in the average labour tax may increase employment (ultimately affecting labour utilisation) but at the same time it increases the opportunity cost to undertake higher education and, assuming progressivity is not influenced, therefore reduces incentives to invest in education (ultimately affecting labour productivity). Second, tax reforms typically involve changes in several kinds of tax instruments at once, with complementary or offsetting effects on the determinants of GDP per capita. Third, the effects of changes in taxation often depend on the design of other policies and institutions. Thus, the adverse effect of labour taxes on employment is typically dependent on wage-setting institutions, including minimum wages, which affect among other things the pass through of taxes on to labour cost.

This section focuses on the influence that the design of the different taxes – consumption, property, personal and corporate taxes – can have for GDP per capita levels and growth rates. The described effects are partial, since the effect of one tax on GDP per capita and its determinants are assessed holding all other taxes constant. Section B.2 explores the combined effects on GDP per capita of changes in several tax instruments as well as their joint effects with policies and institutions that are country-specific. Throughout the analysis, a bottom-up approach looking at the influence of one tax on the various determinants of GDP will be used (as sketched in Figure B.1). Two important limitations with this approach are that an empirical comparison of the magnitudes of the different tax effects on economic performance is not possible and that not all potential joint effects between different taxes or between taxes and institutions may be fully explored.

Figure B.1. **Taxes affect the determinants of growth**



An alternative to this "bottom-up" analysis would be to develop simulation or general equilibrium models. These models have the advantage that they often have a detailed description of the magnitude of the effect of the various kinds of taxes on different categories of taxpayers and account for the inter-linkages between different markets. But most often these models are designed on a country specific basis and the parameters of the model are calibrated to replicate the dynamics of a specific country. Therefore, these models are useful for assessing the effects of tax reforms in individual countries, but they are not practical for cross-country analysis since it is difficult to develop and empirically calibrate a model that takes into account the structure and dynamics of a large number of countries. In addition, the dynamics of these models can be difficult to interpret and often only very long-term relationship can be discussed.

B.1.1. Consumption taxes

Consumption taxes can be categorised as either general consumption taxes, typically VAT or sales tax (which are applied on a broad range of goods and services), or specific consumption taxes, such as excises and import duties, which are applied on a limited number of goods and services. In general, consumption taxes and particularly VAT are often thought to have a less adverse influence on the decisions of households and firms and thus on GDP per capita than income taxes. However, these advantages have to be balanced against equity concerns that arise from their lack of progressivity.

Consumption taxes are neutral to saving…

Since consumption taxes apply the same tax rate on current and future consumption (provided that tax rates are constant over time) they do not influence the rate of return on savings and individual's savings choices as income taxes do. Hence, consumption taxation is often seen as favouring private savings relative to income taxation. However, the empirical evidence on the sensitivity of private savings to after-tax interest rate changes is inconclusive: some studies found sizeable effects of interest rates on savings while other studies found no effects at all (*e.g.* Hall, 1988; Summers 1982). In an open economy with mobile capital, any changes in private savings are likely to over-state the resulting change in the capital stock, and hence GDP. Nonetheless, increased private savings can be expected to increase future net national income, provided that budgetary policy remains stable and allows the savings to flow into (possibly foreign) income-earning investments.

… but they may affect employment and hours of work in the same way as income taxation.

Because they lower the purchasing power of real after-tax wages, consumption taxes may curb labour supply in much the same way as a proportional income tax. Consumption taxes can also reduce labour demand in the short-term if they add to wages and labour cost.[1] The extent and persistence of this effect depends on labour market settings (*e.g.* bargaining systems). The empirical evidence of the impact of consumption taxes on labour supply and employment is sparse. Most empirical studies that assess the effect of taxation on employment exclude consumption taxes from the relevant wedge (*e.g.* Pissarides, 1998, Bassanini and Duval, 2006). However, some recent studies that include the consumption tax in the overall labour tax wedge find that a rise in this wedge reduces market work, though no separate effect of consumption taxes on employment is estimated (*e.g.* Nickell, 2004).

Differentiated consumption taxes can encourage work…

The pattern of consumption taxes can also affect labour supply. Relatively high consumption taxes on goods complementary to leisure (such as golf clubs) encourage work, as can relatively low consumption taxes (or even subsidies) on goods complementary to work (such as child care). Corlett and Hague (1953) show that the benefits of (sufficiently small) non-uniformities in taxation outweigh the harm of distorting consumer choice. It can be shown (Heady, 1987) that this is a generalisation of the famous "inverse elasticity rule" derived by Ramsey (1927) that can also be used to justify (aside from public health considerations) the high taxes that are often applied to alcohol and tobacco products. In practice, it is difficult to clearly identify those goods for which the efficiency gain of taxation at a special rate outweighs the additional administrative and compliance costs. So, as argued by Ebrill *et al.* (2001), the few goods for which it can be justified are probably best dealt with by special excise taxes or (in the case of child care) subsidies rather than by a multi-rate VAT or sales tax system.

… and can yield environmental benefits…

Specific consumption taxes that penalise the production and consumption of "bads" can improve environmental outcomes while generating revenues that can be used to offset other taxes on, for example, labour. Examples are excise duties on petrol and diesel. A similar argument can be made for "bads" that affect consumers' health, with potential social externalities (*e.g.* tobacco or alcohol), though the extent of such externalities is controversial (*e.g.* Jeanrenaud and Soguel, 1999; Guhl and Hughes, 2006).

… but are an inefficient way of reducing income inequality…

Many OECD countries use differentiated consumption taxes to reduce inequality by exemptions and zero ratings on certain goods and services, for instance, basic groceries. The reduced efficiency linked with VAT exemptions should be weighed against the benefits associated with the public policy of exempting these goods and services. Deaton and Stern (1986) show that direct lump-sum payments to households, depending only on their socio-economic characteristics, are better for both equity and efficiency, while Ebrill *et al.* (2001) argue that direct targeted transfers to low-income households are more effective in enhancing equity than VAT exemptions/zero-ratings. The reason is that higher income

households consume relatively more of the low-taxed goods and therefore will benefit more from the lower rates than low-income households.

… and would not be a solution to the underground economy…

A high uniform consumption tax, such as VAT, will encourage certain easily hidden activities to move into the underground economy. Some countries have taken the view that the way to deal with this is to apply a lower rate of tax to the goods and services these activities produce. However, it is difficult to exactly identify the goods and services that fall into this category, especially since many consumer purchases can be made with cash. Also, it should be noted that even the underground economy pays a non-zero rate of VAT as it is unable to reclaim the VAT paid on its inputs. In these circumstances it may be administratively easier to counter the incentive to enter the underground economy by a combination of avoiding excessively high rates of tax, having a fairly high VAT threshold and a well-targeted audit programme than by a multi-rate VAT system. Moreover, the introduction of lower rates risk being a slippery slope, likely triggering rent-seeking activities by producers of other goods and services also wishing to be covered by reduced rates.

… so the argument for single rate VAT is strong

Overall, therefore, there are valid arguments for the use of specific consumption taxes in particular cases, mainly related to the environment and work incentives. However, the arguments related to equity are much weaker, because alternative approaches to the problem are more effective. Also, none of the arguments provide against a broad-based single-rate VAT or sales tax. Indeed, they suggest that such a tax should be the main source of consumption tax revenues.

The international dimension

It is also important to consider the international dimension when assessing the advantages and disadvantages of consumption taxes. Higher consumption taxes in one country may induce individuals to consume in countries with lower taxes, though cross-border shopping is relatively small-scale except in cases where large population centres are close to a border or the tax differences are very large (which happens most commonly for excise duties on tobacco and alcohol). However, consumption taxes have the advantage of mainly being "destination based", so that the taxes are refunded on exports and applied to imports. Thus, aside from cross-border shopping (including some cases of e-commerce sales to final consumers), VAT and other destination-based consumption taxes do not affect the pattern of international trade.[2]

B.1.2. Taxes on property

Property taxation in OECD countries takes four main forms: recurrent taxes on land and buildings, taxes on financial and capital transactions, taxes on net wealth and taxes on gifts and inheritances. These taxes generally share the aim of taxing the relatively wealthy and reducing inequality. However, they vary widely in their effectiveness and their distortionary costs.

Recurrent taxes on land and buildings have a small adverse effect on economic performance…

Recurrent taxes on land and buildings (especially residential buildings) are generally argued to be more efficient than other types of taxes in that their impact on the allocation of resources in the economy is less adverse. This is because these taxes do not affect the decisions of economic agents to supply labour, to invest in human capital, to produce, invest and innovate to the same extent as some other taxes. This conjecture is supported by the new empirical work undertaken in this project (see Section B.2). Another advantage of property taxes is that the tax base is more stable and the tax revenue generated from this tax is therefore more predictable than for revenues obtained from labour and corporate taxes, partly due to less cyclical fluctuation in property values (*e.g.* Joumard and Kongsrud, 2003). Also, as real estate and land are highly visible and immobile these taxes are more difficult to evade, and the immovable nature of the tax base may be particularly appealing at a time when the bases of other taxes become increasingly internationally mobile. Property taxes also encourage greater accountability on the part of government, particularly where they are used to finance local government. Property taxes, with regular updating of valuation (which, with modern technology, is now feasible), can also increase the progressivity of the tax system (for example, by the exemption of low value properties), provided that special arrangements are made to reduce the liquidity constraints that the tax may imply for the relatively small number of people with low incomes and illiquid assets.

… and they could contribute to the usage of underdeveloped land…

The design of property taxes on land and buildings can also be used as an instrument to affect land development and land use patterns. For example, low taxes on vacant property and undeveloped land can encourage the under-utilisation of land which may lead to a reduced supply of land for housing particularly in urban areas.[3] Linking the assessment value to market value may increase incentives for developing land as market prices also reflect the development potential of land. But, in many OECD countries the assessment values of land lag substantially behind the actual development in land prices generating gaps between taxable land values and current land prices, which are politically difficult to close (*e.g.* Finland, the United Kingdom).[4]

… while preferential housing tax treatment may distort capital flows

As described in Chapter 2, owner-occupied housing has a favourable tax treatment relative to other forms of investment in many OECD countries through reduced tax rates or exemption for imputed rental income, mortgage interest payment deductibility and exemptions from capital gains tax. While the favourable treatment of owner occupation is often justified by the specific nature of housing and the positive externalities for society associated with its consumption (OECD, 2005a), they may distort the flow of capital out of other sectors and into housing. They can also reduce labour mobility and thus the efficient allocation of labour. In these circumstances, raising taxes on immovable property could improve economic efficiency and growth. The distortion between housing and other investments should be removed by taxing them in the same way: taxing the imputed rent and allowing interest deductibility. However, most OECD countries do not tax imputed rent at all, while those that do often under-estimate the rental value. In such circumstances, the

denial of mortgage interest relief and the use of property taxes can provide a "second best" approach, though local government control over property taxes makes it difficult in many cases to implement this approach in a co-ordinated fashion.

By contrast, taxes on financial and capital transactions are highly distortionary…

It is always less distortionary to tax the income and services provided by assets than the transaction involved in acquiring or disposing of them. This follows from the Diamond and Mirrlees (1971) result that taxes on intermediate transactions are inefficient, in the sense that the same revenue and distributional effect can be obtained at a lower distortionary cost by taxing income (including capital income) or consumption (consumption of housing services). The lower distortionary effect arises because both transaction taxes and taxes on income/consumption discourage the ownership of the assets, but the transaction taxes have the added distortionary cost of discouraging transactions that would allocate these assets more efficiently. For example, they discourage people from buying and selling houses and so discourage them from moving to areas where their labour is in greater demand. In fact, the distributional effects of transaction costs are probably also less desirable, as the tax falls more heavily on people who trade more frequently, such as people who need to move frequently for their jobs. Nevertheless, governments have found these taxes attractive for two reasons: they are relatively easy to collect and they compensate for the difficulties of applying VAT to the financial sector. Capital gains taxes, which are paid only upon realisation, suffer from some of the same shortcomings as taxes on intermediate transactions.[5]

… net wealth taxes are potentially less distortionary…

In principle, net wealth taxes can be used to redistribute income from the wealthy if they are based on total net wealth and have an exemption level that is high enough to exclude the life-cycle savings of all but the wealthy. They are also a very useful backup to personal income taxes since they provide tax authorities with information that enables them to identify inconsistencies between income flows and wealth held by taxpayers. However, these taxes discourage savings of the people to whom they apply, and may encourage people to move their wealth offshore, though these arguments apply just as strongly to taxes on transactions (which also distort the allocation of assets, as explained above). In practice, net wealth taxes often exempt certain assets, such as pension fund assets, thus distorting the portfolio choice and providing a method of tax avoidance: borrowing money (that will reduce net wealth) to purchase tax exempt assets.

… and inheritance taxes are even less distortionary.

Inheritance taxes are rather like net wealth taxes, except that they are levied only at the end of a person's life. This has the advantage of avoiding the taxation of most life-cycle savings. Inheritance taxes may also be seen as a way of taxing income or capital gains that were not taxed while the person was alive. Also, as argued by Auerbach (2006), these taxes have less distortionary effects than annual wealth taxes because a large part of inheritances are unplanned (being a hedge against the uncertain date of death). As with wealth taxes, it makes sense to have an exemption level that avoids taxing the majority of people who leave small inheritances. This reduces the number of people affected without losing much of the potential revenue. As one method of avoiding this tax is to make gifts

during one's lifetime, a gift tax is a useful anti-avoidance measure although it could reduce growth by delaying the transfer of assets between generations. Most countries that have an inheritance tax, levy it on the inheritors, as a function of their individual inheritance but a few levy it on the value of the deceased person's estate. The advantage of levying it on the individual inheritor is that: *i)* it encourages distribution of wealth to larger number of inheritors, each of whom has a personal exemption; and *ii)* it allows the rate to vary between different inheritors.

