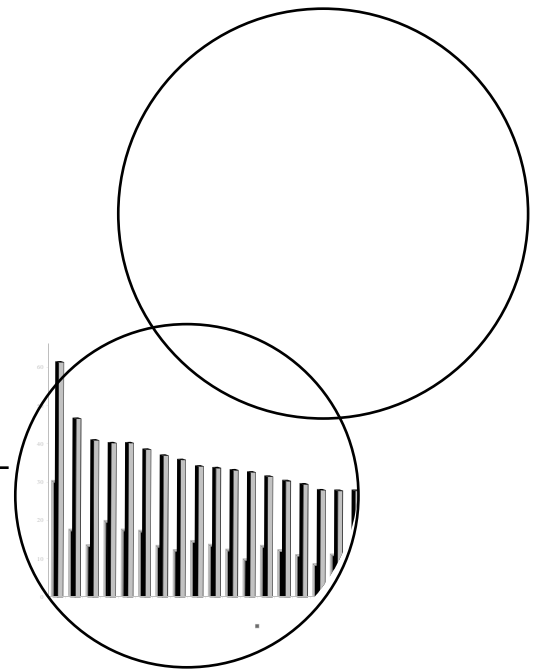


# Tax reforms in EU Member States 2011

Tax policy challenges for economic growth and  
~~EU~~

---

EUROPEAN ECONOMY 5 | 2011



The European Economy series contains important reports and communications from the Commission to the Council and the Parliament on the economic situation and developments, such as the *European economic forecasts* and the *Public finances in EMU* report.

Unless otherwise indicated the texts are published under the responsibility of the Directorate-General for Economic and Financial Affairs of the European Commission, BU-1 3/76, B-1049 Brussels, to which enquiries other than those related to sales and subscriptions should be addressed.

#### Legal notice

Neither the European Commission nor any person acting on its behalf may be held responsible for the use which may be made of the information contained in this publication, or for any errors which, despite careful preparation and checking, may appear.

This report is also published as Taxation Paper No 28 from DG Taxation and Customs Union

More information on the European Union is available on the Internet (<http://europa.eu>).

ISBN 978-92-79-19316-3  
doi: 10.2765/15419

© European Union, 2011  
Reproduction is authorised provided the source is acknowledged.

European Commission

Directorate-General for Economic and Financial Affairs  
Directorate-General for Taxation and Customs Union

# Tax reforms in EU Member States 2011

Tax policy challenges for economic growth and fiscal sustainability





## ABBREVIATIONS

AETR	Average effective tax rate
AEFC	Alternates of the Economic and Financial Committee
AGS	Annual Growth Survey
AW	Average wage
CGE	Computable General Equilibrium
CIT	Corporate income tax
CCCTB	Common Consolidated Corporate Tax Base
DG ECFIN	Directorate-General Economic and Financial Affairs
DG TAXUD	Directorate-General Taxation and Customs Union
EA	Euro area
EC	European Commission
ECB	European Central Bank
ECOFIN	Economic and Financial Affairs (Council)
EPC	Economic Policy Committee
EPP	Euro Plus Pact
ESA79	European System of Accounts 1979
ESA95	European System of Accounts 1995
EU	European Union
EMU	European Monetary Union
FAT	Financial activity tax
FTT	Financial transaction tax
GDP	Gross domestic product
GHG	Greenhouse gas
ITR	Implicit tax rate
JRC-IPTS	Institute for Prospective Technological Studies of the European Commission's Joint Research Centre
METR	Marginal effective tax rate
MCPF	Marginal cost of public funds
MTO	Medium-term budgetary objective
NMS	New Member States
NRP	National Reform Programme
OECD	Organisation for Economic Cooperation and Development
PIT	Personal income tax
pp	percentage points
SCP	Stability and Convergence Programme
SSC	Social security contributions
TFP	Total factor productivity
VAT	Value added tax

# CONTENTS

Editorial	9
Summary and conclusions	10
1. Introduction	13
2. Level, structure and trends of tax revenues in the EU	17
2.1. Level and development of the overall tax burden	17
2.2. Tax composition	19
2.2.1. Decomposition by type of tax	19
2.2.2. Decomposition by economic function	22
2.3. Implicit tax rates on consumption, labour, capital and energy	25
3. Recent reforms of tax systems in the EU	31
3.1. General trends in tax reforms	31
3.1.1. Overall tax policy direction	31
3.1.2. The overall structure of taxation	31
3.2. Main tax reforms in the Member States	32
3.2.1. Direct taxation	32
3.2.2. Social security contributions	34
3.2.3. Indirect taxation	35
3.2.4. Taxation of real estate property	36
3.2.5. Financial sector taxation	37
3.2.6. Tax administration and tax compliance	37
4. Quality of taxation	47
4.1. Structure of tax systems	47
4.1.1. Overview of the main theoretical arguments	47
4.1.2. Overview of findings from simulations	52
4.2. Design of Individual taxes	55
4.2.1. Tax expenditure in direct taxation: an obstacle to broader tax bases	55
4.2.2. The debt-equity bias in corporate taxation	56
4.2.3. The debt bias in the taxation of housing	58
4.2.4. VAT efficiency	60
4.2.5. Environmental taxation	63
4.3. Interaction between different tax systems in the EU	66

5. Tax policy challenges in euro-area Member States in difficult times	75
5.1. Challenges relating to fiscal consolidation: a first quantitative screening	75
5.1.1. Main screening principles	75
5.1.2. Application of screening criteria to euro-area countries	80
5.2. Challenges relating to growth-enhancing tax structures: a first quantitative screening	86
5.2.1. Reducing the tax burden on labour	86
5.2.2. Scope for tax shifting towards indirect taxation	93
5.3. Other horizontal challenges inherent to the design of individual taxes	98
5.3.1. Reducing tax expenditure in direct taxation	98
5.3.2. Debt bias in direct taxation	104
5.3.3. Increasing VAT efficiency	108
5.3.4. Towards more environmentally friendly taxation	111
5.3.5. Tax governance issues	115
5.4. Overview of tax policy challenges	118
References	122
Statistical annex	132

## LIST OF TABLES

3.1. Tax changes in 2010 and 2011	32
3.2. Excise duty changes in 2010 and 2011	36
3.3. Overview of tax reforms in Member States	39
5.1. Tax-to-GDP ratio versus overview of ageing and the long-term sustainability of Member States	81
5.2. Developments in tax burdens and total consolidation efforts	84
5.3. Overview: fiscal consolidation challenges	85
5.4. Tax burden on labour and overall labour market situation	88
5.5. Tax burden on low-wage earners and labour market situation of the low-skilled	89
5.6. Tax burden on second earners and female employment rates	92
5.7. Indirect and consumption taxes	94
5.8. Consumption taxes: share of VAT and excise duties in total taxation	95
5.9. Overview: tax structure indicators	98
5.10. Estimates of tax expenditures, personal income tax	100
5.11. Estimates of tax expenditures, corporate income tax	101
5.12. Reduced corporate income tax rates for small businesses	104
5.13. Tax treatment of owner-occupied housing	107
5.14. Actual VAT revenues as a percentage of theoretical revenues at standard rates	110



5.15. VAT 'compliance' gap	111
5.16. Size of the shadow economy and undeclared work in the EU	116
5.17. Overview table: Tax policy challenges in euro-area Member States	119
A1.1. Total taxes (including social security contributions) and tax structure	132
A1.2. Total taxes (including social security contributions) and tax structure	133
A1.3. Development of implicit tax rates	134
A1.4. Statutory tax rates	135
A1.5. Energy tax revenues in relation to final energy consumption	136
A1.6. The composition of tax wedge in 2010, single average income worker	137

## LIST OF GRAPHS

2.1. Tax-to-GDP ratio in EU-27 and EA-17	17
2.2. Change in budget balance	18
2.3. Dispersion (coefficient of variation) of total taxes	18
2.4. Overall tax-to-GDP ratio (incl. SSC) in the EU	19
2.5. Indirect tax revenues and final consumption expenditure	20
2.6. Social security contributions and compensation of employees	20
2.7. Tax composition in Member States	21
2.8. Direct tax revenues and wages and profits	21
2.9. Total tax burden, decomposition by economic function	22
2.10. Convergence in indirect, direct taxes and SSC in the EU-27	22
2.11. Decomposition of environmental taxes	23
2.12. Tax Shift between 2001 and 2008	24
2.13. Tax shift between 2007 and 2009	25
2.14. Decomposition of the implicit tax rate on consumption	26
2.15. Implicit tax rates	26
2.16. Decomposition of the implicit tax rate on labour	27
2.17. Implicit tax rate on capital income	28
3.1. Standard VAT rates in 2009 and changes 2009-2011 in EU Member States	36
4.1. GDP effects of budget consolidation via taxes	53
5.1. Decomposition of the S2 indicator	82
5.2. Revenues from property taxes	96
5.3. Effective marginal tax rates (EMTRs) on debt- and equity-financed new corporate investment	105
5.4. Adjusted top statutory corporate income tax, euro-area average and dispersion	106
5.5. Diesel/petrol excise duty ratio	114
5.6. Administrative burden of tax systems for a medium-sized company	117
5.7. Administrative cost per net revenue collection	117

## LIST OF BOXES

1.1.	Importance of taxation in different policy processes	16
4.1.	The marginal cost of multilateral vs. unilateral tax increases in the European Union: recent estimates based on the GEM-E3 model	70
5.1.	The concept of fiscal sustainability	77
5.2.	Screening principles to identify a potential need for tax-based consolidation	79
5.3.	The fiscal risk indicator	80

## EDITORIAL

Fiscal sustainability and economic growth are key concerns at the current juncture. The focus of tax policy has now shifted away from stimulus measures towards a much needed consolidation of public finances, made even more necessary in light of the difficulties currently faced by some Member States in refinancing their sovereign debt. At the same time, tax policies may play an important role in enhancing the growth potential of the EU economy, which is a goal per se but also a condition for making public finance sustainable.