These brief descriptions demonstrate the wide variety of property taxes and their effects on economic efficiency. One important set of differences between them is the way that they treat different classes of assets differently, including the different treatment of real and financial assets. Recurrent taxes on immovable property obviously affect only one class of real assets, while net wealth taxes typically exempt certain types of assets, particularly pension rights but sometimes other assets as well. Also, taxes on financial and capital transactions usually apply lower rates to financial transactions than they do to the transfer of land and buildings. It is generally thought that differences in tax treatment within a class of closely substitutable assets cause greater changes in behaviour. For example, financial assets are generally more substitutable for each other than are real assets and so are more responsive to differences in tax treatment. However, this does not necessarily mean that differences in tax treatment between financial assets are more damaging for growth, as the mix of financial assets may be much less important for growth than the mix of real assets, for example between housing and business assets.

B.1.3. Personal income taxes

This section focuses on personal income tax and social security contributions, as these are the main ways in which incomes are taxed in OECD countries, and examine their impact on GDP. The following aspects of these taxes are examined: average and marginal tax wedges; tax progressivity; top marginal income tax rates; effective taxes on returning to work and extending hours of work; and taxes on capital income.

Average and marginal tax wedges are likely to affect labour utilisation and productivity

Taxes on labour such as personal income taxes and employers' and employees' social security contributions can potentially have adverse effects on labour utilisation by affecting both labour supply and labour demand (see Box B.1 for an overview of recent OECD evidence). Labour taxes affect labour supply through both the decision to work (the extensive margin) and average hours worked (the intensive margin) (for an overview see Meghir and Phillips, 2007 and Koskela, 2002). A decrease in labour taxes can have both a substitution and an income effect[6] on participation and hours worked, with the net effect on labour supply being an empirical matter. Labour taxes also influence firms' cost of labour especially when the tax burden cannot be shifted on to lower net wages. In this case, lower taxes bring down labour costs and firms respond by increasing labour demand (Nickell, 2004; Koskela, 2002; Pissarides, 1998; Layard *et al.* 1991).[7] In equilibrium, employment and average hours worked can, therefore, be affected by changes in personal income taxes and contributions.

It has been argued (*e.g.* Disney, 2004) that social security contributions have a smaller impact on labour supply than other taxes because the eventual social benefits that workers receive are related to the amount of contributions that they have paid. However, in many

Box B.1. **Existing OECD evidence on the effects of personal income taxes**

The 2007 reassessment of the OECD Jobs Strategy explored the direct impact of taxation and possible interactions between taxation and other policies on employment and unemployment (the extensive margin of labour supply). After controlling for other policies (*e.g.* product market regulations, employment protection legislation, union density and corporatism, childcare and leave weeks) the tax wedge between labour cost and take-home pay is found to have a negative effect on the employment rate: According to the results from the baseline specification, in the study a ten-percentage-points reduction of the tax wedge in an average OECD country would increase the employment rate by 3.7 percentage points (OECD, 2005b). Furthermore, tax incentives for second-earners to start working, either full or part-time, are found to have a significant impact on prime-age female employment rates.

Family taxation may discourage labour market participation of second-earners due to effectively heavier taxation of married women relative to that of men and single women in many OECD countries (Jaumotte, 2003). The high effective taxation of second-earners is partly explained by the existence of a dependent spouse allowance and of other family-based tax measures in many OECD countries, which are lost if both spouses work. Taxes also influence female participation through the progressivity of the income tax system which is likely to reduce employment and hours worked of second-earners in the case of joint family taxation.* This suggests that a more neutral tax treatment of second-earners could raise female participation. A combination of taxes and certain means-tested benefits such as child tax credits can create so-called "inactivity traps" where available employment opportunities become financially unattractive. In such cases an increase in gross in-work earnings fails to translate into a sufficient net income increase to justify starting work due to higher taxation and benefit withdrawals (Immervoll and Barber, 2005). This discourages labour market participation by certain groups, especially lone parents and second-earners.

The OECD project on factors explaining differences in hours worked (OECD, 2007f) considers the impact of taxes on hours worked (the intensive margin of labour supply). The theoretical net effect of the impact of labour taxes on labour supply is unclear. Taxes reduce labour supply through the substitution effect while the income effect raises labour supply. The study suggests that a high marginal tax wedge on second-earners is a key factor in explaining the relatively low working hours among this group. This finding is supported by disaggregated empirical evidence showing that the marginal tax wedge has a considerably stronger impact on the hours worked by women than on those worked by men. A one percentage point increase in the marginal rate is estimated to reduce the hours worked by women by around 0.7% whereas for men the impact of a same increase in the tax rate is close to zero (Causa, 2008).

The OECD study on the determinants of tertiary education shows that the rate of return to education, measured by the private internal rate of return (IRR), is an important factor driving the demand for tertiary education and human capital formation (Oliveira Martins *et al.* 2007). This measure summarises the economic incentives to take up tertiary education and tax policies can affect these incentives through their effects on the opportunity costs of taking up tertiary education (*i.e.* foregone earnings) and net wages after graduation (as well as, to a minor extent, on expected unemployment and pension benefits). Oliveira Martins *et al.* (2007) suggests that the impact of taxes on investment in tertiary education can be sizeable. The policy simulations show that a five percentage point reduction in marginal tax rates increases the IRR which leads to an average 0.3 percentage points increase in tertiary education graduation rates.

* This effect is likely to be even stronger when child care costs are taken into account, though empirical cross-country evidence of this is not yet available.

countries there is only a loose relationship between the amount of social security contributions paid and the amount of benefits received. Indeed, the empirical analysis for this paper found only weak evidence that employees' social security contributions have less of an impact than personal income taxes in terms of reducing GDP per capita.[8] One reason for the difficulty to identify such differential effects in the data could be that the relationship between contributions and benefits varies widely across OECD countries. As well, repeated reforms in social security schemes have sometimes made the link between contributions and benefits even less evident, increasing the tax character of contributions.

Empirical studies have found hours worked to be only modestly responsive to labour taxes while participation is much more responsive to them (*e.g.* Heckman 1993; Blundell *et al.* 1998). Most empirical studies also find that the estimated elasticity of hours worked with respect to the after-tax wage is very small (close to zero) for men while for women/second-earners it is positive (Blundell and MaCurdy, 1999; Klevmarken, 2000; Evers *et al.* 2006; Alesina *et al.* 2005b; Causa, 2008). As women tend to be more responsible for child care or other non-market activities (providing therefore a closer substitute for market work than is the case for men) the labour supply decision of women tends to be more responsive to taxes than that of men. Studies looking at employment in various partial equilibrium models controlling for other institutional characteristics have found that high labour tax wedges curb employment by raising labour costs (Daveri and Tabellini, 2000; Koskela, 2002; Nickell *et al.* 2003; Prescott, 2004; Nickell, 2004; Bassanini and Duval, 2006).[9]

To the extent that labour taxes affect the relative price of capital and labour this could lead to a reallocation of inputs within and between firms and/or industries that could have transitional growth effects. For instance, a change in the relative factor price could lead to less usage of one of the production inputs (or possibly both) in a firm and/or industry. It is possible that all inputs not used in this firm/industry are either re-allocated to other less productive firms/industries or not used at all, thereby lowering the efficiency in the use of production inputs, *i.e.* the so-called total factor productivity (TFP) growth.[10] Indeed, new empirical results based on industry-level data for a sub-set of OECD countries, find some evidence that employer and employee social security contributions (SSC) negatively influence TFP. The analysis also provides weak hints that this effect tends to be stronger in countries with sizeable administrative extension of collective wage agreements (for details see Box B.2).

It is also possible that labour taxes influence foreign direct investment adversely by increasing labour cost in the host country. For instance, Hajkova *et al.* (2006) found that the impact on FDI of labour taxes is generally substantially larger than that of cross-border effective corporate tax rates (see below).[11] This can hinder technology transfers and spill-overs of best practices from multinationals to domestic firms, thereby reducing TFP.

Tax progressivity may affect both labour utilisation and productivity

The notion is accepted in all countries that progressive income taxes play a role in achieving a more equal distribution of income and consumption. However, it is also widely acknowledged that progressivity has the undesirable effect of distorting individual decisions to supply labour and invest in human capital. There are a number of ways of defining progressivity. In this study, a progressive tax system is defined as one in which the average tax rate increases with income or, equivalently, in which the marginal tax rate is higher than the average tax rate at any income level.[12] While there is obviously a link

Box B.2. **Estimating the effect of labour taxes on total factor productivity (TFP)**

Gauging the direct effect of taxation on TFP based on industry-level data is difficult as available tax indicators are not differentiated by industries, although their impact may vary across industries. An indirect way to test for these tax effects is to see whether some industries are more affected by taxes due to some salient industry characteristics, such as technology or organisational features (for a detailed overview of this approach see Vartia, 2008). To test this, the analysis identifies industry-specific characteristics relevant for different tax policies and examines the interaction between these characteristics and the appropriate taxes. This interaction term is then used in the empirical model as the main variable of interest together with other relevant variables to explain changes in TFP (see *e.g.* Rajan and Zingales, 1998). For example, the estimation assumes that one channel through which labour taxes affect TFP is industries' labour intensity, while top marginal taxes affect TFP through the channel of firm entry. If the results of the econometric analysis support the hypothesis that the negative impact of taxes on TFP is stronger in certain industries due to these salient characteristics, then the estimated coefficient of the interaction term should be negative whereas if tax incentives have a stronger positive effect on TFP in industries with certain characteristics, the coefficient should be positive. One important caveat to this approach is that the estimated effect only captures the effect of a tax working through a specific channel. Any direct effect of the specific tax on TFP (unrelated to the industry characteristics) is captured in the fixed effects. TFP at the industry-level is calculated as the "Solow-residual" from a production function where the factor shares in the production function are proxied by the cost shares in value-added. The empirical analysis is based on a model that captures technological catch-up with the leading firms/industries and persistence of TFP levels over time. The same empirical approach is used in assessing the effects of corporate taxes on TFP. In general, this empirical approach provides reliable findings about the qualitative effects of various taxes on TFP, but the quantitative effects should be interpreted with caution. The main empirical results of the effect of labour taxes on TFP, as summarised in Table B.1 are (see Vartia, 2008 for details):

- Employer and employee social security contributions (SSC) have a more negative influence on TFP in industries that are relatively more labour intensive (Columns 1, 2). However, the magnitude of the effect of SSC on the long-run level of TFP is estimated to be relatively small.
- Top marginal personal income tax rates have a more negative effect on TFP in sectors characterised by high firm entry rates (Column 3). A simulation experiment indicates that the effect of a reduction of the top marginal tax rate from 55% to 50% on the average yearly TFP growth rate (over 10 years) would be 0.05 percentage points larger for industries with the median firm entry rate than for industries with the lowest level of firm entry. Under the assumption that the effect of top marginal rates are close to zero in industries with the lowest level of firm entry, this may be interpreted as a median effect. The effect of this tax reduction on TFP depends on the industry structure and this tax cut would increase the average annual productivity growth rate by 0.06 percentage points more in an industry at the 75th percentile of firm entry than in an industry at the 25th percentile of the distribution of firm entry.
- There is weak evidence that the negative effect of SSC tends to be stronger in countries with a sizeable administrative extension of collective wage agreements to non-unionised firms (Column 4). The extension of wage agreements may magnify the effects of SSC increases on labour cost by making it more difficult to shift the burden of this increase on workers' wages and more so in industries that are more labour-intensive.

between marginal and average tax rates – the average rate increases (falls) with income when the marginal tax rate is above (below) the average rate – it is possible to vary the two independently to some extent. For example, the average tax rate can be reduced for all taxpayers without altering the marginal tax rates of all but those on the lowest incomes by granting a general tax credit for a fixed amount.

Growth regressions undertaken for this study point to sizeable adverse effects of progressive income tax schedules on GDP per capita (see Arnold, 2008 for details), which go over and above the effects working through human capital accumulation. For example, consider the average OECD country in 2004, which had an average personal income tax rate of 14.3 per cent and a marginal income tax rate of 26.5 per cent. If the marginal tax rate were to decrease by 5 percentage points in this situation, thus decreasing the progressivity of income taxes, the estimated increase in GDP per capita in the long run would be around 1 per cent. Given that this analysis controls for human capital, this effect could originate from the responsiveness of labour supply to progressivity. However, it is also possible that it partly reflects higher entrepreneurship and risk-taking, if the measure of progressivity used in this project is correlated with progressivity at higher levels of income (see below).

These results suggest a non-trivial trade-off between tax policies that enhance GDP per capita and distributional objectives. However, there can be cases where this trade-off does not exist (see discussion of in-work benefits below).

The interaction between labour income taxes and the benefit system

It is possible that the interaction of the tax and benefit systems can create high average and marginal effective tax rates for certain groups, affecting labour force participation, hours worked and employment. For example, these joint effects can influence the financial reward from moving from inactivity to low-paid work and the incentives to re-enter the labour market – particularly for low-skilled low-pay workers and second-earners – after a period of unemployment. These high effective tax rates may have sizeable consequences on participation and employment, particularly if upward wage mobility is relatively limited at the bottom of the wage distribution.

Recent tax reforms in some OECD countries have aimed to reduce disincentives to participate in the labour market, especially for low-income and low-skilled households, by introducing so called "*in-work benefits*" or "*make-work pay policies*". These benefits or tax credits which top up the earnings of low-income earners have had some success in reducing "inactivity traps" of some groups of workers (Meyer and Rosenbaum, 2001; Blundell *et al.,* 2000; Card and Robins, 1998). For example, "in-work benefits" increase the income of relatively low-income households, thus reducing inequality, and may also improve efficiency if the gain in labour force participation outweighs the reduced hours of those already in work.[13] That said, these schemes must be carefully designed (OECD, 2005b) to avoid worsening the incentives of those in part-time work to increase hours and to progress in work by up-grading their skills, thereby creating "low-wage traps" while avoiding high budgetary costs.[14] Thus, the two main ways in which the government can help people on low-incomes – by providing them with direct income support and by encouraging them to earn more – may be in conflict with one another (Adam *et al.,* 2006a, 2006b). In addition, these benefits need to be financed which may imply raising some other taxes.

Top marginal statutory rates mainly affect productivity

Top marginal statutory rates on labour income have an ambiguous impact on TFP via entrepreneurship by affecting risk taking by individuals. On the one hand, high top statutory income taxes reduce the post-tax income of a successful entrepreneur relative to an unsuccessful one and can reduce entrepreneurial activity and TFP growth. On the other hand, high tax rates provide for increased risk-sharing with the government if potential losses can be written off against other income (tax payments), which may encourage entrepreneurial activity (Myles, 2008). However, Gentry and Hubbard (2000) suggests that the higher is the difference between the marginal tax rates when successful and unsuccessful (a measure of tax progressivity) the lower is risk-taking as the extra tax that applies to high profits is greater than the tax saving that is produced by losses, effectively reducing the strength of the risk-sharing effect.

Industry-level evidence covering a sub-set of OECD countries suggests that there is a negative relationship between top marginal personal income tax rates and the long-run level of TFP (see Box B.2 for details). The magnitude of the estimated impact of a change in top personal income taxes differs across countries depending on the composition of their business sectors, increasing with the proportion of industries with structurally high entry rates. One possible policy implication may be that countries with a large share of their industries characterised by high firm entry (or wishing to move in this direction) may gain more from lowering their top marginal tax rate than other countries. However, it is likely that some other policies and institutional settings, such as product market regulation, have a more direct impact on entrepreneurship (Scarpetta and Tressel, 2002; Brandt, 2005; Conway *et al*. 2006). Additionally, the magnitude of the impact of tax reform may depend on the stance of these policies. Indeed the empirical analysis shows that the negative impact of top marginal tax rates on TFP is stronger in countries with a high level of the OECD indicator of product market regulation (PMR),[15] uggesting complementarities between taxation and product market policies.[16]

Capital income taxes may affect investment and entrepreneurship through savings and firms' financing

Taxes on personal capital income may affect private savings by reducing their after-tax return. However, as discussed in Section B.1.1, the effects of this on savings, and particularly on investment, are uncertain. Nonetheless, differences in the personal income tax treatment of different forms of savings can be expected to distort the allocation of savings and reduce the growth potential of the economy. As most OECD countries do favour certain types of savings (such as owner-occupied housing, private pension funds) over others (such as bank deposits), there is scope to increase growth by reducing these distortions.

High capital gains taxes may affect both the demand for venture capital through entrepreneurs' career choice and the supply of funds (*e.g.* Poterba, 1989). Since venture capital is one important source for financing high-technology firm start-ups, financial support for these start-ups may be hindered by high capital gains tax, thus lowering the potential contribution of new firm entry to TFP growth. However, there is little empirical evidence of this link. More generally, policy makers face difficult choices in relation to capital gains taxes (see OECD, 2006c). In particular, exempting capitals gains from taxation provides opportunities for tax avoidance by transforming taxable income into tax-free capital gains,

but the application of capitals gains tax can "lock-in" investments and prevent the efficient reallocation of capital because (for reasons of practical administration) capital gains are taxed on realisation. It is, therefore, unsurprising that OECD countries differ widely in their taxation of capital gains.

The design of the capital income tax system and its interaction with corporate taxation may also influence firms' access to finance, which in turn can affect risk-taking and TFP (*e.g.* Feldstein, 2006). In most OECD countries, profits are taxed first at the corporate level and then at the personal level when they are distributed as dividends, and there has been a recent trend away from the use of imputation systems that give a credit at the personal level for taxes paid at the corporate level. Double taxation can create a bias towards financing investment with debt rather than equity, which may in turn discriminate against firms that have less access to debt financing. For instance, personal taxation of dividends has less influence on larger firms that can raise finance from foreign investors, who are generally not subject to the home country's personal taxes on dividends.

While the effects of high dividend taxes on financial structure are widely accepted, there is no consensus among corporate finance theorists on whether dividend tax cuts have a real effect on investment decisions or they are merely fully capitalised in share values (*e.g.* Auerbach, 2002).[17]

Issues in the design of growth-oriented personal income tax systems

Tax design should try to reconcile the broad policy objectives of taxation (*e.g.* revenue raising potential, administrative simplicity and equity) with efficiency considerations. Thus, the tax system should, as far as possible, avoid encouraging economic behaviour that could influence market activity adversely. This generally requires a broad tax base and few differences in tax rates (OECD, 2006). As discussed above, on the personal income side, some important design features are the tax unit/base (individual or joint family taxation), the progressivity of the tax schedule, tax compliance and the tax treatment of capital income which can have an influence on economic performance. But, one complexity is that reforms of personal income taxes are often difficult to evaluate in isolation from the rest of the tax and benefit system since changes in taxes often interact with existing benefits affecting the effective average and marginal tax rates.

The main purpose of family-based taxation is to increase vertical and horizontal equity in the taxation of households with different composition of income. One argument for equity being defined across households rather than across individuals is that the household is often the principal consumption unit. However, joint family taxation can create disincentives for (married) second-earners to enter the labour market and have adverse effect on GDP per capita. On the other hand, one problem with individual taxation is how to attribute non-labour income between the spouses, for instance, if it should be accredited to the spouse with highest income or if couples should be able to freely choose. While this has equity implications, it is unlikely to significantly influence economic behaviour. Thus, the choice between family and individual taxation involves a trade-off between equity concerns and the labour supply of second-earners which affects labour utilisation and GDP per capita.

The choice of tax schedule in a country is also likely to depend on how the trade-off between equity and tax distortions is valued. A flat tax system with few allowances and tax credits is generally simpler to administer and probably gives rise to fewer tax-induced distortions than other systems, but it puts less emphasis on redistribution (Box B.3). By

Box B.3. **Flat personal income tax reform experiences**

Estonia was the first European country that introduced a flat tax levied at a rate of 26% on personal (and corporate) income in 1994. The flat rate is 21% in 2008, but Estonia is in the process of reducing the rate gradually to 18% from 2011 onwards. The other Baltic States soon followed the Estonian example, as did several other Central and Eastern European countries – among those is Russia where a flat personal income tax rate of 13% was introduced in 2001.

The Slovak Republic is the first OECD country to have a flat tax. The country introduced a 19% rate in 2004 that applies to both corporate and personal income, and which is also used as the value-added tax rate. The tax reform in the Slovak Republic broadened the tax base by eliminating almost all tax reliefs but increased the basic allowance. At the same time, the Slovak government reduced social assistance benefits and shifted the tax burden from direct to indirect taxation. They continue to levy high health and other social security contributions. Since 2006, also Iceland applies a flat income tax rate on labour income above a threshold (ISK 1 080 067 in 2007). The central government rate in 2007 is 22.75% and the local government's income tax rate varies between 11.24% and 13.03% between municipalities. In 1998, Iceland levied a surtax of 7% on higher incomes, but this rate has been gradually reduced over time and was abolished from 2006 onwards. Iceland levies a low fixed amount of employee SSC and employer SSC are levied at a low rate of 5.34% on gross wages in 2007. The Czech Republic has introduced a flat personal income tax in 2008. In addition, flat tax systems have been and still are discussed in several other OECD countries.

A common feature of all flat tax proposals is that the introduction of a single rate is combined with the abolition of all or most tax allowances and tax credits. This might improve the tax system's efficiency, especially if a low flat tax rate would be levied. Efficiency would be improved even further if the same flat rate is introduced for both personal and corporate income as this reduces or even removes the tax incentives for income shifting between the personal and the corporate sector. However, identical tax rates are not sufficient for these incentives to disappear, as they also depend on the definition of the tax base.

Progressivity in flat tax systems is achieved by means of a basic allowance or basic income provision. This might have a positive effect on redistribution, both because the value of deductions in a progressive tax rate system are increasing with income and because high-income persons are generally in a better position to take advantage of these allowances than are low and medium income persons. In addition, it is often argued that lowering tax rates stimulates the economy and leads to increased employment, which will normally have a positive effect on income distribution as well. On the other hand, the static/first-year effects of flat tax reforms will probably give by far the largest tax cuts to high-income individuals but also low-income earners might gain if the basic allowance is increased. It is however the middle-income earners that most likely will be worse off after a flat tax reform.

In addition to the personal income taxes, most countries levy social security contributions only on labour income (and not, for instance, on capital income). Social security contributions then undermine the "flatness" of the tax system if they don't confer an actuarially fair entitlement to a possibly contingent future social benefit. One could then say that flat tax systems turn into (semi-) dual income tax systems with proportional instead of progressive taxation of labour income.

In some countries, having a flat tax on capital and labour income might require a rather high tax rate, which would reduce the tax system's efficiency and might raise problems because of the international mobility of the tax bases. On the other hand, implementing a rather low flat tax rate would undermine the benefit system in many OECD countries and would undermine income redistribution.

Source: OECD (2006b), "Fundamental Reform of Personal Income Tax".

contrast, a highly progressive income tax system normally reduces incentives to work and to invest in human capital, although "in-work benefits" can improve work incentives for low-wage workers while increasing progressivity. High progressivity may also increase the incentives for tax avoidance and tax evasion and contribute to a growing shadow economy that reduces measured GDP, although it is arguable that the tax level is more important than its progressivity in this regard. This may reduce tax revenues and undermine the fairness of the system. There is also a possibility that high top marginal rates will increase the average tax rates paid by high-skilled and high-income earners so much that they will migrate to countries with lower rates resulting in a "brain-drain" which may lower innovative activity and productivity.

Another important issue is the taxation of capital income. Over the last 50 years, the traditional approach to income taxation was the comprehensive income tax, which applies a single tax schedule to a person's (or couple's) total income, combining labour income with all the different forms of capital income. However, many OECD countries have moved away from this approach to varying extents, by applying lower rates of tax to some or all capital income (OECD, 2006). A particularly interesting example of this is the dual-income tax system (Box 2.1), such as that used in most Nordic countries, which taxes all capital income at a single flat rate that is lower than the top rates applied to labour income. However, this creates an incentive for entrepreneurs to disguise labour income as capital income. The dual-income tax also raises equity concerns but it has several advantages: it reduces any disincentive to save; it may help offset the fact that capital income taxes are usually applied to the nominal rather than the real return on savings; it reduces the incentive for capital owners to move their savings offshore in an attempt to avoid taxation; and it reduces the scope for tax arbitrage between different sources of capital income. Several other countries have adopted a "semi-dual" approach, in which different types of capital income are taxed at different rates. Countries may have different efficiency reasons for taxing interest, dividends and capital gains at lower rates than labour incomes. For example, many countries give special treatment to capital gains because of their association with risk-taking and do not see as great a necessity to reduce the general taxation on savings.

The taxation of dividends is an area of special interest, not only because of recent moves away from imputation systems but also because of its links with corporate taxation. Some countries, such as Finland, moved away from imputation for publicly quoted companies partly because they wished to use the money saved to reduce the rate of corporate tax, in order to attract foreign direct investment. Moves of this sort increase the taxation of profits at the personal level in the country of the shareholder's residence and reduce the taxation of profit at the corporate level in the country in which the profits arise. In general in an open economy, a residence-based capital income tax (like dividend tax) may discourage savings without affecting domestic investment whereas a source-based capital income tax (such as the corporate tax) tends to reduce and distort domestic investment. The choice between these two approaches to the taxation of profits depends to some extent on whether the policy aim is to raise the level of domestic investment or saving.

Also, to encourage saving most OECD countries currently give tax incentives to certain forms of private saving, for example pensions (*e.g.* Yoo and de Serres, 2004). While these incentives are likely to lead to changes in the composition of savings there is little evidence that they result in increases in overall private savings and since the tax breaks involved are likely to reduce public savings, their effect on GDP is at best uncertain (OECD, 2006 and Box B.4).

Box B.4. **Tax-favoured pension plans**

Economic efficiency in the taxation of savings requires that, in the absence of an existing market failure, tax policy should not affect individuals' decisions about what assets they save in. But the government may want to encourage people to save in specific retirement saving instruments and many OECD countries use some type of tax incentives to encourage the development of private pension saving. These incentives may be put in place to reduce "moral hazard" of individuals who may be tempted to not save enough for their retirement during their working life and instead relying on the social safety net. Also, countries with an ageing population can find that these tax incentives are a way to smooth the transition from "pay-as-you-go" financing to "pre-funding" of pension schemes. One potential problem with taxing different forms of savings differently is that it results in saving decisions being driven not by underlying returns but by the tax system.