A growth-friendly tax structure is particularly important to cope with today's policy challenges. As a background for the analysis, the 2011 issue of the report '*Tax reforms in EU Member States*', subtitled this year as 'Tax policy challenges for economic growth and fiscal sustainability', provides an overview of recent trends in tax revenues and of tax measures adopted in Member States in 2010 and the first half of 2011.

In addition to these descriptive chapters, this year's report provides an analytical focus on two topics of particular relevance at the current juncture. The first analytical chapter of the report addresses the multi-faceted concept of the quality of taxation – particularly relevant for any future tax reforms – with a particular focus on the tax structure. A 'good' tax system should design taxes so as to reduce distortions to the minimum possible and, where appropriate, correct market failures. Well-designed tax reforms promoting employment and growth can go hand in hand with social equity. To avoid adverse interaction between cross-country tax systems, tax policies should benefit from an efficient coordination at the EU level.

The second analytical chapter discusses three types of potential challenges in the area of tax policy currently faced by EU Member States: (i) addressing severe fiscal consolidation challenges also on the revenue side, (ii) making the overall tax structure more growth friendly and (iii) improving the design of the tax system for individual types of taxes. Applying an indicator-based approach, the report identifies in which euro-area Member States higher tax revenues might potentially contribute to consolidation and which countries might benefit from a shift from labour taxes, in particular those bearing on vulnerable groups, to consumption and real estate taxes. Analysing more specific horizontal challenges related to the design of individual taxes, the report concludes that almost all euro-area Member States face at least one challenge.

We trust that the analysis in this year's report will contribute to the tax policy debate in the European Union. In particular, it might stimulate a constructive dialogue between the Commission and Member States on this policy area, of relevance for achieving economic growth, job creation and macroeconomic stability. The tax challenges identified tentatively in this report therefore deserve further investigation in the framework of the integrated economic policy coordination within the EU, i.e. the 'Semester'. They may also be discussed in the context of the structured discussions on tax policy foreseen by the Euro Plus Pact.

Marco Buti  
Director-General  
Economic and Financial Affairs

Walter Deffaa  
Director-General  
Taxation and Customs Union

## SUMMARY AND CONCLUSIONS

The consequences of the financial and economic crisis are, and will be, deeply reflected in EU Member States' government revenues. Having implemented a wide range of tax stimulus measures over the period 2008-10, the focus of tax policy in several Member States is now clearly shifting towards a much needed consolidation of public finances.

Recent macroeconomic developments show that tax revenues (as a share of GDP) are on the rise again after a sizeable drop observed in 2008 and 2009. This is partly due to a discretionary move from temporary stimulus measures implemented in most Member States in the midst of the economic crisis to more neutral or even consolidation-oriented tax policies. Overall, tax policy in the EU was slightly contractionary in 2010, although tax measures in some Member States were still expansionary to cushion the adverse effect of the crisis. Given the need to consolidate public finances, tax measures adopted so far in 2011 have, in almost all Member States, focused on raising tax revenues.

The general move towards increasing taxes in 2011 has also been accompanied in some Member States by measures amending the tax structure with a view to supporting growth. This consists in shifting tax revenues from distortionary taxes (i.e. corporate income tax and personal income tax) towards less distortionary taxes (e.g. consumption tax and indirect taxation in general). Tax policies to enhance the growth potential of the EU economy are a goal per se but also a condition for making public finances sustainable.

The tax structure is one important aspect of the multi-faceted concept of the quality of taxation. It deals with the design of tax policy to achieve desired policy objectives, while at the same time promoting economic growth, minimising distortions and reducing the cost of tax collection. This report focuses on the effects of taxation on economic growth. This reflects the key priority for Europe of achieving smart, sustainable and inclusive growth. A 'good' tax system should design taxes so as to reduce tax distortions to the minimum possible, and, when appropriate, correct market failures. Adverse interaction between cross-country tax systems, chiefly within the EU, should also be avoided.

Model-based simulations and empirical evidence have found recurrent taxes on real estate, followed by consumption taxes, to be the least detrimental to growth. Personal income taxes, social security contributions and in particular corporate income taxes are found to be more detrimental to economic growth. Cutting personal income taxes and social security contributions has the potential for increasing both labour supply and labour demand, leading to higher employment, lower unemployment and higher labour utilisation. Reducing corporate income tax will reduce the cost of capital and stimulate capital accumulation and investment in R&D, which should translate into stronger productivity and economic growth. In contrast, a well-designed increase in taxes on consumption and recurrent taxes on real estate does not directly affect the accumulation of specific production factors, and therefore limit the negative impact on growth.

A growth-friendly tax structure could go hand in hand with social equity, if tax reforms are adequately designed. Labour taxes are indeed often high and particularly detrimental to the low-skilled and second earners, contributing to persistent exclusion of these groups from the labour market. High labour taxes (including social security contribution) can reduce the incentives either for the low-skilled to work or for employers to hire them, or both. Moreover, increasing tax expenditures in the area of personal income tax may be less efficient in achieving their initial objectives than direct support to low income households. Reducing tax expenditure and other loopholes in corporate taxation would generate higher tax revenues that could (partly) be used for growth-enhancing rate reductions. It would also decrease compliance costs, which are especially high for small and medium-sized firms. Higher consumption taxes could be accompanied by measures to compensate the loss incurred by low-income groups, e.g. through the personal income tax schedule or targeted transfers. The latter could directly target those really in need, avoiding the windfall generated by many VAT reduced rates or exemptions. Lastly, the correction of negative externalities, via for instance environmental taxation or excises on tobacco and alcohol, would help to promote a better environment and better public health.

The new framework of integrated economic policy coordination within the EU, labelled the ‘European Semester’, calls for particular attention to be paid to the quality of tax systems as both a complement to and a catalyst of fiscal consolidation. In its 2011 Annual Growth Survey the Commission acknowledges that a contribution from additional taxes to fiscal consolidation will be needed in some Member States. At the same time, the Commission called on Member States to carefully design their tax systems by pointing out the key principles of growth-friendliness. With the March 2011 ‘Euro Plus Pact’, Heads of State and Government in euro-area Member States and other volunteering EU countries highlighted the need for labour tax reforms to boost employment and stressed the importance of pragmatic tax coordination in the form of structured discussions on tax issues and exchange of good practice. The identification of key tax challenges in this report contributes to the Commission’s analysis in the context of the European Semester and to the related discussions in the Council.

EU Member States are currently facing various challenges in the area of taxation and tax policy. As a first step, this report concentrates on the euro-area Member States and analyses three types of potential challenges: (i) addressing severe fiscal consolidation challenges also on the revenue side, (ii) making the tax structure more growth-friendly and (iii) improving the design of the tax system for individual types of taxes.

According to the analysis, several countries could consider making use of taxation – as a complement to expenditure control – to consolidate their public finances and put them on a more sustainable path. These countries show unsustainable budgetary situations (characterised by an adverse initial budgetary starting position and, additionally, significant ageing-related implicit liabilities) but, at the same time, have room for potential tax revenue increases, through discretionary tax hikes or enhancing tax compliance. Some euro-area Member States are identified as borderline cases, where some room is still available for higher tax revenues to respond to fairly demanding consolidation needs. An in-depth assessment of the microeconomic effects of increasing specific types of tax, including a comparison with economic and budgetary costs and benefits of cutting government expenditure would be necessary before drawing firm tax policy conclusions but remains beyond the scope of this report. Ultimately, such country-specific assessment should determine the best policy choices, possibly leading to different priorities as to the contribution of taxes and expenditure cuts to consolidation needs. Nevertheless, the horizontal analysis of taxation and its contribution to consolidation and macroeconomic performance represents a useful starting point for such analysis. While this report represents an analysis for euro-area Member States only, the Commission services will continue to expand the analysis to other Member States, in particular those participating voluntarily in the Euro Plus Pact.

Around one third of the euro-area Member States might enhance economic growth by shifting their tax structure away from labour, although the impact on inflation would need to be taken into account and second round effects, especially through links between wage increases and the inflation rate, should be avoided. In these Member States, a high tax burden on labour, especially for vulnerable groups, is matched by a relatively low share of revenues from consumption and other indirect taxes. High tax burdens on vulnerable groups in some countries might call for a re-profiling of labour taxation away from low-skilled workers and second earners towards other categories of taxpayers. However, shifting the tax structure away from labour taxes falling on vulnerable groups towards housing taxes might also be an option, while redistributive consequences of such a policy change would need to be carefully analysed. A potential for raising housing taxation or, at least, for rebalancing housing taxation in a revenue-neutral way by shifting taxes on real estate transactions to recurrent taxes on immovable properties appears to be available in several countries.

In addition to the two overarching challenges of fiscal consolidation and growth-friendliness of tax structures, there are more specific challenges related to the design of individual types of tax. Almost all euro-area Member States face at least one additional horizontal challenge, which warrants amendments to the design of their tax system. These more specific issues are key either for raising tax revenues without hitting growth prospects, or for preserving overall tax revenues while reducing tax distortions. Some tax

policy challenges are, however, very country-specific and much depends on the detailed institutional set-up at national level. Such challenges are therefore outside the scope of this report.

A review of tax expenditure in either personal or corporate income taxation (or both) should be considered in a number of euro-area countries. Tax expenditure implies revenue forgone, can distort economic activity, increases complexity, compliance and collection costs, and could be used to ‘escape’ fiscal discipline. The case of reduced tax rates for incorporated SMEs suggests that it is crucial to ascertain their economic efficiency, by clearly identifying the targeted market failure and checking that taxation is the best way to correct it.

The debt bias in direct taxation affecting both corporate and housing financing is also an issue concerning most euro-area Member States, which needs to be addressed in order to reduce the risk of macroeconomic instability. A debt bias may aggravate unsustainable patterns in credit growth in good times and contribute to growth-adverse credit tightening in bad times. Viable policy options to solve the debt-bias issue in corporate taxation in most Member States are either to eliminate interest deductibility from taxes via a comprehensive business income tax (CBIT) or to introduce an equivalent allowance for corporate equity (ACE), or a combination thereof. Against the background of current consolidation needs, the budgetary consequences of the different policy options would need to be duly taken into account. A debt bias in housing investments, stemming from the tax deductibility of mortgage interest payments for owner-occupied housing, arises in around half of the euro-area Member States.

Increasing VAT efficiency and broadening the VAT tax base, through the removal of exemptions and reduced rates currently applied to a wide range of goods and services, could substantially help increase revenues and reduce economic distortions in many euro-area Member States. Several countries also face a substantial revenue shortfall due to VAT fraud.

Taxation could also be made more environmentally friendly in a majority of euro-area Member States. Despite their increasing importance in the policy debate, environmental tax revenues have been falling in recent years in the EU on average. A good tax system should create the right incentives for using scarce energy resources in a more intelligent manner and lay the groundwork for green growth. In particular, hidden tax subsidies on polluting and carbon-intensive activities should be reviewed. As an example, reduced VAT rates on energy in place in more than half of the euro-area countries should be reviewed. Taxation should better internalise the external (non-marketed) effects into the price system, so as to reduce incentives to engage in polluting activity and for taking social costs more fully into account. For instance, company car tax provisions tend to have an adverse environmental impact as they encourage car ownership and more intensive driving in several countries. In addition, more than half of the euro-area Member States subsidise diesel compared to petrol, despite comparably higher environmental costs.

Lastly, one third of the euro-area Member States also face the challenge of improving the efficiency of their tax collection and better preventing tax evasion. More efficient tax administration would be less wasteful of public money by reducing the cost of tax collection and possibly make tax collection more acceptable to EU citizens. Fighting against the shadow economy and tax evasion is also likely to substantially enhance tax collection in several countries.

# 1. INTRODUCTION

## Mandate and main purpose

In 2009, the first edition of the report entitled ‘Monitoring revenue trends and tax reforms in EU Member States’ was published. <sup>(1)</sup> The report title has now been shortened to ‘Tax reforms in EU Member States’ both for ease of communication and to better reflect the content of the report. The report has been drawn up in response to the request by the 5 June 2007 ECOFIN Council *‘for Member States to exchange information on current and planned tax reforms and their impact on growth and employment within existing procedures’*.

Based on the mandate of the ECOFIN Council, the present report reviews recent developments on the revenue side of government budgets in the context of regular macroeconomic surveillance. In particular, it provides an analytical basis for informed policy choices aimed at improving the quality of public finances in the EU. In the face of unsustainable public finances in some euro-area countries, the report also aims at lending analytical support to policies addressing necessary fiscal consolidation efforts.

The report pursues several objectives. First, it identifies the way in which European revenue systems are evolving following past reforms and other developments, such as the business cycle. Second, it takes stock of tax reforms that have been enacted in the Member States. Third, it reviews various policy issues for future reforms, which are presently considered in the policy debate, such as using taxation to supplement expenditure-based consolidation, improving the structure of taxation, closing tax loopholes to broaden the tax base, mitigating the bias towards debt financing introduced by some taxes, enhancing VAT efficiency, making taxation more environmentally friendly and improving tax governance. Bringing the findings on these various topical policy issues together, the report contributes to the analytical assessment carried out by the Commission in the context of integrated economic policy surveillance. These may be considered by Member States when designing future reforms of their national tax systems.

The report also aims to contribute to more effective communication and exchange of best practice among Member States on tax reforms and to encourage fruitful debates on the role of efficient revenue systems for growth, employment and social equity. Better communication can reveal common challenges and inter-linkages between countries. Thus, it may suggest ways for Member States to cooperate so as to achieve better outcomes for Europe’s economy.

In line with previous editions, the 2011 report presents a succinct analysis of tax revenue trends and an overview of recent major tax reforms, as well as a discussion of selected topical tax policy issues, relevant to any future tax reforms. This year, the report provides a thorough analysis of the quality of taxation at macro- and micro-level. A list of country-specific macroeconomic challenges in the area of taxation is derived from this and other analyses. Meeting these challenges via proper tax reforms would contribute to the sustainability of public finances and underpin the quality of tax systems in times where room for reducing the overall tax burden is limited and the need to raise revenues remains particularly acute in some countries.

The report is prepared jointly by DG ECFIN and DG TAXUD of the European Commission. It builds on a substantial body of work carried out by the Commission services, including assessments of budgetary implications of tax reforms, analyses of the key role of revenue systems for the sustainability of public finances and their effects on employment, growth and equity as well as their contribution to achievement of environmental policy objectives. <sup>(2)</sup> Given its focus on specific policy aspects and recent developments which are relevant to fiscal sustainability, growth and jobs, the present report complements the annual report entitled ‘Taxation Trends in the European Union’ prepared by DG TAXUD and Eurostat, which yields a comprehensive overview of the level and structure of revenue systems in the EU. <sup>(3)</sup>

---

<sup>(1)</sup> See European Commission (2009a).

<sup>(2)</sup> See, e.g., European Commission (2008a, 2010a, 2010b).

<sup>(3)</sup> European Commission (2011a).

### Enhanced relevance in the context of the new cycle of integrated economic coordination

The recent financial and economic crisis continues to have a significant impact on Member States' government revenues. Tax breaks were adopted to counter the effect of the financial crisis on the real economy in the period 2008-2010. In 2011, many Member States have raised taxes to contribute to the consolidation of public finances. Apart from the general orientation of fiscal and tax policy towards consolidation, quality of taxation has increasingly moved into the spotlight of both academic and political debate.

The new framework of integrated economic policy coordination within the EU, labelled 'European Semester', calls for particular attention to be given to the quality of the revenue/tax system (see Box 1.1 for details). The European Semester is launched in early January of each year with the publication of the Annual Growth Survey (AGS) by the Commission,<sup>(4)</sup> where horizontal policy guidance is addressed to Member States, to help them shape their national policy strategy. The first AGS, issued in January 2011, argues that while fiscal adjustment should primarily come from the expenditure side of the budget, a contribution from additional taxes will be necessary in some Member States, given the need for rigorous fiscal consolidation in the aftermath of the crisis.

The 2011 AGS points to some general principles as regards taxation: *'indirect taxes are more growth-friendly than direct taxes and broadening tax bases is preferable to increasing tax rates. Unjustified subsidies, e.g. environmentally harmful subsidies, should be eliminated'*. Given the worryingly low participation rates of low income earners, young people and second earners, the 2011 AGS stipulates that shifting taxes away from labour should be a priority for most Member States in order to stimulate demand for labour and create growth.

The March 2011 'Euro Plus Pact',<sup>(5)</sup> which is embedded in the European Semester and reflects the political will expressed at the level of Heads of State and Government of euro-area Member States and other volunteering countries, stipulates that

labour tax reforms will be instrumental in raising employment. The pact also highlights the importance of pragmatic tax coordination in the form of structured discussions on tax issues, exchange of good practices and adoption of the Commission proposal for a common (consolidated) corporate tax base.<sup>(6)</sup>

The identification of tax challenges in the last chapter of the report will help shape structured discussions on tax issues, called for by the Euro Plus Pact, and it also contributes to the Commission's analysis in the context of the European Semester (see Box 1.1).

### Outline of the report

The report is structured as follows:

Chapter 2 describes the structure of tax systems in the EU and their evolution over time. These trends reflect past tax reforms and other developments, such as the business cycle. There is a particular focus on tax developments since the beginning of the crisis, and its impact on the level and structure of tax revenues is analysed.

Chapter 3 provides an overview of tax reforms implemented by Member States in 2010 and 2011. On the basis of individual country information, an attempt is made to identify common trends across countries. These include VAT reforms, reforms of direct taxation and reforms in financial sector taxation as well as in the area of tax governance.

Chapter 4 discusses the multi-faceted concept of 'quality of taxation', reviewing the theoretical and empirical literature. The focus of this discussion is on the effects of taxation and tax reforms on GDP and on sustainable economic growth. The structure of taxation by main types of taxes and how it can be made more growth-friendly is examined. Specific issues related to the design of particular types of tax with a view to making them more growth-friendly are also addressed. Lastly, interactions between different tax systems in the EU are discussed.

Chapter 5 aims to identify the macroeconomic challenges that individual euro-area Member

---

<sup>(4)</sup> See European Commission (2011b).

<sup>(5)</sup> Heads of State of euro area (2011).

---

<sup>(6)</sup> See European Commission (2011c).



States are facing in the area of taxation and tax policy in difficult times. The first part of the analysis consists of a preliminary horizontal quantitative screening of euro-area Member States to identify countries that may need to consider tax policy actions to support fiscal consolidation.