A savings scheme is usually considered as being taxed favourably when its tax treatment differs from a regime that treats all sources of income equally from a fiscal standpoint (the so called "comprehensive income tax regime"). There are several ways in which tax incentives for pension savings can be provided. For instance, in an "exempt-exempt-taxed" (EET) scheme both the funds contributed and the accrued return on the accumulated funds are exempted from taxation while the benefits are treated as taxable income upon withdrawal. But the tax incentives do not necessarily need to imply a tax-deferral, under a "taxed-exempt-exempt" (TEE) scheme the income tax on pension savings is pre-paid while the accrued returns and withdrawal is tax-exempt. In practice, there is a whole range of possible tax combinations going from a scheme of "taxed-taxed-taxed" to "exempt-exempt-exempt", but most OECD countries apply some form of the EET regime (Yoo and de Serres, 2004). The net tax cost in terms of foregone tax revenues of the tax favoured schemes, or the size of the tax incentives to invest in a private pension schemes, varies across OECD countries. It ranges from 40 cents per dollar or euro contributed (Czech Republic) to around zero (Mexico and New Zealand). Despite the variation, most OECD countries incur a sizeable net tax cost. Half of the countries incur a tax cost of more than 20 cents, and it exceeds 10 cents in most OECD countries (Yoo and de Serres, 2004).

These tax advantages in pension savings need to be weighed against poor targeting since the moral hazard problem does not affect individuals whose expected pension income is well above the social safety net. Moreover, it is highly likely that the favourable tax treatment of pension savings only distorts the composition of savings without increasing the overall level of savings at the expense of tax revenues (OECD, 2006; Antolin, *et al.,* 2004; OECD, 2004).

B.1.4. Corporate income taxes

Corporate income taxes are levied on the corporation as an entity rather than on the individuals who own the corporation. This section describes the effect of the main components of corporate taxation on GDP in OECD countries. The tax variables considered are: statutory and effective corporate rates (including depreciation allowances), cross-border effective rates, and R&D tax incentives.

Corporate taxation may affect capital formation…

Corporate income taxes can affect the rate of capital accumulation and hence GDP per capita. Since firms' investment decisions are driven by the cost of and the expected return to investment projects, corporate taxes can have a negative effect on corporate investment

by reducing its after-tax return. The extent of this effect can, in turn, be expected to depend on the degree of openness of the economy, with a more open economy likely to suffer more from an excessively high corporate tax than a more closed economy.[18] It is also possible that taxes on personal capital income affect investment decisions by small firms that are only able to access domestic savings, but since most investment is undertaken by large firms with access to international funds, personal capital income taxes are likely to have a small effect on GDP. Foreign direct investment (FDI) is affected in a similar way as domestic investment by corporate taxation. However, it is also affected by the tax treatment of cross-border income (see below). Moreover, the effect of corporate taxes on capital formation through FDI can also depend on the size of the economy, with larger economies able to attract FDI aimed at supplying their large markets even if they maintain relatively high tax rates. Also, the proportionate effect of FDI on the domestic capital stock may be larger in smaller economies. The effect of corporate taxes on investment may also depend on other policies and institutions. For instance, tight product market regulations and a large administrative burden on firms can make firms' investment decisions less responsive to cuts in corporate tax rates as these administrative and regulatory barriers increase the adjustment cost of capital (Alesina *et al.*, 2005a).

Empirical evidence obtained from both firm-level data covering a sample of 14 European OECD countries and industry-level data covering 21 industries in 16 OECD countries suggest that investment is adversely affected by corporate taxation through the user cost of capital (see Box B.5). There are several empirical findings worth mentioning:

- Increases in the tax-adjusted user cost are found to reduce investment at the firm level and the effect on firm-level investment is stronger in more profitable industries. This indicates that the tax component of the user cost contributes significantly to the reduction in investment by disproportionately increasing the user cost for firms with a large tax base.
- Differentiating the impact of the tax-adjusted user cost across firms of different size (number of employees) and age, it appears that older firms' investment, irrespective of firm size, responds more strongly to corporate taxation through the user cost than younger firms' investment. There are two possible interpretations. One possibility is that young firms are generally less profitable than older firms and therefore have a smaller tax base. A second possibility is that young firms benefit from targeted exemptions or reduced rates.
- The firm-level sensitivity of investment to the corporate tax rate finds confirmation at the industry-level. Since the user cost of capital takes into account depreciation allowances that are deductible from firms' tax liability at the rate of the corporate tax, the magnitude of the influence of a change in capital depreciation allowances also depends on the level of corporate tax rates.

… and productivity in several ways

There are several channels through which corporate taxation can affect TFP. First, as with labour taxes, corporate taxes can distort relative factor prices resulting in a re-allocation of resources towards possibly less productive sectors (*e.g.* non-corporate sector) which may lower total factor productivity (*e.g.* Boersch-Supan, 1998). Second, complex corporate tax codes can cause high tax compliance costs for firms and high administrative burdens for governments, which absorb resources that could be used for productive activities, causing productivity and efficiency losses. Third, high corporate taxes may reduce incentives to invest in innovative activities by reducing their after-tax return.

Box B.5. **Empirical evidence on the effect of taxes on investment**

The empirical results, both at firm and industry level, assessing the effect of taxes on investment are obtained by introducing the tax adjusted user cost in a standard investment equation with adjustment costs of capital (see Schwellnus, 2008 and Vartia, 2008 for details). The empirical approach is based on the user cost theory of capital which stems from a neoclassical investment model in which investment decisions are made to maximise the net present value of the firm (*e.g.* Hall and Jorgenson, 1967). In addition to the standard user cost components (the required rate of return to the investment, the economic depreciation rate and anticipated capital gain/loss due to a change in before-tax price of the asset) the tax-adjusted user cost takes into account taxes on profits and the present value of the tax savings from depreciation allowances. The industry-specific user cost is constructed as a weighted average of the asset specific user cost where the weights are the share of each asset in total industry investment. The advantage of framing the empirical analysis within the user cost theory is that estimations are closely linked to theory. But one disadvantage is that the tax effects on investment are not separable from the effects of the other components included in the user cost. The firm and the industry level investment equations are based on different non-linear specifications. At the firm level, a non-log specification including a quadratic term of the lagged investment-to-capital ratio capturing a non-linear adjustment of investment is used. The industry level equation is specified in log terms and the adjustment of investment is captured by the lagged investment-to-capital ratio.[1]

The main empirical findings at the firm-level, summarised in Table B.2, are (see Schwellnus, 2008, for details):

- Increases in the tax-adjusted user cost are found to reduce investment at the firm-level (Column 1). A simulation experiment indicates that a reduction of the statutory corporate tax rate from 35% to 30% reduces the user cost by approximately 2.8%. This implies a long-run increase of the investment–to-capital ratio of approximately 1.9%, given its long-run user cost elasticity of 0.7.
- The size of the negative tax effect on investment appears to be similar for small and large firms (measured by the number of employees). In contrast, only older firms' investment appears to be negatively affected by increases in the tax-adjusted user cost (Column 3). One possible explanation is that young firms are generally less profitable than older firms and therefore less affected by corporate taxation. The other explanation may be that among young firms there is a disproportionately high share of small firms that benefit from exemptions or reduced rates.

The main results obtained at the industry-level, summarised in Table B.3, are (see Vartia, 2008 for details):

- The investment-to-capital ratio is negatively affected by increases in corporate taxation. The long-run user cost elasticity is estimated to vary between –0.4 and –1, depending on the empirical specification. A simulation experiment indicates that a cut in the statutory corporate tax rate from 35% to 30% would increase the long-run investment-to-capital ratio by 1.0% and 2.6%, depending on the specification. These are lower and upper bound estimates at the industry level and the firm-level estimate lies within this interval. The estimated effect of this tax reduction is equivalent to an increase in the average investment-to-value-added ratio by 0.2 to 0.5 percentage points.
- The corporate tax rate enters non-linearly into the user cost formula and as a result the magnitude of the effect of a change in the tax depends on the level of corporate taxes. Countries with a higher corporate tax rate experience a somewhat larger negative effect from the same increase in the tax than countries with a lower tax rate.

Box B.5. **Empirical evidence on the effect of taxes on investment** *(cont.)*

- The effect of a five percentage point increase in the net present value of the depreciation allowance (of both machinery and structures) is estimated to increase the investment rate by 0.9% to 2.5%, depending on the empirical specification.[2] Since the depreciation allowances are deductible from firms' tax liability at the rate of the corporate tax, the magnitude of the impact of a change in capital depreciation allowances also depends on the level of corporate tax rates.

1. In the firm-level data it is possible to capture the adjustment of the capital stock with a non-linear specification including a quadratic term, whereas at the industry level, capturing the adjustment of the capital stock with this specification is difficult. Therefore, the industry level analysis uses a log specification with the lagged dependent variable measuring the adjustment process.
2. The average value of the net present value of the depreciation allowance is 40% for structures and 78% for machinery.

Fourth, to the extent that corporate taxes reduce FDI and the presence of foreign multinational enterprises they can hinder technology transfers and knowledge spill-overs to domestic firms (see below).

Also, corporate taxes distort corporate financing decisions, favouring debt over equity because of the deductibility of interest from taxable profits. This can affect TFP by distorting the allocation of investment between industries, favouring those that find it easy to raise debt finance and disadvantaging those that have to rely more on equity, such as knowledge-based industries that invest heavily in intangible property. Even within an industry this can disadvantage innovative fast-growing firms that may rely on risk capital more than other firms. This has led to the consideration of a range of fundamental corporate tax reforms in several OECD countries (Box B.6). It is also possible that corporate taxes affect the allocation and reallocation of resources across firms which can play an important role in accounting for aggregate productivity. A similar problem can arise from the "lock-in" effect of capital gains tax.

The empirical findings at both firm- and industry-level suggest that there is a negative effect of taxes on TFP (see Box B.7 for details). Allowing for heterogeneity in the tax impact across both firm size and age categories, it appears that the negative effect of corporate taxes is uniform across firms of different size and age, except that no such effects are found for firms that are both young and small. There are two possible explanations for this result. First, small firms benefit from exemptions and reduced rates of corporate taxes. However, this does not explain why small firms are negatively affected by corporate taxes after their initial five years of existence (*i.e.* after they become "old" according to the convention adopted here). A more convincing explanation, therefore, is that the category of young and small firms includes a large share of start-ups with low or zero profits, even in highly profitable industries. For these firms the effect of corporate taxes may therefore be negligible.

It is also possible that corporate taxes have a differential effect on firms that are in the process of catching up with the productivity performance of the best practice firms (catch-up firms) and firms that are falling behind (non catch-up firms), especially if profitability is higher in catch-up than in non catch-up firms. In this case, corporate taxes could have a particularly negative effect on innovation incentives for catch-up firms by disproportionately reducing their after-tax return to innovation. This conjecture is

Box B.6. **Fundamental corporate tax reform**

Many policy makers in OECD countries are concerned about whether they can maintain their current levels of corporate income tax revenues, especially in the light of increasingly mobile tax bases, and how they can create a more attractive investment climate for domestic and foreign investors. They are also concerned about the distortions induced by their corporate income tax systems – the corporate income tax is likely to distort the total amount of investment and the type of investment projects that are undertaken, the corporate sources of finance (debt, newly issued equity or retained earnings), the location of the corporate tax base, the choice of a business legal form and the tax might have an impact on corporate mergers and acquisitions. Policy makers also look for ways to reduce corporate income tax complexity. In principle, these goals can be achieved through fundamental corporate income tax reform. However, in practice, fundamental reform is often difficult to implement because of the trade-offs between simplicity, efficiency and fairness considerations and because of the potential international tax consequences, transitional implications and tax revenue consequences.

The allowance for corporate equity (ACE) tax system – as, for instance, implemented in Belgium – provides a deductible allowance for corporate equity in computing the corporation's taxable profits. Similar to the deductibility of interest payments from the corporate income tax base, the allowance for corporate equity equals the product of the shareholders' funds (generally the company's total equity capital) and an appropriate nominal interest rate (interest rate on medium term government bonds). The allowance therefore approximates the corporation's "normal" profits. The corporate tax is then confined to economic rents because only corporate profits in excess of the ACE are subject to corporate tax. As a result, the ACE tax system does not distort the choice between debt and equity as sources of finance at the corporate level.

The allowance for shareholder equity (ASE) tax system – as implemented in Norway – exempts the normal return on equity from double taxation as well. However, it provides tax relief for the normal return on equity not at the corporate level as under the ACE tax system, but at the personal level instead. The ASE might be calculated as the value of the shares held by the household multiplied by an imputed return (interest rate on medium-term government bonds). As is the case for the ACE tax system, which is equivalent to a corporate cash-flow tax, the ASE tax is equivalent to a personal level cash-flow tax.

Governments might also implement other types of corporate income taxes as a full imputation system, the shareholder allowance for corporate equity tax system or the comprehensive business income tax (CBIT) system. The CBIT, for instance, allows no deduction of either interest payments or the return on equity from taxable corporate earnings. Except for the CBIT rate, no additional taxes would be imposed on distributions to equity holders or on payments of interest.