Based on the analysis of the quality of taxation set out in Chapter 4, a preliminary quantitative screening is then used to determine which euro-area Member States could enhance the growth-friendliness of their tax structure. Countries are

then screened against a list of additional horizontal challenges, namely reducing tax expenditures affecting direct taxation, mitigating the debt bias in the tax system, increasing VAT efficiency, moving towards environmentally friendly taxation, and enhancing tax governance. Chapter 5 considers only euro-area Member States. This first attempt to identify macroeconomic challenges in the area of taxation and revenue-raising policy thus deals with a more tractable set of countries and reflects the particular emphasis placed by the Euro Plus Pact on taxation in the euro area.

### *Box 1.1: Importance of taxation in different policy processes*

#### **The European Semester, including the Annual Growth Survey and Europe 2020 strategy**

The Europe 2020 strategy for a smart, sustainable and inclusive growth stresses the importance of the revenue side of the budget. <sup>(1)</sup> It calls for particular attention to be given to the quality of revenue/tax systems with a view to making them more 'growth-friendly'. This strategy is embedded in an annual assessment of each Member State's broad policy strategy, called the European Semester.

Moreover, the Annual Growth Survey (AGS) for 2011 states that, given the need for rigorous fiscal consolidation in the aftermath of the crisis, a contribution from additional taxes will be necessary in some Member States. The AGS also recommends making more use of indirect taxes and broadening tax bases rather than increasing tax rates.

Given the worryingly low participation rates of low income earners, young people and second earners, the AGS stipulates that shifting taxes away from labour should be a priority for most Member States in order to stimulate demand for labour and create jobs. Reforms to tax and benefit systems are also called for in order to facilitate the participation of second earners in the workforce and to reduce undeclared work and benefit dependency. With a view to getting the unemployed back to work, Member States have to ensure that work pays through greater coherence between in-work net take-home pay and out-of-work net benefits.

#### **Macro-structural bottlenecks, endorsed by the ECOFIN Council**

Another important recent policy initiative is the analysis of bottlenecks to growth, by the Economic Policy Committee (EPC) and the Alternates of the Economic and Financial Committee (AEFC) in June 2010. Growth bottlenecks related to taxation policy were identified in the area of labour utilisation and fiscal policy. Most of the bottlenecks identified by the EPC-AEFC have already been endorsed by the draft National Reform Programmes (NRPs) submitted in late 2010.

Bottlenecks in the area of fiscal policy/long-term sustainability (high debt/deficit and/or ageing-related costs) were identified for the great majority of Member States. Some fiscal bottlenecks also explicitly refer to the quality of public finance, but on the expenditure side rather than on the quality of taxation. They stress the need to prioritise growth-friendly expenditures (R&D, education and infrastructure).

The EPC work identified relatively few explicit bottlenecks in the area of taxation. However, for many countries growth bottlenecks refer implicitly to tax policy issues, namely on labour taxation, by pointing to labour market participation and inclusiveness issues or the need for better utilisation of the labour potential.

#### **Euro Plus Pact**

On 24 and 25 March 2011 the European Council agreed to adopt a 'Euro Plus Pact' (EPP), previously called the Competitiveness Pact or Pact for the Euro, to strengthen the economic pillar of monetary union, achieve a new quality of economic policy coordination in the euro area and improve competitiveness, thereby leading to a higher degree of convergence. This Pact focuses primarily on areas that fall under national competence. It has been agreed by the euro area Heads of State and Government joined by Bulgaria, Denmark, Latvia, Lithuania, Poland and Romania. Four countries, namely Hungary, the Czech Republic, Sweden and the United Kingdom, have decided to opt out, partly to retain their tax independence. The EPP is fully embedded in the institutional setup of the EU, including the European Semester, and adds a political impetus to the Europe 2020 growth strategy and steps taken to reinforce economic governance in EMU. The Commission will assess the application of the Pact in the context of its enhanced surveillance.

Member States are committed to taking all necessary measures to pursue the following four objectives: i) foster competitiveness, ii) foster employment, not least by amending labour taxation with a view to making work pay, iii) contribute further to the sustainability of public finances and iv) reinforce financial stability. Although not explicitly mentioned, taxation appears relevant not only for fostering employment but also for enhancing competitiveness and further contributing to public finance sustainability.

In addition to these four objectives, the Euro Plus Pact explicitly calls for pragmatic coordination of tax policies, as a necessary element in supporting fiscal consolidation and economic growth, while acknowledging that direct taxation remains a national competence. In this context, Member States commit 'to engage in structured discussions on tax policy issues, notably to ensure the exchange of best practices, avoidance of harmful practices and proposals to fight against fraud and tax evasion.'

Besides exchanging best practices, Member States could engage in the development of a common corporate tax base, which would be a revenue-neutral way of working towards a consistent tax framework in the euro-area. To this end, the Commission issued a legislative proposal on a common consolidated corporate tax base in April 2011 (see European Commission, 2011c).

#### **The assessment of national reform strategies by the Commission and the Council**

The European Semester is closed in June each year by the assessment of national policy strategies by the Commission and the Council. The national policy strategy of each Member State is set out in its Stability and Convergence Programmes (SCPs) – measures to ensure sound public finance – and in its National Reform Programmes (NRPs) – stating the measures planned to boost growth and jobs and reduce macroeconomic imbalances. The Euro Plus Pact commitments of the participating Member States are also assessed by the Commission to the extent that they are included in the NRPs.

The examination of the SCPs and NRPs for EU countries by the Commission suggests that tax structures should be adapted to support growth, while tax increases may complement the control of government expenditure to help meet the sizeable consolidation challenges in some Member States. Growth-friendly tax policies should continue to broaden tax bases and raise indirect taxation, when needed, while avoiding increasing direct taxation. The SCPs and NRPs show that Member States with problems of debt sustainability intend to raise taxes, in addition to curbing public spending. They also underline an effort to reduce the labour tax burden, especially on low incomes, by shifting revenue sources towards indirect taxation. This often takes the form of reducing the scope of reduced VAT rates and increasing excise duties, including energy taxes. New special provisions have been introduced, generally to support R&D, green innovation or SMEs. When the SCPs and NRPs are assessed, many euro-area Member States could continue their policies to improve tax structures by moving from direct to indirect taxation. Reducing tax loopholes also seems to be a priority in order to broaden tax bases and lower tax rates, thus supporting both growth and fiscal sustainability. Moreover, it appears advisable to rigorously review and assess new tax expenditures ex ante and ex post.

---

<sup>(1)</sup> See European Commission (2010c).

## 2. LEVEL, STRUCTURE AND TRENDS OF TAX REVENUES IN THE EU

This section provides an overview of the structure of revenue systems in the EU and their evolution over time, thereby setting the stage for the discussion of key tax policy issues in the following sections. There is a particular focus on tax developments since the beginning of the crisis, analysing its impact on the level and structure of tax revenues. <sup>(7)</sup>

### 2.1. LEVEL AND DEVELOPMENT OF THE OVERALL TAX BURDEN

#### Economic and financial crisis putting public finances under stress

The economic and financial crisis that started in 2008 has brought the EU Member States into a precarious fiscal situation. In 2009, the peak year of the crisis, the EU-27 deficit reached 6.8% of GDP <sup>(8)</sup>, and stayed at a similarly high level in 2010. Government debt increased from 62.3% of GDP in 2008 to 80.3% in 2010, and is expected to rise further. The increase in the deficit was largely due to the economic cycle, but also the result of financial aid given to the banking sector as well as measures taken to counter the effects of the crisis. Indeed, the EU-27's real GDP shrank by 4.2% in 2009 with all Member States but Poland experiencing negative real GDP growth rates. In addition to the operation of automatic stabilisers, most countries sought to provide additional discretionary fiscal stimulus. Some countries, such as Ireland, Estonia, Latvia and Lithuania, had already in 2009 taken substantial consolidation measures aimed at containing (or even reducing) their deficits.

#### Expenditure worse affected than revenues

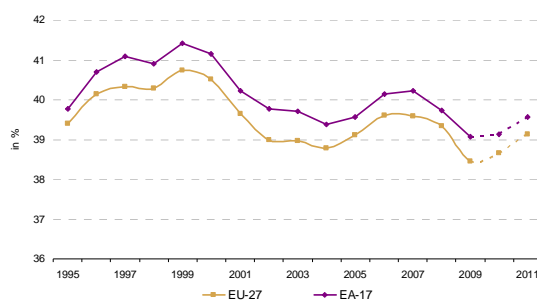
The observed deficit increase was mainly due to the increase in the expenditure-to-GDP ratio by 4% of GDP (see Graph 2.2). Revenues to GDP (of

which tax revenues account for roughly 90%) only decreased by 0.6 per cent of GDP. While an increase in the expenditure to GDP ratio was observed in all EU Member States but Malta, more than one third of countries actually saw their tax revenues increase as a share of GDP. However, according to European Commission (2011), three quarters of the Member States for which data <sup>(9)</sup> are available introduced tax-reducing measures in 2009. Even though revenue-raising measures were on average slightly higher, discretionary measures reduced tax revenues by around ½% <sup>(10)</sup> of GDP on the EU average. This resulted in an average EU tax-to-GDP ratio (including social security contributions) of 38.4% in 2009. Notwithstanding the decrease in the tax burden in the EU since 2007, it is still relatively high by international standards.

#### Tax decrease lower than expected

The fall in the tax-to-GDP ratio experienced in the EU-27 since the beginning of the crisis is, however, not as strong as might have been expected. During the economic downturn in the period 2001-2003 the tax-to-GDP ratio fell by 1.5 percentage points, despite still positive GDP growth rates of above 1% (see Graph 2.1).

Graph 2.1: Tax-to-GDP ratio in EU-27 and EA-17, 1995-2011



Source: Commission services.