Finally, instead of taxing corporate income, government might implement a corporate cash-flow tax. Under a corporate cash-flow tax, income is taxed only when cash is received and costs are deductible immediately when purchases are made and interest costs are not deductible. The capitalisation of assets is therefore no longer required due to the immediate expensing of the investment and the economic depreciation of assets no longer has to be measured. A corporate cash-flow tax treats debt and equity symmetrically and so does not distort the firm's decisions on sources of finance.

Source: OECD (2007), "Fundamental Reform of Corporate Income Tax".

Box B.7. **Estimating the effect of corporate taxes and R&D tax incentives on TFP**

As with labour taxes, the empirical approach to estimate the effect of corporate taxation on TFP is based on identifying industry-specific characteristics that are expected to cause a differential effect of corporate taxes on industry TFP (described in Box B.2). More specifically, the estimation approach (both at firm and industry-level) assumes that one channel through which corporate taxes affect TFP is industries' corporate profitability (high returns).[1] Furthermore, to assess the effect of tax incentives for R&D expenditures and the resulting effect on TFP it is assumed that the channel through which these incentives influence R&D differently across industries is the R&D intensity of industries.[2] Firm-level TFP is calculated as the residual from the estimation of a logarithmic Cobb-Douglas production function using firm level data on value-added and labour and capital inputs while, as described in Box B.2, industry-level TFP is measured as the "Solow-residual" from a production function. The empirical results draw on a specification that captures two empirical regularities, namely technological catch-up with the leading firms/industries and persistence of TFP levels over time (Scarpetta and Tressel, 2002; Griffith *et al.* 2006). As mentioned in Box B.2, this empirical approach provides reliable qualitative indications regarding the qualitative effects of various taxes on TFP, though the size should be interpreted with caution.

The main empirical results concerning the influence of corporate taxes on TFP at the firm-level are (see Schwellnus, 2008 for details):

- Lowering corporate taxes is estimated to boost firm-level TFP in profitable industries (Table B.4, Column 1). A simulation experiment indicates that the effect of a reduction of the corporate tax rate from 35% to 30% on the average yearly TFP growth rate (over 10 years) would be 0.4 percentage points higher for firms in industries with median profitability than for firms in industries with the lowest level of profitability. Under the assumption that the effects of corporate taxation are close to zero for firms with the lowest tax base, this may be interpreted as a median effect. Given that trend TFP growth of OECD countries averaged around 1.1% over the period 2000-2005 (OECD, 2007e) the simulated increase in TFP growth due to a tax reduction would seem to be an upper bound estimate. The effect of this tax cut on TFP depends on the industry structure and this reduction would increase the average annual productivity growth rate by 0.4 percentage points more in an industry at the 75th percentile of profitability than in an industry at the 25th percentile of profitability.
- The negative effect of corporate taxes is uniform across firms of different size and age classes, except for firms that are both small and young. This may either be due to some countries' exemptions or reduced rates targeted at start-up firms or to their low average profitability, which both reduces the amount of their effectively paid corporate (Table B.4, Column 2).
- Rising firms that are in the process of catching up with the technological frontier are particularly affected by corporate taxes (Table B.4, Column 3). Even in sectors with low average profitability there is a subset of highly profitable firms that catch up with the technological frontier. These firms' tax base is large so that a high corporate tax rate increases their effective tax burden disproportionately relative to that of other firms.

Box B.7. **Estimating the effect of corporate taxes and R&D tax incentives on TFP** *(cont.)*

The main empirical results obtained at the industry-level are (see Vartia, 2008 for details):

- Lowering corporate taxes is estimated to boost TFP in profitable industries (Table B.5, Column 1). A simulation experiment indicates that the average effect (over 10 years) of a reduction of the corporate tax rate from 35% to 30% on the yearly TFP growth rate would be 0.08 percentage points higher for industries with the median profitability than for an industry with the lowest level of profitability. As mentioned above, this may be interpreted as a median effect. The effect of this tax cut on TFP depends on the industry structure and this reduction would increase the average annual productivity growth rate by 0.08 percentage points more in an industry at the 75th percentile of profitability than in an industry at the 25th percentile of profitability.

The effect of tax incentives for R&D spending is obtained by using the B-index[3] as a proxy of the generosity of R&D tax incentives. The main result is:

- R&D tax incentives are estimated to raise R&D spending (Table B.5, Column 2). However, the average effect of tax incentives on the level of TFP is rather small, though it appears to be larger in R&D intensive industries. A simulation experiment indicates that the effect on the annual TFP growth rate of an increase of the tax incentives from 10% to 15% (equivalent to a 5 cents increase in tax subsidy per dollar invested in R&D) would be 0.01 percentage points larger for an industry having the median R&D intensity than for an industry with the lowest level of R&D intensity. Again, this may be interpreted as a median effect if it is assumed that the effect of tax subsidies is close to zero in industries with very low R&D intensity. The effect of R&D incentives could potentially be larger in R&D intensive industries. Indeed, this increase in tax incentives is estimated to raise the average annual productivity growth rate by 0.09 percentage points more in an industry at the 75th percentile of the distribution of R&D intensity than in a sector at the 25th percentile of R&D intensity.

1. For example, some industries may tend to be more profitable not because of pure economic rents, but because they rely on high expected returns to capital to compensate for high-risk investment projects such as R&D or other intangible factors.
2. It is important to remember that this estimation approach only captures the effect of a tax working through a specific channel, here through industry's profitability and R&D intensity. Any direct effect of the specific tax on TFP (unrelated to the industry characteristics) is captured in the fixed effects.
3. The B-index measures the minimum value of before-tax income that a firm needs to cover the cost of R&D investment where the cost is standardised to one dollar. R&D tax incentives are measured as one minus the B-index.

supported by empirical findings showing that only firms that are in the process of catching up with best practice are negatively affected by the statutory corporate tax rate (see Box B.5 for details). These results suggest that lowering the corporate tax rate may be particularly beneficial for productivity growth of the most dynamic and innovative firms. This could be because such firms rely heavily on retained earnings to finance their growth.

Effective corporate tax rates are broader measures of the corporate tax burden than statutory corporate tax rates since they take into account both the rate at which corporate profits are taxed and the tax base to which it is applied. They may, therefore, capture additional channels through which corporate taxation affect TFP (Box B.8). Indeed, the empirical results assessing the effect of the effective corporate tax rate on TFP using industry-level data suggest that high average effective corporate taxes have a negative impact on TFP.

Box B.8. **Effect of effective corporate tax rates on TFP**

Effective tax rates are derived from theoretical investment models where firms maximise the after-tax net present value (NPV) of their investment projects given the tax system. Depending on the assumptions of the model the effective rates can refer to a marginal effective tax rate (METR) which is applied to incremental investment projects earning just their minimum required return or to an average effective tax rate (AETR) which is applied to discrete investment projects earning some economic rent. The empirical analysis in this study uses data on the effective tax rates computed by the Institute for Fiscal Studies (IFS) based on the methodology of Devereux and Griffith (2003). The focus is on two important elements of corporate tax codes: the depreciation allowances and statutory corporate tax rates.* Depreciation allowances are deducted from firms' taxable income and thus they reduce the cost of investment.

The empirical results using industry-level data on a panel of 12 OECD countries covering 21 industries over the 1981-2001 period suggest that the average effective corporate tax (AETR) has a negative effect on TFP. As pointed out in Box B.2 and Box B.7, the estimated effects are significant and give qualitative information about the sign of the effect of effective taxes on TFP, but the size of the effects is somewhat larger than expected. A simulation experiment indicates that the effect of a reduction of the effective tax rate from 35% to 30% on the average yearly TFP growth rate (over 10 years) would be 0.1 percentage points larger for an industry with the median profitability than for an industry with the lowest level of profitability. As discussed in Box B.7, this may be interpreted as a median effect. The effect of this tax cut on TFP depends on the industry structure and this reduction would increase the average annual productivity growth rate by 0.1 percentage points more in an industry at the 75th percentile of profitability than in an industry at the 25th percentile of the distribution of profitability (see Vartia, 2008 for details).

* Thus, the rates ignore, for example, the personal taxes paid by the shareholders.

Targeted corporate rates: the dispersion of effective rates can also adversely affect TFP

While the statutory corporate tax rate applies mostly to large corporations, some firms are taxed with lower *targeted corporate tax rates*. These rates are intended to lessen the impact of corporate tax rates on investment of certain types of firms (mainly small- and medium-sized firms) or regions. As illustrated in the previous section, about half of OECD countries have some form of reduced corporate tax rates targeted at either small firms, certain business activities or firms operating in certain regions. The standard justification for differential tax treatment of small firms is that they could suffer from market failures.[19] However, this rationale is not always uncontentious, the targeting may be difficult to achieve and the implied tax relief may involve a waste of funds.[20] Also, this special tax relief may result in an economic inefficiency if, as a consequence, resources are allocated towards small, less productive firms, due for instance to threshold effects (Crawford and Freedman, 2007). It can also lead to the artificial splitting of firms to obtain the preferential rate. The unintended result could be to prevent some firms to grow to their optimal scale of production, with negative consequences on productivity performance.

Tax incentives have some effects on productivity through R&D

As already mentioned, corporate taxes can have a negative effect on investment in R&D, and thus TFP, in a similar way as taxes affect physical investment. But, other factors

beyond taxation, such as market failures, may reduce private incentives for firms to invest in innovation, possibly preventing private investment from reaching socially optimal levels.[21] To counteract these possible market failures, many OECD countries grant some type of R&D tax incentives in order to stimulate private-sector innovative activity. A recent OECD study found that tax incentives could help to raise R&D expenditure and innovative activity, but with long time lags and a relatively modest overall impact (Jaumotte and Pain, 2005a, b). Further, these tax incentives were found to have stronger effects on both R&D expenditure and patents than direct funding. These findings partly confirm earlier OECD work on the impact of public expenditure on R&D (Guellec and van Pottelberghe, 2000).

One advantage of R&D tax incentives, compared to other more direct forms of support for innovative activity, is that decisions on which R&D projects to undertake are taken by firms themselves and so are more likely to be successful than projects selected by government officials. At the same time, the deadweight losses may be larger for general tax incentives than for targeted direct grants. Moreover, tax incentives, like direct subsidies, are generally only available for formal R&D, which is mainly implemented in manufacturing industries. Tax incentives to raise R&D may, therefore, have little effect on productivity in the increasingly important service sectors, where innovations are often produced informally in the course of ordinary business operations. Additionally, the increasingly footloose nature of investment suggests that R&D spending in one country is also likely to respond to a change in incentives in other countries (Abramovsky *et al.*, 2005). Thus, if tax incentives that attract R&D activities of multinationals in one country are matched by similar benefits offered by other countries, the overall loss of tax revenue may exceed the benefits to be obtained locally from R&D externalities or knowledge spill-overs from MNEs.

Empirical results using industry-level data support previous findings in that tax incentives for R&D appear to enhance TFP (Box B.7 for details). But, the effect of tax incentives on the level of TFP relative to best practice level seems to be rather small. For example, a five percentage points increase in these incentives (equivalent to an increase of the subsidy by 5 cents per dollar spent on R&D) would raise the yearly TFP growth rate in an industry with median R&D intensity by 0.01 percentage points more than in an industry with very low R&D intensity (see Box B.7).[22] This corroborates the conclusion of Jaumotte and Pain (2005a, b) that tax policies can do relatively little to enhance innovative activity.[23] However, the analysis also shows that the effect of R&D incentives could potentially be larger in R&D intensive industries and, to the extent that tax-induced innovative activities in highly R&D intensive industries may translate in a persistent acceleration of TFP growth, tax reforms that enhance R&D spending may still be beneficial. In any event, conclusions about the advantage of these tax incentives over general cuts in corporate taxation for R&D outcomes should be based on the relative cost-effectiveness of these policies, which is an area that needs further investigation.

Effective cross-border tax rates may also affect the international allocation of fixed capital

Taxes influence investment incentives of foreign investors in a similar way as those of domestic investors. Aside from the effects of tax wedges on labour (see above), tax influences on FDI include both domestic tax rates and other tax arrangements affecting cross-border incomes. A country's attractiveness as a location for foreign direct investment (FDI) depends, among other things, on how its tax system compares with possible competitor destinations. The combined effect of the home and the host country's tax codes

as well as bilateral and multilateral tax agreements matter, for example, withholding taxes that countries apply to payments abroad from firms operating in the domestic economy may depend on tax treaties (see *e.g.* Yoo, 2003).

The implications of FDI taxation regimes are likely to be different from those of taxation on domestic investment because FDI not only adds to capital formation but also generates technology and knowledge spillovers that can boost productivity of domestic firms (Keller, 2004; Griffith *et al.*, 2004; Criscuolo, 2006; Bloom *et al.*, 2007). Furthermore, foreign affiliates may increase the level of competition and thus the incentives to improve productivity in the host country. Some non-policy factors also affect how FDI responds to changes in different taxes. In particular, FDI may be more sensitive to taxes in small countries (or countries having a small market size) or in countries facing comparative disadvantages related to distance or transaction costs. Recent empirical OECD work found evidence of an adverse effect of corporate taxes on FDI, however, the effect seems to be small relative to that of tax wedges on labour income and other policies affecting the business environment (Hajkova *et al.*, 2006).[24] This result is consistent with the conclusions in an OECD literature review which finds considerable evidence of a negative relationship between FDI and host country taxation (OECD, 2007c).

Foreign direct investment allows firms to choose their location based *inter alia* on taxes. In turn, this can spur tax competition in order to attract both foreign affiliates and profits generated by activities elsewhere, which multi-national enterprises can shift to relatively low tax countries (see below). There is some evidence that multinational firms react to tax incentives (for overviews see Gordon and Hines 2002 and OECD, 2007c) and of tax competition taking place in recent years resulting in cuts in the corporate tax rates (see *e.g.* Devereux and Sorensen, 2006). The ongoing integration of world capital markets and the increase in the mobility of capital has affected the sensitivity of the capital base to tax changes. This can spur further tax competition and have important implications for the design and effect of tax policies.

A further factor that can influence the international allocation of fixed capital is whether the home country of a multinational firm exempts foreign dividends from tax, or subjects them to domestic taxation while providing a credit for taxes already paid in the source country. The economic rationale for the credit system is that, in principle, it removes any corporate tax distortion between domestic and foreign investment by domestically owned firms, and between investments in different foreign countries (*i.e.* it furthers "capital export neutrality"). However, the credit system is never implemented in a way that fully achieves this: countries normally limit the credit to the amount of tax that would have been due under domestic law, and most countries grant deferral to "active" business income so that it is only taxed when it is repatriated. In contrast, the economic rationale for the exemption system is that, if all countries adopted it, investments into a particular country would all be taxed the same, regardless of their country of origin (*i.e.* "capital import neutrality"). This promotes equal competition within any host country and also means that the transfer of ownership of a company from one multinational group to another would not affect the corporate taxes levied on its profits (thus facilitating the transfer of companies to the owners that will manage them most efficiently). However, as with the credit system, most countries do not employ a "pure" exemption system, applying the credit system in certain situations. Over the past 15 years, there has been a gradual movement of countries moving from a credit to an exemption system, at least in part because of the competitive edge that this can give to their resident multinational firms.

Issues in the design of a growth-oriented corporate income tax system

Summing up, the main reason for imposing a corporate income tax is that the tax plays an important withholding function, acting as a "backstop" to the personal income tax (for an overview see OECD, 2007). In the absence of corporate income taxation, business earnings that are retained escape taxation until the shareholder realises the corresponding capital gains or losses. And in the absence of capital gains tax, retained earnings would not be taxed at all. Therefore, by levying corporate income tax governments prevent shareholders from sheltering their equity income from taxation and, at the same time, avoid large differences in the tax burdens on capital *versus* labour income and on corporate *versus* unincorporated businesses.

There is a wide consensus that corporate taxation should avoid discouraging efficiency improvements and aim at ensuring neutrality and consistency, for instance, by not favouring some investment or firms at the expense of other, potentially more productive, investment or firms (*e.g.* Devereux and Sørensen, 2006). This would imply a reasonably low corporate tax rate with few exemptions. As described earlier, recently most tax reforms in the OECD have indeed involved tax cuts and base broadening (OECD, 2007).[25] This approach minimises tax-induced distortions while raising revenues as efficiently as possible.

Besides the level of the corporate rate and the breadth of the tax base, the following areas could also be considered:

- ***Exemptions.*** The evidence reviewed and the empirical results in this section suggest that preferential tax treatment of or exemptions from corporate taxation for small firms are not likely to be justified. Investment decisions of small firms do not appear to be more sensitive to corporate taxes than those of large firms – indeed evidence points to the opposite. Moreover, TFP in small firms tends to be less sensitive to corporate taxation than TFP in other types of firms. Thus, special tax reliefs based on firm size could result in economic inefficiencies as resources may be wasted. Cutting back on these exemptions free resources for cuts in the overall statutory corporate tax rate, which were found to be beneficial for enhancing economic growth by favouring high return and rapidly catching up firms and industries.
- ***Tax incentives for innovation.*** Tax incentives for R&D to stimulate private-sector innovative activity seem to have larger effects than direct support, but these effects appear nonetheless relatively small outside R&D intensive industries. Other measures, such as pro-competitive product market reforms or reforms in tertiary education systems, may be more effective for enhancing innovation activities.
- ***Double taxation of equity.*** The choice of treatment of corporate equity income can have implications for economic growth. In many countries corporate equity is taxed both at the company and at the shareholder level in form of dividend and capital gains tax. The treatment of such income at the personal level is important since this "double taxation" creates disincentives to invest and discriminates against equity finance in favour of debt and thereby tilts the playing field in the direction of enterprises that easily obtain debt finance. Particularly personal taxes on corporate equity income distort the cost of equity capital for small firms without access to international stock markets. It also discourages firms from choosing to become corporations. Generally, double taxation of dividends may inhibit firm growth, with negative consequences on economic performance.

- ***Relation with personal income taxation.*** The possibility of tax minimisation by shifting income between corporate and personal taxation needs to be taken into account when designing the corporate tax system. If personal income is taxed at a significantly higher rate than corporate income this may encourage an entrepreneur to classify her/his income as corporate instead of personal, which would reduce tax liabilities, consequently eroding the tax base and lowering overall tax revenues collected.
- ***Tax complexity.*** Another issue is that the increasing complexity of the tax system may be harmful for growth. Complex tax codes tend to result in high tax compliance costs than can lead to a loss of efficiency as resources are wasted to comply with the tax system instead of being put into productive use. It may also contribute to make the business environment less friendly, deterring FDI. A complex tax system also contributes to low awareness of incentives and tax reliefs, especially among small firms, which may reduce investment and economic performance. One reason for the increasing complexity of the tax system is that governments react to tax planning by some firms with anti-abuse legislation that inevitably increases the administrative load on all firms. For instance, Slemrod *et al.* (2007) suggest that tax complexity in the United Kingdom has increased in recent years mainly because a significant volume of anti-avoidance legislation has been added to the tax code. However, measuring the complexity of the tax system is not easy and no representative cross-country tax indicator has been developed in this field. Even though there is yet no available cross-country evidence on the growth effects of tax complexity, a cautious approach in the design of corporate taxation is to aim for a simple tax system.
- ***International aspects***. It is not necessarily the case that a high tax rate produces high tax revenues since, with open economies, firms can choose to locate their activities, or their profits, in low-tax countries. The possibility of shifting incomes between different jurisdictions has become more important with globalisation. Multinational firms who are active in many countries may be able to shift profits between countries by using transfer pricing and intra-group loans to take advantage of lower levels of corporate statutory tax rates.[26] Thus, countries may seek to compete over mobile capital and the corporate tax base by lowering effective and statutory tax rates. The empirical literature on tax competition suggests that the increasing mobility of capital has had some impact on lowering corporate statutory tax rates, which is consistent with the observed reductions in the statutory rates in OECD countries over the last two decades. The physical location decision of multinationals (MNEs) is important since they may contribute to the host country's growth by spurring competition and facilitating the transfer of new technologies adding to productivity growth. But it has to be recognised that tax is only one factor in influencing these decisions.

B.2. The overall tax design: bringing together individual tax effects

The "bottom-up" approach adopted in the previous section gives a detailed description of the main growth linkages concerning each type of tax. But these separate effects need to be brought together in order to understand the overall impact of tax systems on economic performance. This section proposes a simple framework for attempting such a synthesis. In this framework, taxes are organised in an overview matrix (Figure B.2) in four broad groups: consumption, property, personal income and corporate income tax. Within this broad tax mix, the differential impact of individual tax instruments on the drivers of GDP per capita is

reported relying on the links highlighted in the previous section. Each entry in the matrix considers the impact of an increase in one tax, holding all other taxes unchanged, on a performance measure. A negative (positive) sign indicates that an increase in the tax adversely (positively) affects the driver of growth. However, some taxes may simultaneously influence, possibly in different ways, many drivers of growth. Reading down the rows in the matrix it is possible to consider the effect of a tax measure, for example the average personal income tax wedge, on all the determinants of growth. Similarly, looking across the columns in the matrix allows assessing the effect of all taxes on one of the drivers of growth. A memorandum item indicates if strong distributional effects arise from changes in those taxes. The last column compares performance in each of the drivers of GDP per capita relative to average OECD performance.

Figure B.2. **Tax matrix**

Drivers of GDP per capita		Tax instruments: Consumption	Property/ wealth	Personal income (PI)						PI tax expenditures	Corporate income (CI)		CI tax expenditures		Tax system design	Country performance relative to a benchmark
		Sales tax/VAT		Average tax wedge	Marginal tax wedge	Progressivity	Top statutory income tax	Dividend tax	Capital gains tax	in-work benefits	Corporate/Effective corporate tax	Cross-border average effective tax on inv.	Tax incentives for R&D	Tax reduc-tions for small firms	Tax complexity	
Employment	Overall	–		–						+	+/–					
	2-earner/woman			–	–	–				+/–						
	lowskilled			–												
Hours worked	Overall			+	–	–				–						
	2-earner/woman				–	–				–						
Capital deepening (K/L)	Overall			+/–				–	–		–					
	FDI			–							–	–				
Human capital				+	–	–	–									
TFP	Overall			–							–			+/–	–	
	R&D												+			
	FDI spillovers			–							–	–				
	Entrepreneurship						– (?)	–	–		–					
Effect on inequality		+	–			–	–	–	–	–					+(?)	

The advantage with this set-up is that it can account for reinforcing or offsetting effects on overall economic performance of tax reforms involving the adjustment of several tax instruments. The level and design of taxes in a country relative to a benchmark (a country or OECD average) could be compared with the relative performance of the country on each of the drivers of growth that are affected by these taxes. Thus, it could be of some use in the annual "Going-for-Growth" exercise for identifying tax policy priorities in OECD countries. Clearly, the matrix by itself cannot provide policy guidance since, as

explained in previous sections, additional country-specific factors must be taken into account in the design of tax reforms. These include the starting level of taxation and tax mix, interactions with country-specific policy and institutional settings in other areas (such as bargaining and other labour market features), the effectiveness of tax administration and so on. The next paragraphs provide an attempt to account for such complexities within a broad framework for tax policy design.

Broad tax design: policy insights from the previous sections

All OECD countries rely on a mix of consumption, property, personal income, and corporate income tax. The evidence reviewed in the previous sections indicate that setting the right mix is important, because the distortionary effects of collecting revenue from different sources can be very different and there could be efficiency gains from replacing part of the revenues from income taxes with revenues from less distortionary taxes such as consumption or property taxes, especially recurrent taxes on residential property, for a given overall level of the tax burden (*e.g.* Dahlby 2003; European Commission, 2006). The empirical work undertaken for this project confirms this conjecture and, abstracting from other policy objectives, suggests a "tax and growth ranking" of the tax instruments with regard to their long-run effect on GDP per capita (see Box B.9 for details).

The following results are worth mentioning:

- Taxing consumption and property appears to have significantly less adverse effects on GDP than taxing income.
- Corporate income taxes appear to have a particularly negative impact on GDP per capita. This is consistent with the previously reviewed evidence and empirical findings that lowering corporate taxes raises TFP growth and investment. Reducing the corporate tax rate also appears to be particularly beneficial for TFP growth of the most dynamic and innovative firms. Thus, it seems that corporate taxation affects performance particularly in industries and firms that are likely to add to growth. The adverse influence of corporate taxes on GDP per capita through TFP is also consistent with the additional linkages described in Figure B.2, including those working through entrepreneurship, innovative activity and FDI.
- As discussed earlier, the distortionary effects of property taxes on the allocation of resources in the economy are likely to be less severe than those of income and consumption taxes. Indeed, within non-income taxation, recurrent taxes on immovable property seem to have the least adverse effect on GDP per capita.[27]

Issues in a revenue neutral tax shift from income taxation to consumption and property taxation

The evidence surveyed in this study and the empirical work suggests that there could be gains in terms of long-run GDP per capita from increasing the use of consumption and property taxes relative to income taxes without changing overall tax revenues. One recent example of such a tax shift is in Germany where the VAT rate was increased in the beginning of 2007 from 16% to 19%, partly to finance a cut in social security contributions. However, it is likely that the response of the economy to such a revenue shift would vary across countries depending on the precise nature of the reform as well as country characteristics. For example, a shift away from personal income taxes towards consumption taxes can have potentially larger positive effects on GDP per capita if it takes

Box B.9. **Empirical findings on the aggregate effects of the tax structure on GDP**

The empirical findings at the macro level on the effect of the tax structure on long-run GDP were obtained by introducing a set of tax structure indicators into a panel regression of GDP per capita covering 21 OECD countries over the period 1970 to 2005 (for details see Arnold, 2008).Throughout the analysis, differences across countries in the overall tax burden are accounted for by including the level of the tax-to-GDP ratio. The setup also considers the government budget constraint and takes into account that more use of a given tax instrument reduces the amount of revenues that need to be raised from other taxes.* This allows drawing conclusions on the impact of a revenue-neutral shift from one tax instrument to another on long-run GDP. The main findings reported in Table B.6 are:

- Estimates of the effect on GDP per capita of changing the tax mix while keeping the overall tax-to-GDP ratio constant indicate that a shift of 1% of tax revenues from income taxes to consumption and property taxes would increase GDP per capita by between a quarter of a percentage point and one percentage point in the long run depending on the empirical specification. The magnitude of the estimated effect is larger than what would be reasonably expected. Given that there is a wide dispersion of the point estimates across specifications it is clear that the size of the effects cannot be measured precisely in a cross-country comparative setting. For example, the estimated effects may overstate the effect of a shift in the tax mix because this shift may trigger similar shifts in the trading partners' economies, which would reduce the benefits from such a shift in the home country. Thus, the magnitude of the effects should be interpreted with caution. Column 1 shows a negative growth impact for a move from consumption and property taxes to income taxes, while Column 3 estimates a similarly-sized positive effect for an opposite shift away from income taxes.
- Column 2 reports results in which a decrease in corporate income taxes (financed by an increase in consumption and property taxes) has a stronger positive effect on GDP per capita than a similar decrease in personal income taxation.
- Results reported in Column 4 break up the effect of an increase in consumption and property taxes, allowing a reduction in income taxation. While both of them are associated with higher GDP per capita than relying on income taxes, the effect is significantly larger for property taxes. Column 5 separates recurrent taxes on immovable property from all other property taxes and the positive effect on GDP is significant larger for recurrent taxes on immovable property than for all other property taxes and consumption taxes.