The decrease in the tax-to-GDP ratio during the 2008/2009 crisis was considerably less pronounced

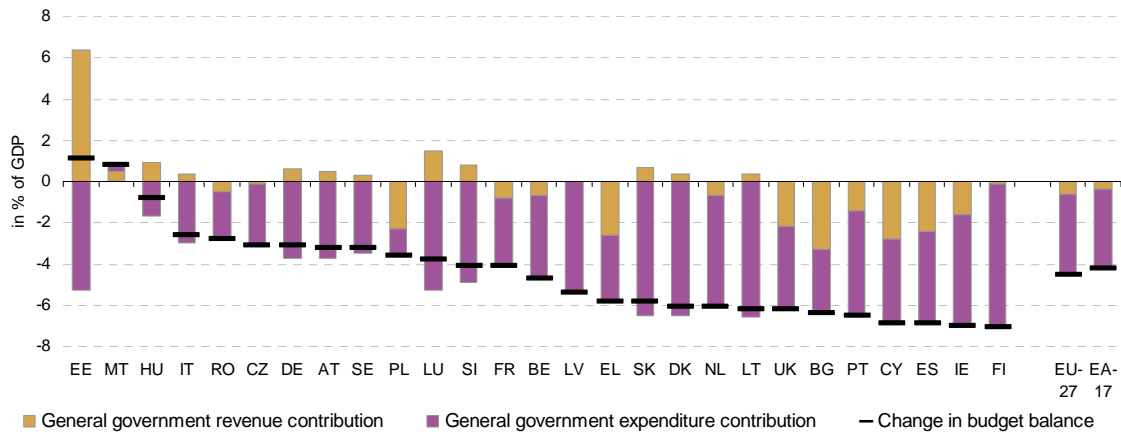
<sup>(7)</sup> The data up to 2009 in this chapter are – unless indicated otherwise — based on European Commission (2011a). Information from DG ECFIN's AMECO database, Commission's spring 2011 forecast — adjusted for differences in the definition of the tax indicators — was used to extrapolate some of the time series for the years 2010 and 2011.

<sup>(8)</sup> Unless stated otherwise, averages quoted in the report are GDP-weighted.

<sup>(9)</sup> Data quantifying the effect of tax measures on GDP are available for 20 Member States.

<sup>(10)</sup> Calculations based on European Commission (2010d) and the Stability and Convergence Programmes of the Member States.

Graph 2.2: Change in budget balance, 2008-2009



Source: Commission services.

(-1.2 pp over 2007-2009, -0.9 pp over 2008-2009). This is because the recession was driven in particular by a sharp fall in exports and private investment, while the main tax bases (private consumption and wages) developed less unfavourably than in the previous downturn. Moreover, given the size of the slump some Member States could not afford to let automatic stabilisers play and had in 2009 already engaged in procyclical tax-increasing measures. As indicated in the graph, tax-to-GDP ratios have gained momentum from 2010 onwards, mostly due to discretionary tax measures (for details see Chapter 3).

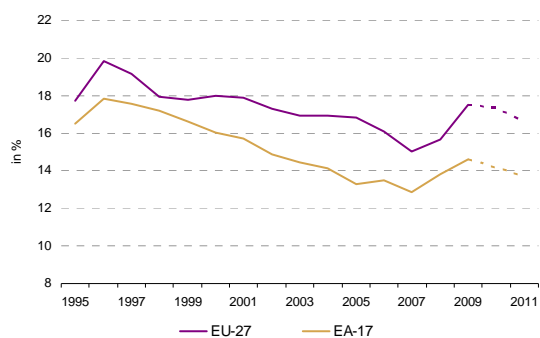
### Tax ratios differ widely in the EU ...

As illustrated by Graph 2.3, there are wide differences in tax levels across the Union. While the EU-15 average tax burden is approaching 39% of GDP, the Member States that acceded to the EU after 2004 display a considerably lower average tax burden of only 32% of GDP. Most of the EU-15 countries (except for Ireland, Greece, Spain, Portugal and the United Kingdom) are ranked above the EU-27 median, i.e. to the left side of the graph, while only three new Member States, namely Hungary, Estonia and Slovenia display an above median tax burden. The highest overall tax burden in 2009 was recorded in Denmark, amounting to above 48% of GDP, whereas Latvia's tax ratio amounted to a mere 26.6% of GDP.

### ...and the crisis has brought convergence to a halt

The wide dispersion of tax ratios — as measured by the coefficient of variation<sup>(1)</sup> — in the European Union is not new. However, as indicated by Graph 2.4, the dispersion of tax burdens diminished quite steadily for the current 27 Member States between 1996 and 2007.

Graph 2.3: Dispersion (coefficient of variation) of total taxes, % of GDP

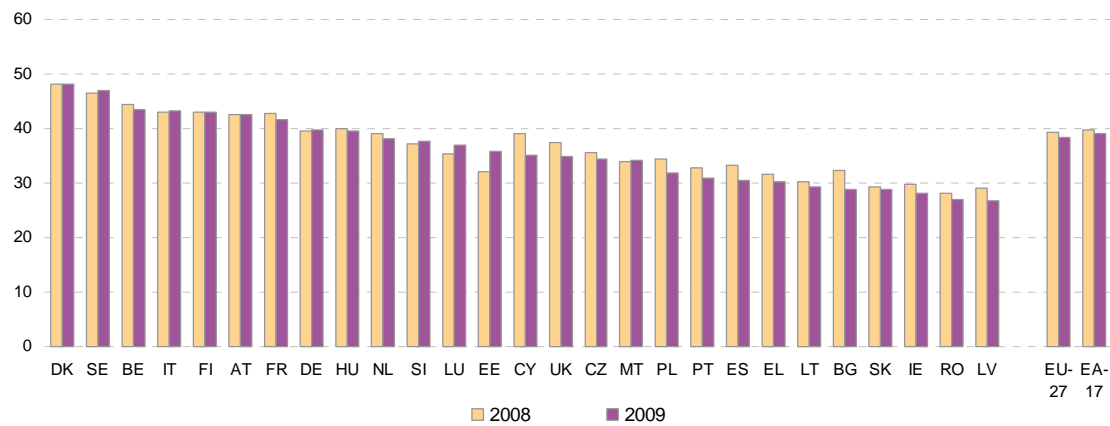


Source: Commission services.

Since 2008 it has gone up as a consequence of the uneven impact of the crisis on tax revenues. With the effects of the crisis on tax revenues gradually abating, the dispersion of tax burdens

<sup>(1)</sup> The coefficient of variation is a normalised dispersion measure. It is computed as the standard deviation divided by the mean (both unweighted).

Graph 2.4: Overall tax-to-GDP ratio (incl. SSC) in the EU, 2008/2009, in %



Source: Commission services.

has resumed its downward trend since 2010, mirroring the increasing prevalence of consolidation-oriented tax policy stances across Member States.

### Reasons for the heterogeneous development of tax-to-GDP ratios in Member States

While some countries experienced severe drops in their tax-to-GDP ratios, tax ratios stabilised or even rose in some others (see Graph 2.3). This uneven impact is not only the result of tax measures taken, and the different degree of automatic stabilisation, but also reflects differences in economic structures.<sup>(12)</sup> As the recession was generally characterised by a sharp decline in exports, countries heavily dependent on exports saw a larger decrease in their GDP compared to other countries. Internal demand was, however, not necessarily affected equally badly, with the major tax bases, consumption and wages, remaining relatively stable. Relatively stable tax bases imply, *ceteris paribus*, relatively stable tax revenues. In the context of a plunging GDP, this results in an increase in the tax-to-GDP ratio, as can be observed for e.g. Germany. Moreover, Luxembourg, Austria and Sweden saw rising/stabilising tax-to-GDP ratios despite important — revenue-reducing — tax reforms. The significant increase in Estonia was, in addition to

<sup>(12)</sup> While European Commission (2010) states that all Member States but Poland were affected by the recession, the extent of the fall in production and housing prices differed considerably. This might also have impacted on tax revenues.

an export-driven slump in GDP, also the result of tax-increasing measures such as an increase in VAT rates and changes in the social security system and higher non-tax revenues.

## 2.2. TAX COMPOSITION

The tax composition can be considered in terms of the type of tax levied, i.e. indirect taxes, direct taxes and social security contributions (SSCs) (sub-section 2.2.1), or in terms of a classification of taxes according to economic function, i.e. consumption taxes, taxes on labour and capital and environmental taxes (sub-section 2.2.2).<sup>(13)</sup>

### 2.2.1. Decomposition by type of tax

The three main types of taxes that will be analysed are indirect taxes (VAT and other taxes on consumption, production and imports, excise duties), direct taxes (current taxes on income and wealth, capital taxes) and social security contributions. When considering the evolution of tax revenues from these three broad categories, it is important to bear in mind that tax revenues from different sources are differently affected by the

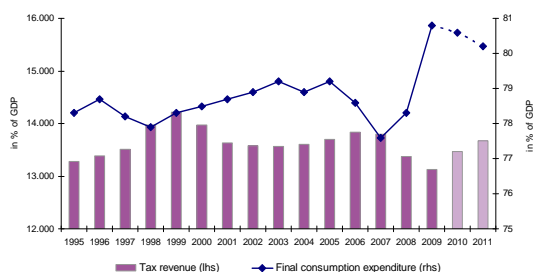
<sup>(13)</sup> There are, of course, potentially other ways to decompose tax revenues. The current decomposition follows the one applied in European Commission (2011a). ‘Annex C: Methodology and explanatory notes’ of that publication gives extensive details on the underlying methodology. The tax data may also be found in electronic format on the Eurostat web page and via the following link to the DG Taxation and Customs Union homepage: <http://ec.europa.eu/taxtrends>.

business cycle. This complicates the interpretation of changes in the importance of these tax components over time.

### Unequal impact of the business cycle on tax categories

Direct taxes are the most pro-cyclical because they contain both personal and corporate income taxes. The tax base of corporate income taxes, namely corporate profits, is very sensitive to the business cycle. The progressive nature of personal income taxes implies that personal income tax revenues will react more pronouncedly than the tax base – the wage bill – indicates. Social security contributions, which are closely related to the aggregate wage bill, tend to be less responsive to the cycle, reflecting proportionality and caps on maximum contributions and the relative inertia of the wage bill. Finally, indirect taxes, which are mostly proportional, should evolve in line with their tax base, i.e. broadly consumption expenditure.

Graph 2.5: Indirect tax revenues and final consumption expenditure, as % of GDP



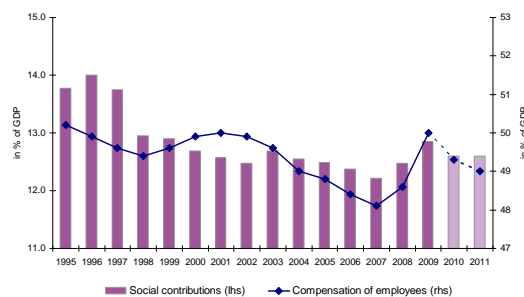
Source: Commission services.

At the current juncture it must also be borne in mind that any change observed in the different tax-to-GDP ratios might also be due to the fact that the share of the tax base in GDP has changed (composition effects). A drop in exports, for example, reduces GDP, while the tax bases, such as wages and consumption, would ceteris paribus increase their share in GDP. Hence the changes in the tax-to-GDP ratio will be put into perspective using changes in (proxies of) the tax bases' shares in GDP.

Graph 2.5 displays the evolution of EU-27 average tax revenues from indirect taxes and the share of final consumption expenditure in GDP. The

significant fall in the ratio of indirect taxes to GDP since 2008 greatly exceeds the (moderate) previous increase until 2006/07. Interestingly, following the severe fall in 2008, the 2009 fall in consumption taxes in % of GDP was rather modest compared to previous years with decelerating growth (e.g. 2001). This is due to the cushioning effect from the rather stable (proxy of) the tax base (consumption expenditure), falling by much less than GDP. However, shortfalls in other indirect taxes, for example those in real estate taxation generated by drops in asset prices and slumping transaction volumes, still resulted in an overall lower indirect tax-to-GDP ratio. Moreover, the observed decline in the ratio of indirect taxes to GDP seems to reflect discretionary tax cuts implemented in a number of countries in 2009 to counter the effects of the crisis on consumption. <sup>(14)</sup> Reflecting VAT and excise duty hikes in a number of countries since 2010, the share of indirect taxes in GDP has been rebounding in 2010 and 2011.

Graph 2.6: Social security contributions and compensation of employees, as % of GDP

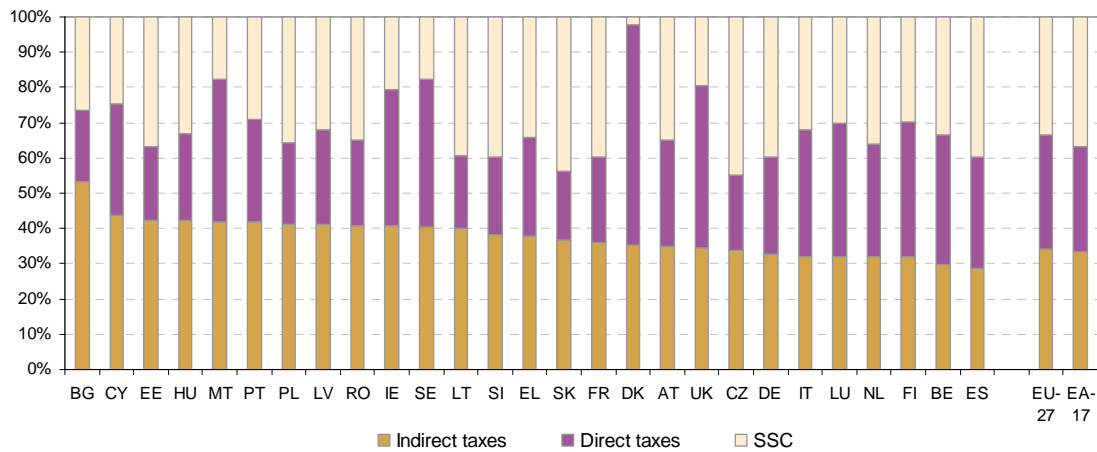


Source: Commission services.

Apart from a large fall in 1998, which mirrors significant reductions due to reforms in two big Member States (France and Italy), SSCs as a percentage of GDP evolve in a relatively stable manner over the sample period, displaying, as expected, relatively limited reaction to the cycle. After a gentle downward trend until 2007, which might reflect governments' efforts to reduce the taxes on labour, revenues from social security contributions as a percentage of GDP picked up markedly in 2008 and 2009. This can be explained by the schemes implemented in many countries to shield the labour market from the severe impact of

<sup>(14)</sup> For an overview of the main tax measures see European Commission (2010d).

Graph 2.7: Tax composition in Member States, 2009



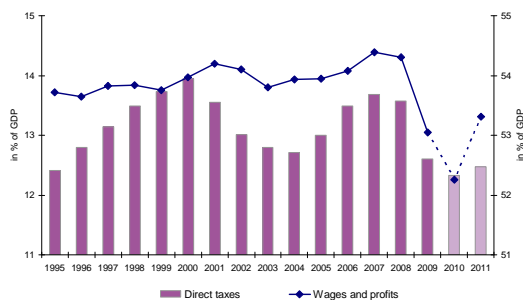
Source: Commission services.

the crisis on output, leading to a considerable degree of labour-hoarding, and thus robustness of the base of social security contributions. Indeed, the losses in employment in 2009 were relatively moderate compared to those in output (-1.8% against -4.2%). This is reflected as an increase in the share of the wage bill to GDP (Graph 2.6), which even compensated some (limited) SSC cuts.

and net profits in GDP these tax cuts resulted in a slump of revenues from direct taxes as a percentage of GDP in 2009. Following a small further decline in 2010, the ratio of direct taxes to GDP is expected to rebound somewhat in 2011.

#### Large differences in tax composition across countries

Graph 2.8: Direct tax revenues and wages and profits, as % of GDP



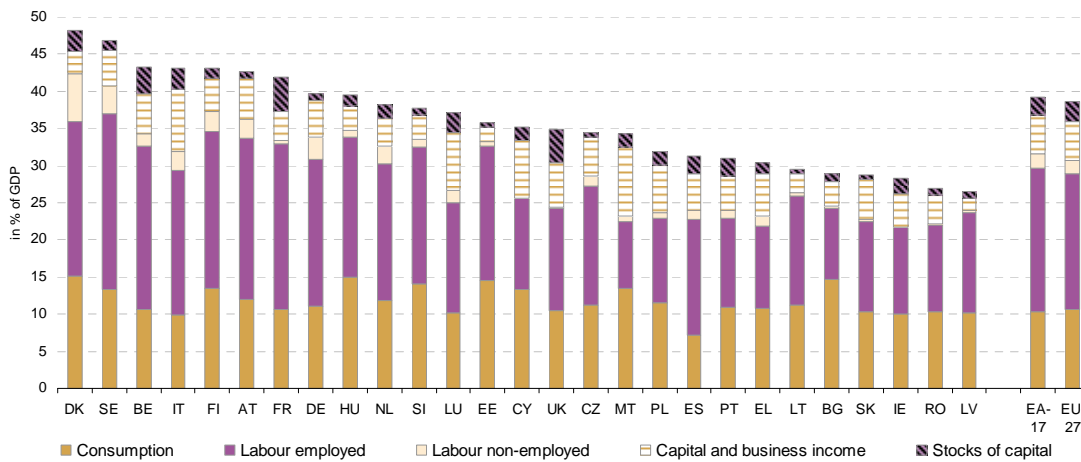
Source: Commission services.

Direct taxes exhibit the expected pronounced cyclical pattern, with two peaks in 2000 and 2007 in line with the evolution of GDP growth. The fall in 2008 was still relatively contained, due to stable wages and retained corporate tax revenues, which usually react with a lag to corporate profit developments. In 2009, a number of tax cuts, mainly with respect to the tax base and payment deferrals, aggravated the cyclical drop in corporate taxes. Together with a decreasing share of wages

There is substantial variation across Member States in the importance of indirect taxes, direct taxes and SSCs (Graph 2.8). In 2009, indirect taxes accounted for less than 30% of total taxation in Belgium and Spain but for over 50% in Bulgaria. The share of direct taxes in total taxation varied from less than 20% in Slovakia to almost 63% in Denmark, where the social security system is financed out of general tax revenues. Finally, social security contributions represented only about 2% of total taxation in Denmark, and also played quite a small role (less than 20%) in Sweden, Malta and the UK, but made up almost 45% of total taxes in the Czech Republic.