The qualitative empirical findings are robust to a large number of robustness checks and alternative specifications, including the addition of several other economic variables affecting long-run GDP. In contrast, the magnitudes of the estimated effects are sensitive to the exact empirical specification, including the number of other economic and policy variables accounted for in the analysis. Moreover, the results obtained need to be interpreted with some caution as it is possible that the overall tax burden and the revenues shares are not independent of each other in the data, possibly leading estimated coefficients to be biased in terms of the effects of revenue-neutral tax changes.

* There is a possibility that the effects of certain taxes may be different in settings where this tax instrument is already heavily used. To take this into account, an alternative specification that allows for non-linearities in the effects of individual taxes by adding them as quadratic terms in addition to the linear specification has been tried. However, these estimations were not able to generate significant coefficient estimates.

the form of cuts in marginal personal income tax rates rather than increases in thresholds (although the latter would be more effective at reducing inequality). It is also possible that the effectiveness of such a tax shift would vary across countries depending on the efficiency in collecting VAT and consumption taxes.

In the long-run a revenue-neutral shift from personal income to VAT/consumption taxes may not have much effect on the average total taxes paid by a typical employee and so is unlikely to affect their decisions as to whether or not to work. This is because a reduction in income taxes offset by an increase in VAT/consumption tax by the same amount does not affect the real net wage of workers and leaves labour supply unaffected. This is the case if labour supply depends on the total tax burden of a worker and VAT/consumption tax is largely paid by workers, in which case there is limited opportunity to affect labour supply through this reform (*e.g.* Layard *et al.* 1996). But since personal income taxes are generally more progressive than consumption taxes this reform will reduce the marginal tax rate of a typical worker and increase their incentive to work additional hours and thus promote economic growth although at the expense of making the tax system less progressive. Also, if the increase in VAT/consumption taxes reduces the real income of those outside the labour force, it could increase the incentive to work.

If a shift from income to consumption taxation changes the incidence of taxation on different categories of workers, labour market institutions could also play a role in determining the effect of the change in tax policy on labour utilisation. For instance, the tax burden may be shifted to low-paid workers affecting their labour supply decision if they spend relatively more of their income on consumption goods that have experienced an increase in the price because of the tax increase. Likewise, the tax burden may also be shifted on to pensioners and other groups outside the labour market to the extent that their income follows gross wages. To the extent that wage-setting mechanisms, such as minimum wages, prevent the pass through of such additional tax burden on to wages, labour demand could be affected as well.

A reform towards greater use of taxes on consumption could raise GDP but it would also increase inequality, particularly at the lower end of the wage distribution as consumption taxes are less progressive than personal income taxes. This implies a trade-off between tax policies that enhance GDP per capita and equity. However, changes in the tax and benefits system could be used to offset some of the effects of this reform on inequality, although such changes would reduce work incentives and so offset (part or all of) the growth-enhancing effects of the tax shift. Some countries use reduced VAT rates on certain goods (*e.g.* food items) to lower the tax burden on low-income households, but this is a relatively ineffective way of reducing inequality. As discussed in Section B.1.1, it is better to use the benefit system to deal with distributional concerns. Even so, it is possible that a large group of voters could lose out from a shift to consumption taxes, making it politically and socially difficult to implement. The redistributive implications of the tax shift may also have adverse effect on the labour force participation of marginal workers (European Commission, 2006). This may happen because, as wages and personal income taxes of low-skilled workers are already low, they would gain little from a cut in personal income taxes, but would lose from the increase in consumption taxes, reducing their likelihood of labour force participation.

A shift towards taxes on property appears to be even better for growth than a shift towards consumption taxes and has the added advantage that it would be less likely to raise equity concerns. The discussion in Section B.1.2 suggests that the best form of the

shift would be towards recurrent taxes on immovable property as this is the least distortionary type of property tax. Nonetheless, there are two practical drawbacks to a significant shift towards greater taxation of immovable property. First, these taxes are very unpopular in many countries, at least in part because of their visibility. This unpopularity could be reduced if the reforms suggested in Section B.1.2 were implemented, especially the use of up-to-date valuations and provisions to deal with the situation of people with low incomes and illiquid assets. In some countries, an increase in the progressivity of the tax might make it more acceptable. The second practical drawback is that, in most OECD countries, property tax revenues belong to local governments and so a shift towards property taxes would require some changes to the revenue sharing arrangements. However, this difficulty should not be over-estimated as in most OECD countries local governments receive some income tax revenues (which could be substituted by property tax revenues) and/or substantial grants from higher levels of governments (which could be reduced as property tax revenues increased).

Notes

1. Short-term inflationary effects may influence wages and labour cost, but what matters for long-run employment is the total tax wedge and what matters for long-term inflation is monetary policy.
2. Recently there has been an increasing trend in VAT fraud linked to international trade, taking advantage of tax refund on exports from one country to another, so called "carousel fraud". This has involved substantial revenue losses for some (mainly European Union) countries and has resulted in the introduction of a number of strong measures to improve enforcement.
3. For instance, in the Barker Review (Barker, 2006) of the land use planning system of England a set of recommendations dealt with the more efficient use of land where, among other things, changes were suggested to encourage business property to be kept in use and to provide incentives for the use of vacant previously developed land.
4. In many countries, these taxes are set at the local level which adds to the difficulty to reform them.
5. However, as discussed in Section 3.3, below, capital gains taxes also have advantages.
6. The substitution effect of a decrease in labour taxes would increase labour supply as the reward for additional work has increased, while the income effect would reduce labour supply as it increases household income and thus increases the demand for leisure.
7. There is evidence that high labour taxes at the lower end of the earnings distribution price low-skilled, low-productivity workers out of work, especially when these taxes interact with relatively high (statutory or contractual) minimum wages, since this limits the possibility of increases in non-labour costs being passed onto lower net wages (OECD, 2007a).
8. Attempts have been taken to empirically assess the effect of social security contributions on GDP per capita by splitting personal income taxes into social security contributions and other personal income taxes. In some of these regressions, there was some indication that social security contributions are less harmful to GDP per capita than personal income taxes, with this difference being primarily driven by the less adverse effects of social security contributions levied on employees. Although these findings were significant in some specifications, they were not robust to slight changes in the sample or year coverage, or to minor redefinitions of the indicators.
9. The magnitude of the impact of taxes varies widely across studies but, excluding the high estimates, Nickell (2004) found that a 10 percentage point rise in the tax wedge reduces employment by around 1% to 3% of the working-age population.
10. TFP measures the change in output that cannot be accounted for by a change in inputs and is thus a measure of how efficiently the inputs are used.
11. The effect on FDI of a one standard deviation change in the tax wedge on labour income is around ten times larger than the effect of a similar change in the marginal and average cross-border effective tax rate.

12. From a policy perspective it is the overall progressivity of the tax system which is relevant. Thus, for example, the potential regressive effects of VAT may be affected by progressive elements in other parts of the tax system.

13. In-work benefits conditional on employment encourages participation in the labour market and reduce the likelihood of "unemployment" or "inactivity traps". But, they also tend to increase marginal tax rates for workers earning relatively low wages, due to the phasing out of these in-work benefits. Therefore, in terms of their potential effect on labour supply, these benefit schemes trade off higher participation against lower working hours of certain groups already in work.

14. A similar "win-win" situation can also sometimes arise with other methods of encouraging low-wage workers into the workforce, such as targeted reductions in social security contributions. These are of course subject to the same caveat in terms of the implied budgetary costs.

15. The PMR indicator includes, among other things, measures of the administrative burden on firms and regulatory barriers for start-ups.

16. This finding may reflect that potential entrepreneurs weigh the total cost against the potential return of starting up a business. Since taxes add to cost on top of the regulatory costs, the overall cost is increased, which may tilt the balance towards not becoming an entrepreneur in business environments where taxes are high at the same time as regulations are burdensome.

17. Under the "traditional" corporate finance view, firms' marginal source of finance is new share issuance and dividend tax cuts feed into firms' cost of capital and thus promote investment. The "new" view suggests that the marginal source of finance is retained earnings and that dividend tax reductions are capitalised into share values, but do not affect investment. Recent empirical evidence based on micro data shows that none of these extremes applies to all firms (Auerbach, 2002).

18. To the extent that, for an open economy, the (net of tax) interest rate is aligned to the world interest rate, no offsetting effects from increases in domestic savings can be expected to apply.

19. For example, these market failures could be asymmetric information on market or products, monopoly power of large firms making entry difficult for small firms or difficulties for small firms in raising finance (Crawford and Freedman, 2007).

20. Similar conclusions are reached in International Tax Dialogue (2007).

21. Firms face difficulties in appropriating the benefits of their investments in innovation while preventing their competitors from doing so. The extent to which this is possible depends on both the strength of competition and the degree of protection of intellectual property rights

22. This increase corresponds to ½ of the standard deviation of tax subsidies across countries.

23. This may suggest that non-tax policies should be considered in addressing under investment in R&D and low total factor productivity in OECD countries, such as reforms in product markets, tertiary education and research policies and intellectual property rights regimes.

24. The study shows that a one percentage point increase in the effective corporate tax rate of the host country reduces its FDI stocks by 1% to 2%.

25. The definition of the corporate tax base in OECD countries is complex as it involves legislation covering many areas such as allowances for capital expenditure, valuation of assets and to which extent expenses can be deducted.

26. Transfer pricing is the mechanism adopted by MNEs for valuing the goods and services traded with their subsidiaries abroad. The OECD transfer pricing guidelines maintain the arm's length principle of treating related enterprises within a multinational group and affirm traditional transaction methods as the preferred way of implementing the principle (OECD, 1995). The "Arms Length Price" represents the price charged in comparable transactions between independent parties, where the price is not influenced by the relationship or business interest between the parties in the transaction.

27. Separating recurrent taxes on immovable property into those levied on household from those levied on corporations suggests that taxes levied on households have the least adverse effect on GDP per capita.

Table B.1. **Estimated effects of labour taxes on TFP: Industry-level**[1]

The estimated empirical model is

$$\Delta lnTFP_{i,j,t} = \delta_1 \Delta lnTFP_{F,j,t} + \delta_2 ln(TFP_{i,j,t-1}/TFP_{F,j,t-1}) + \delta_3 HK_{i,j,t} + \beta INDcharac_j{}^{*}TAX_{i,t-1} + \varphi X_{i,j,t-1} + \Sigma_i \Sigma_t D_{i,t} + \Sigma_j D_j + \varepsilon_{i,j,t}$$

Dependent variable: TFP growth	(1)	(2)	(3)	(4)
Basic model				
Leader TFP growth	0.06	0.06	0.05	0.06
	(0.02)***	(0.02)***	(0.02)**	(0.02)***
TFP relative to leader TFP (t-1)	–0.01	–0.01	–0.01	–0.01
	(0.00)***	(0.00)***	(0.00)***	(0.00)***
Human capital (t-1)	0.01	0.01	0.01	0.01
	(0.00)**	(0.00)**	(0.00)**	(0.00)**
Interaction between industry characteristics and tax				
Labour intensity and social security contributions (t-1)	–0.01			
	(0.00)**			
Labour intensity and employer's social security contributions (t-1)		–0.01		
		(0.00)**		
Labour intensity and social security contributions (t-1) with low adm. extension				–0.01
				(0.01)
Labour intensity and social security contributions (t-1) with high adm. extension				–0.01
				(0.00)**
Entry rate and top personal income tax (t-1)			–0.04	
			(0.01)***	
Other policy variables				
Anti-competitive regulation impact (t-1)	–0.03	–0.03	–0.01	–0.03
	(0.01)***	(0.01)***	(0.01)	(0.01)***
Job turnover and employment protection legislation			–0.00	
			(0.00)	
Observations	2 802	2 802	2 910	2 802
Fixed effects:				
Country*year	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes

1. In the estimated empirical model $\Delta lnTFP_{i,j,t}$, $\Delta lnTFP_{F,j,t}$, $ln(TFP_{i,j,t-1}/TFP_{F,j,t-1})$, $HK_{i,j,t}$, $INDcharac_j{}^{*}TAX_{i,t-1}$, $X_{i,j,t-1}$, $+ \Sigma_i \Sigma_t D_{i,t} + \Sigma_j D_j$ refer respectively to *i)* TFP growth in a country *i*, industry *j* and year *t*; *ii)* TFP growth in an industry in the best practice country; *iii)* the relative difference between TFP in an industry and in that industry in the best practice country; *iv)* a human capital measure; *v)* the interaction term between industry characteristics and the relevant tax; *vi)* other policy variables and *vii)* fixed effects. The level of TFP is measured as the "Solow-residual" from a production function. The anti-competitive regulation impact is an industry-specific measure of the degree to which each industry in the economy is exposed to anti-competitive regulation in non-manufacturing sectors. In Column (4) the coefficients of the interaction term between social security contributions and labour intensity are distinguished by the degree of administrative extension of collective wage agreements. In Columns (1)-(2) and (4) the interaction term between job turnover and employment protection legislation is dropped as there may be some collinearity problems related to job turnover and labour intensity. The estimation sample includes 13 OECD countries and 21 industries over the 1981-2001 period. The results are robust to introducing other interaction terms with other tax variables. Robust standard errors are reported in the parentheses.