However, these large differences in the tax composition of Member States in 2009 cannot be attributed to the crisis. The dispersion across Member States in tax revenues from indirect taxes, direct taxes and social security contributions has remained relatively stable over time (Graph 2.10). The dispersion of direct taxes is the highest. While some convergence took place in 2006 and 2007, the dispersion measure broadly returned to its

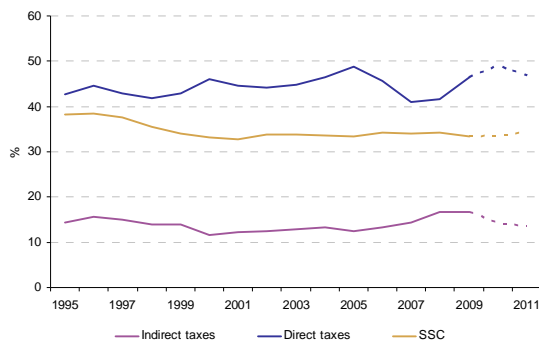
Graph 2.9: Total tax burden, decomposition by economic function, 2009, % of GDP



Source: Commission services.

average level during the crisis. The dispersion of SSCs appears to display a slight downward trend, although this decline had been levelling off prior to the crisis. The reduced dispersion of SSCs compared to 1995 might reflect some convergence in the financing of social protection across the EU.

Graph 2.10: Convergence in indirect, direct taxes and SSC in the EU-27



Source: Commission services.

Some Member States that traditionally rely mostly on SSCs to finance social spending have introduced several elements of tax financing. Moreover, a shift towards private-funded pension systems has decreased general government SSC revenues. However, recently some Member States have redirected social security contributions to funded pension systems in the general government sector.

Indirect taxes are the least dispersed in the EU, reflecting the comparably high level of harmonisation, e.g. in the form of minimum VAT and minimum energy tax rates. While the late 1990s saw some further convergence, revenues from indirect taxes have been slowly diverging again since 2000. While this increase points to the impact of discretionary rate cuts in some countries till 2007, the increase since 2008 reflects the different reaction to the crisis across Member States. While some tried to stimulate the economy by rate cuts and special base regimes (particularly for VAT), others were already focusing on increasing revenues. In 2010 and 2011, the dispersion of indirect taxes across Member States is levelling off again.

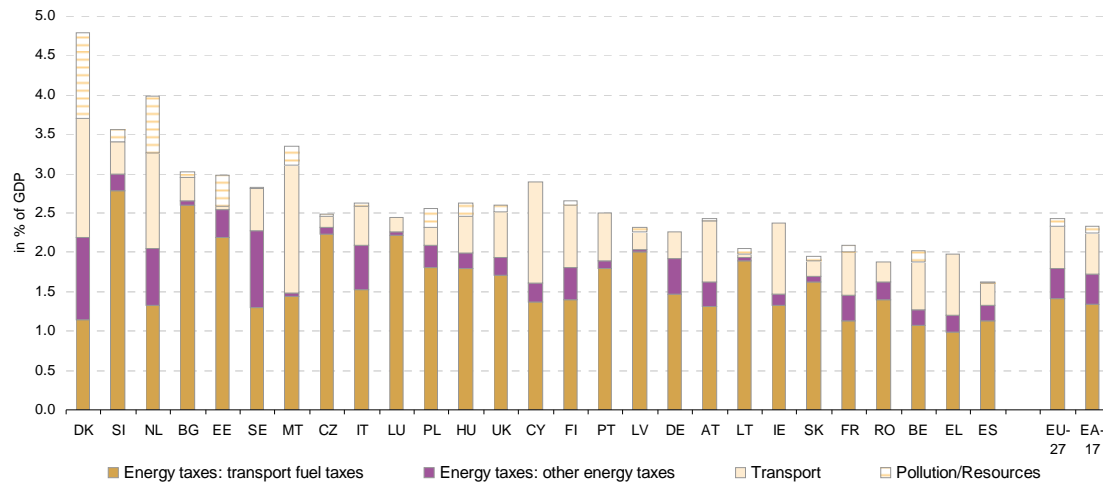
## 2.2.2. Decomposition by economic function

### Taxation of consumption, labour, capital and ...

Graph 2.9 ranks Member States by the overall tax burden and displays a breakdown of revenue by economic function — taxes on consumption, labour (employed and non-employed) and capital (capital and business income and stocks) — for the year 2009. The graph shows quite a lot of variation both in terms of the overall level and in its composition. In particular it indicates that, on average, those Member States that acceded after



Graph 2.11: Decomposition of environmental taxes, 2009, % of GDP



Source: Commission services.

2004 rely to a larger extent on consumption taxes, while EU-15 countries levy most of their taxes on labour. The differences reflected in the graph are not only the result of different tax rates applied. They also display the size and importance of the different tax bases with respect to each other and the respective shares in GDP. Hence, despite the fact that the most important indirect taxes are — to some extent — harmonised at EU level, namely VAT and certain excise duties, there is substantial variation in consumption taxes. This is due to the fact that the share of the consumption tax base in GDP diverges by around 35 percentage points across Member States. Moreover, harmonisation does not directly translate into the setting of actual tax rates, but only sets structures and minimum requirements (e.g. minimum excise duties on mineral oils).

Given the lack of harmonisation in labour and capital taxation, the variation is even greater. In these cases a larger part of the observed variations can be explained by differences in the actual tax systems, i.e., by different rates, progressivity, etc. Nevertheless, differences in tax bases are still an important factor in explaining the observed variation in revenue.

Smaller revenue sources, such as taxation of stocks of capital/wealth and taxation of non-employed labour (essentially pensions and social security

benefits), range from the significant to the negligible. This primarily reflects choices made in different Member States to provide social benefits and pensions on either a gross or a net basis. Overall, the taxes levied on (employed) labour income, which are usually withheld at source (i.e. personal income tax levied on wages and salaries income plus social contributions), represent the most prominent source of revenue, contributing almost 50% to overall receipts on EU-average, followed by taxes on consumption at over one third and on capital at over one fifth.

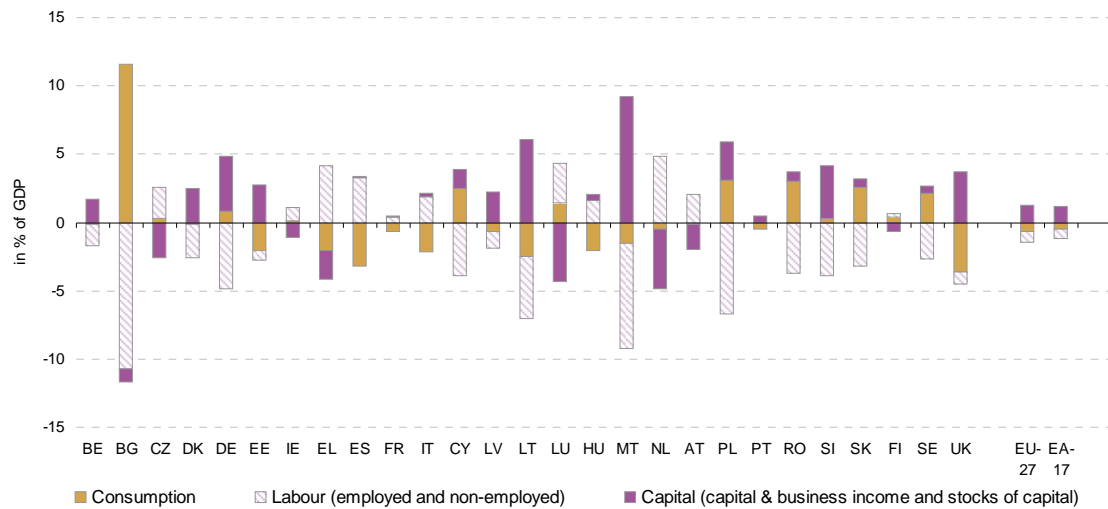
### ...environmental taxation

Environmental taxes are ‘taxes levied on tax bases that have a proven specific, negative impact on the environment.’<sup>(15)</sup> However, charges and fees on environmentally harmful tax bases are not included in this definition, as they represent required payments — i.e. there is a link between the service and the payment. Statistically, environmental taxes are divided into four broad categories, namely energy, transport, pollution and resource taxes.

Environmental taxes can in principle be levied on all three tax bases — consumption, labour and capital. In practice, however, environmental taxes fall mostly on consumption, usually in the form of

<sup>(15)</sup> Definition as in European Commission (2001).

Graph 2.12: Tax Shift between 2001 and 2008, % of GDP



Source: Commission services.

excise duties. Denmark and Sweden are the only countries which in addition levy a significant part of environmental taxes on capital. Despite their increasing importance in the policy debate, environmental tax revenues have been falling in recent years in the EU on average. In 2009, revenues from environmental taxes accounted for 2.4% of GDP in the EU-27, which constitutes a significant fall when compared to the peak of 2.8% of GDP in 1999. While almost all EU-15 Member States recorded decreasing environmental taxes, some EU-12 Member States were steadily increasing them. This increase has been largely driven by the EU accession process, which requires minimum rates for some environmental taxes<sup>(16)</sup>. Currently, both EU-15 and EU-12 Member States raise around 2.4% of their GDP from environmental taxes, translating into 7.2% of total taxation for EU-12 Member States but only 6% of total taxation in EU-15 Member States.

As graph 2.11 shows, energy taxes — taxes on energy products such as mineral oils, gas and electricity as well as CO<sub>2</sub> taxes — are by far the most significant, representing around three quarters of environmental tax receipts. What becomes evident from graph 2.11 is that most energy taxes are levied on road transport fuel. The

high share of revenues derived from the use of fuels for transport purposes is due to the existence of EU legislation which sets minimum tax rates for energy products and electricity<sup>(17)</sup>. Minimum tax rates for petrol, which is almost exclusively used for transport purposes, are the highest among all products covered by the Energy Tax Directive. In addition, most of the Member States apply tax rates far above the minima set by the EU legislation.