* 10%.

** 5%.

*** 1%.

Table B.2. **Estimated effects of corporate taxes on investment: Firm-level**[1]

The estimated empirical model is

$$(I/K)_{icst} = \beta_1(I/K)_{ics,\,t-1} + \beta_2(I/K)^2_{ics,\,t-1} + \beta_3(Y/K)_{ics,\,t-1} + \beta_4(CF/K)_{ics,\,t-1} + \beta_5 UCtax_{cs,t-1} + Y_s + Y_{ct} + \varepsilon_{icst}$$

Dependent variable: Investment-to-capital ratio	(1)	(2)	(3)
Basic model			
Investment-to-capital ratio (t-1)	0.532***	0.531***	0.534***
	(0.026)	(0.026)	(0.026)
Investment-to-capital ratio squared (t-1)	–0.415***	–0.414***	–0.418***
	(0.025)	(0.025)	(0.025)
Output-to-capital ratio (t-1)	0.000***	0.000***	0.000***
	(0.000)	(0.000)	(0.000)
Cashflow-to-capital ratio (t-1)	0.048***	0.048***	0.047***
	(0.003)	(0.003)	(0.003)
Tax adjusted user cost (t-1)	–0.829**	0.147	
	(0.410)	(0.689)	
Interactions between firm and sector characteristics and tax			
Profitability and tax adjusted user cost		–0.723**	
		(0.351)	
Tax adjusted user cost (Age<6&Empl<30)			–0.339
			(0.497)
Tax adjusted user cost (Age<6&Empl>=30)			–0.401
			(0.476)
Tax adjusted user cost (Age>=6&Empl<30)			–0.832*
			(0.437)
Tax adjusted user cost (Age>=6&Empl>=30)			–1.039**
			(0.430)
Long-run tax adjusted user cost elasticity	–0.69		
Observations	211 599	211 599	211 599
Fixed effects:			
Sector	Yes	Yes	Yes
Size-age	No	No	Yes
Country-year	Yes	Yes	Yes
R^2	0.12	0.12	0.12

1. In the estimated empirical model: *i)* $(I/K)_{icst}$ denotes the investment-to-capital ratio; ii) $(I/K)_{ics,\,t-1}$ its lag; iii) $(I/K)^2_{ics,\,t-1}$ its squared lag; *iv)* $(Y/K)_{ics,\,t-1}$ the lag of the output-to-capital ratio; *v)* $(CF/K)_{ics,\,t-1}$ the lag of the cashflow-to-capital ratio; *vi)* $UCtax_{cs,\,t-1}$ the lag of the tax adjusted user cost and *vii)* Y_s and Y_{ct} sector and country-year fixed effects, respectively. The estimation sample contains 12 European OECD countries over the period 1998-2004 and only observations with investment ratios between 0 and 1. Robust standard errors corrected for clustering at the country-sector level in parentheses.

* 10%.

** 5%.

*** 1%.

Table B.3. **Estimated effects of corporate taxes on investment: Industry-level**[1]

The estimated empirical model is

$$ln(I/K)_{i,j,t} = \beta_1 ln(I/K)_{i,j,t-1} + \beta_2 UCtax_{i,j,t-1} + \beta_3 DlnY_{i,j,t-1} + \beta_4 PMR_{i,j,t-1} + \varepsilon_{i,j,t},$$

	(1)	(2)
Dependent variable: Log of investment-to-capital	OLS	System GMM
Log of investment-to-capital ratio (t-1)	0.66	0.73
	(0.02)***	(0.05)***
Log of tax adjusted user cost (t-1)	–0.12	–0.26
	(0.03)***	(0.11)***
Log difference in value added (t-1)	0.35	0.65
	(0.10)***	(0.07)***
Anti-competitive regulation impact (t-1)	–0.21	0.33
	(0.08)***	(0.39)
Long-run tax adjusted user cost elasticity	–0.35	–0.98
Observations	3 818	3 818
Hansen J test		
Prob > chi2 =		0.334
Fixed effects:		
Country*industry	Yes	
year	Yes	Yes

1. In the estimated empirical model $(I/K)_{i,j,t}$, $UCtax_{i,j,t-1}$, $DlnY_{i,j,t-1}$ and $PMR_{i,j,t-1}$ refer respectively to: *i)* investment-to-capital ratio in country i, industry *j* and year t; *ii)* the tax adjusted user cost; *iii)* the relative change in value added and *iv)* the impact of anti-competitive regulation. The anti-competitive regulation impact is an industry-specific measure of the degree to which each industry in the economy is exposed to anti-competitive regulation in non-manufacturing sectors. The long run elasticity is computed as $\beta 2/(1-\beta 1)$. The effects are similar when a non-log version of the investment equation is estimated. The estimation sample includes 16 OECD countries and 21 industries for period 1983-2001. Robust standard errors are reported in the parentheses.

* 10%.
** 5%.
*** 1%.

Table B.4. **Estimated effects of corporate taxes on TFP: Firm-level**[1]

The estimated empirical model is

$$\Delta lnTFP_{icst} = \delta_1 \Delta lnTFP_{Fcst} + \delta_2 ln(TFP_{ics,t-1}/TFP_{Fcs,t-1}) + \delta_3 Profit_s{}^{*}TAX_{c,t-1} + \gamma_s + \gamma_{ct} + \varepsilon_{icst}$$

Dependent variable: TFP growth	(1)	(2)	(3)
Basic model			
Leader TFP growth	0.173***	0.173***	0.501***
	(0.019)	(0.019)	(0.022)
TFP relative to leader (t-1)	–0.190***	–0.190***	–0.115***
	(0.015)	(0.015)	(0.010)
Interactions between firm and sector characteristics and tax			
Profitability and tax	–0.307**		
	(0.128)		
Profitability and tax (Age < 6&Empl < 30)		–0.145	
		(0.176)	
Profitability and tax (Age < 6&Empl > =30)		–0.275**	
		(0.130)	
Profitability and tax (Age > = 6&Empl < 30)		–0.285**	
		(0.127)	
Profitability and tax (Age > = 6&Empl > = 30)		–0.357***	
		(0.134)	
Declining and profitability and tax			–0.038
			(0.088)
Rising and profitability and tax			–0.251***
			(0.090)
Observations	287 727	287 727	287 727
Fixed effects:			
Sector	Yes	No	No
Sector-size-age	No	Yes	No
Sector-catchup	No	No	Yes
Country-year	Yes	Yes	Yes
R^2	0.10	0.10	0.44

1. In the estimated empirical model: *i)* $\Delta lnTFP_{icst}$ denotes TFP growth in firm i, country c, sector s and year t; *ii)* $\Delta lnTFP_{Fcst}$ denotes *TFP* growth in the technological leader firm; *iii)* ($TFP_{ics,t-1}/TFPF_{cs,t-1}$) denotes the inverse of distance to the leader; *iv)* $Profits{}^{*}TAX_{c,t-1}$ the interaction between profitability and the corporate tax; *v)* Y_s and Y_{ct} sector and country-year fixed effects, respectively. The estimation sample contains 12 European OECD countries over the period 1998-2004. TFP is the residual of a Cobb-Douglas production function estimated at the country-sector level. Robust standard errors corrected for clustering at the country-sector level in parentheses.

* 10%.

** 5%.

*** 1%.

Table B.5. **Estimated effects of corporate taxes on TFP: Industry-level**[1]

The estimated empirical model is

$$\Delta lnTFP_{i,j,t} = \delta_1 \Delta lnTFP_{F,j,t} + \delta_2 ln(TFP_{i,j,t-1}/TFP_{F,j,t-1}) + \delta_3 HK_{i,j,t} + \beta INDcharac_j{}^{*}TAX_{i,t-1} + \varphi X_{i,j,t-1} + \Sigma_i \Sigma_t D_{i,t} + \Sigma_j D_j + \varepsilon_{i,j,t}$$

Dependent variable: TFP growth	(1)	(2)
Basic model		
Leader TFP growth	0.04	0.05
	(0.02)*	(0.02)**
TFP relative to leader TFP (t-1)	–0.01	–0.01
	(0.00)***	(0.00)***
Human capital (t-1)	0.01	0.01
	(0.00)**	(0.00)**
Interaction between industry characteristics and tax		
Profitability and corporate tax (t-1)	–0.04	
	(0.01)***	
R&D intensity and R&D tax incentives (t-1)		0.003
		(0.001)**
Other policy variables		
Anti-competitive regulation impact (t-1)	–0.01	–0.01
	(0.01)**	(0.01)**
Job turnover and employment protection legislation	–0.00	–0.00
	(0.00)	(0.00)
Observations	2 910	2 767
Fixed effects:		
Country*year	Yes	Yes
Industry	Yes	Yes

1. In the estimated empirical model $\Delta lnTFP_{i,j,t}$, $\Delta lnTFP_{F,j,t}$, $ln(TFP_{i,j,t-1}/TFP_{F,j,t-1})$, $HK_{i,j,t}$, $INDcharac_j{}^{*}TAX_{i,t-1}$, $X_{i,j,t-1}$, $+\Sigma_i\Sigma_t D_{i,t}+\Sigma_j D_j$ refer respectively to: *i)* TFP growth in a country *i*, industry *j* and year *t*; *ii)* TFP growth in an industry in the best practice country; *iii)* the relative difference between TFP in an industry and in that industry in the best practice country; *iv)* a human capital measure; *v)* the interaction term between industry characteristics and the relevant tax; *vi)* other policy variables and *vii)* fixed effects. TFP is measured as the "Solow-residual" from a production function. The anti-competitive regulation impact is an industry-specific measure of the degree to which each industry in the economy is exposed to anti-competitive regulation in non-manufacturing sectors. The estimation sample includes 13 OECD countries and 21 industries over the 1981-2001 period. The results are robust to introducing other interaction terms with other tax variables. Robust standard errors are reported in the parentheses.

* 10%.

** 5%.

*** 1%.

Table B.6. **Estimated cross-country effects of the tax mix on long-run GDP per capita**[1]

The estimated empirical model is

$$\Delta lny_{it} = -\phi_i(lny_{it-1} - \theta_1 lns^k_{it} - \theta_2 lnh_{it} + \theta_3 n_{it} + \Sigma\theta_j lnV^j_{it} - a_{it}) + \beta_{1i}\Delta lns^k_{it} + \beta_{2i}\Delta lnh_{it} + \beta_{3i}\Delta n_{it} + \Sigma\beta_{ji}\Delta lnV^j_{it} + \varepsilon_{it}$$

Dependent variable: Log GDP p.c.	(1)	(2)	(3)	(4)	(5)
Baseline model					
Physical capital	0.18***	0.25***	0.18***	0.16***	0.21
	(0.05)	(0.05)	(0.05)	(0.05)	(0.45)
Human capital	1.19***	1.30***	1.18***	1.40***	1.57***
	(0.13)	(0.12)	(0.13)	(0.11)	(0.11)
Population growth	–0.08***	–0.08***	–0.07***	–0.07***	–0.07***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Control variable					
Overall tax burden	–0.27***	–0.24***	–0.26***	–0.22***	–0.14***
(Total revenues/GDP)	(0.05)	(0.05)	(0.05)	(0.04)	(0.04)
Tax structure variables					
Income taxes	–0.98***				
	(0.20)				
Personal income taxes		–1.13***			
		(0.19)			
Corporate income taxes		–2.01***			
		(0.32)			
Consumption and property taxes			0.93***		
			(0.20)		
Consumption taxes				0.74***	0.72***
(excl. property taxes)				(0.18)	(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	Consumption and property taxes	Consumption and property taxes	Income taxes	Income taxes	Income taxes

1. In the estimated model, y refers to output per capita, s^k to the investment rate into physical capital, h to human capital, n to the population growth rate, respectively. The vector V contains a set of policy variables. All equations include short-run dynamics, country-specific intercepts and country-specific time controls. Standard errors are in brackets.

* 10 % level.
** 5% level.
*** 1 % level.

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Tax Policy Reform and Economic Growth

In the wake of the recent financial and economic crisis, many OECD countries face the challenge of restoring public finances while still supporting growth. This report investigates how tax structures can best be designed to support GDP per capita growth.

The analysis suggests a tax and economic growth ranking order according to which corporate taxes are the most harmful type of tax for economic growth, followed by personal income taxes and then consumption taxes, with recurrent taxes on immovable property being the least harmful tax. Growth-oriented tax reform measures include tax base broadening and a reduction in the top marginal personal income tax rates. Some degree of support for R&D through the tax system may help to increase private spending on innovation.

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