### Change in tax composition up to the beginning of the crisis

Until the crisis took full hold in 2008, the composition of tax systems — i.e. the tax mix — had seen little change in the EU on average. Graph 2.12 illustrates the limited nature of the tax shift between 2001 and 2008.<sup>(18)</sup> <sup>(19)</sup> As similar economic conditions prevailed in the years 2001 and 2008 they should be broadly comparable in terms of the impact of the cycle on the tax composition. Thus, the observed tax shift can be largely interpreted as changes in tax policy.

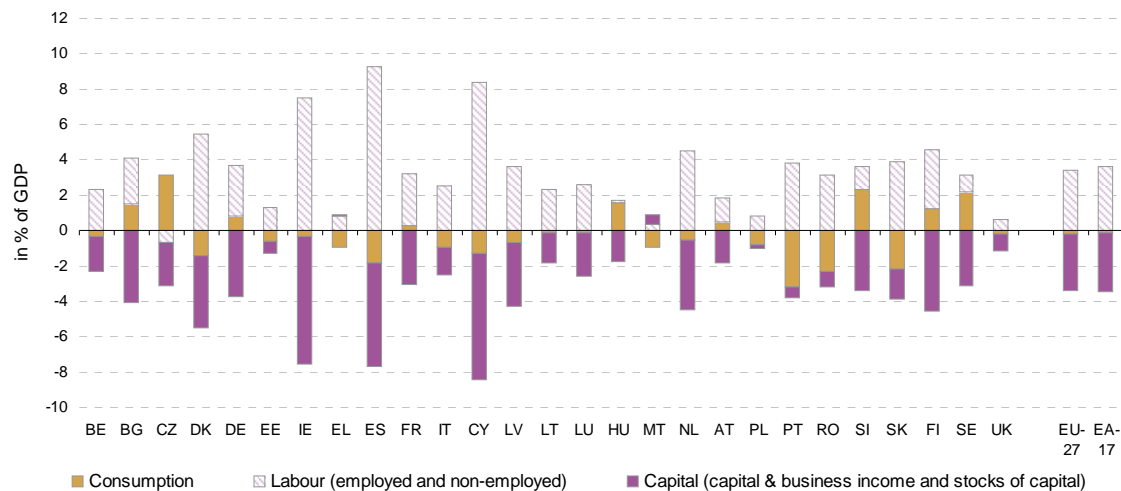
<sup>(16)</sup> European Commission (2003), and European Commission (2004 a, b).

<sup>(17)</sup> Transport fuels are fuels used only for transportation purposes and do not include fuels used for heating or business purposes.

<sup>(18)</sup> The tax shift is measured by the change of the revenue share by economic function in total taxation.

<sup>(19)</sup> By its nature, this graph does not contain any information on the development of the overall tax-to-GDP ratio; it only contains information on shifts within the tax system.

Graph 2.13: Tax shift between 2007 and 2009, % of GDP



Source: Commission services.

While the share of consumption and labour in total taxation decreased by 0.6 and 0.8 percentage points respectively, the capital share increased by roughly 1.4 percentage points in the EU-27. Comparing developments in EU-15 and EU-12 Member States, however, displays large variations. In the EU-12 the labour tax share decreased by 3.4 percentage points, whereas the consumption share increased by 1.6 percentage points. Contrastingly, the EU-15 experienced a basically unchanged labour tax share and a decreasing consumption share. However, this masks important developments in individual Member States, as displayed by Graph 2.12.

#### Change in tax composition since the beginning of the crisis

Graph 2.13 displays the tax shift between 2007 and 2009. It indicates a much more pronounced overall change in the tax mix compared to the changes observed before the crisis. However, these figures have to be interpreted with care given the large economic downturn in 2009. As 2007 and 2009 represent two years with completely different cyclical situations, large parts of the indicated tax shifts are arguably driven by the economic cycle. Thus, instead of displaying the effects of tax policy measures such as tax hikes in labour taxation, the graph mostly reflects the effects of the changed importance of tax bases relative to one another.

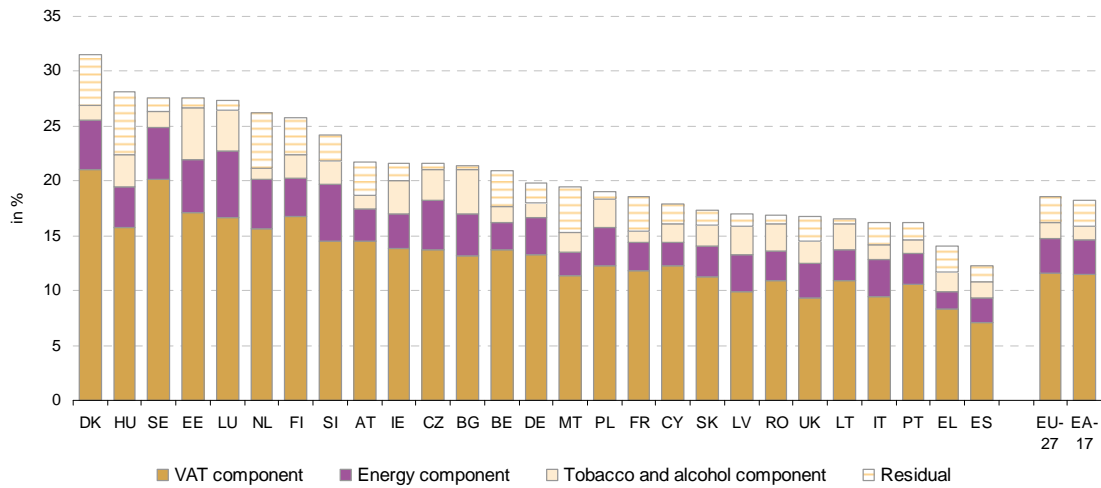
While the importance of business profits fell considerably over the last two years, the relative importance of the wage bill increased. This translates into similar developments with respect to tax revenues in the tax categories labour and capital. The share of consumption taxes stayed virtually unchanged on EU average.

#### 2.3. IMPLICIT TAX RATES ON CONSUMPTION, LABOUR, CAPITAL AND ENERGY

Given the impact on tax revenues of changes in tax bases it appears useful to look at a measure which tries to abstract from these developments of tax bases. Implicit tax rates (ITR) serve this intention, as they try to estimate the economy-wide average tax rate. They are computed as the ratio of total tax revenues (as observed in the data) to a proxy of the corresponding tax base. The resulting ratio can then be interpreted as a fictitious average tax rate that would prevail if all the activities forming the proxy for the tax base were taxed at the same rate. It might still reflect some cyclical fluctuations, for example, because many tax systems are nonlinear so that average tax rates increase with average incomes or profits.

While ITRs provide a useful instrument for interpreting tax developments and making them comparable across Member States, they should not

Graph 2.14: Decomposition of the implicit tax rate on consumption, 2009



Source: Commission services.

be taken at face value. <sup>(20)</sup> They should usefully be complemented by a ‘bottom-up’ analysis of policy changes (see Chapter 3 for a discussion of discretionary tax measures implemented in 2010-2011).

Graph 2.15 displays the evolution of the three main implicit tax rates. <sup>(21)</sup> They follow the distinction of taxes according to economic function and therefore display the ITRs on consumption, on labour and on capital.

Graph 2.15: Implicit tax rates, EU-25 averages



Source: Commission services.

### Consumption taxes

The economic and financial crisis has interrupted the rather stable development of the taxes on consumption in the first decade of the century. Overall, the EU-27 (as well as the EA-17) average ITR has decreased by more than one percentage point since 2007, to 18.9% (EA-17: 18.5%). This represents both the greatest slump and the lowest level observed since 1995. Over the last two years, the ITR has decreased in 20 EU Member States (see Table A1.3 in Annex 1), which partly reflects demand-stimulating tax measures.

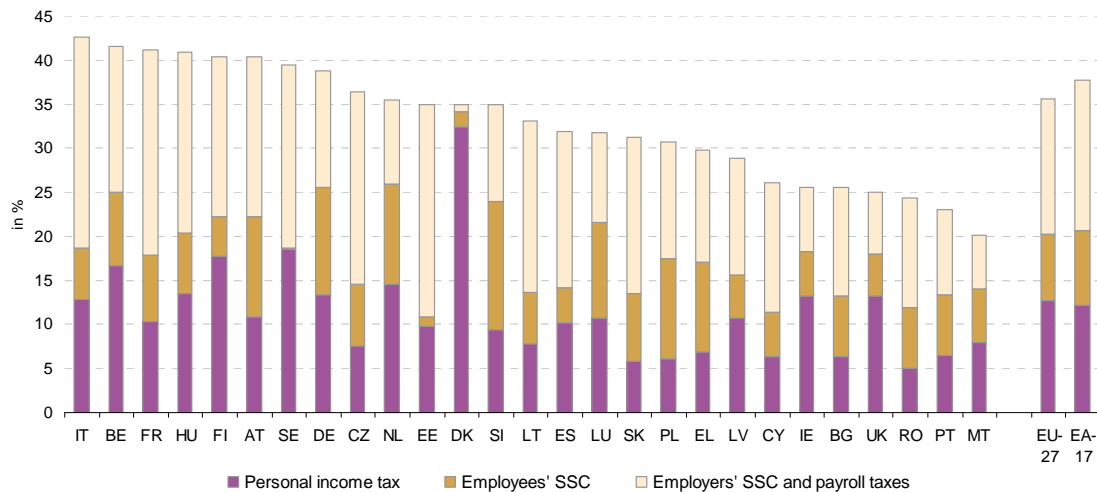
Among those Member States experiencing a decrease in the ITR and driving the EU weighted average, the UK lowered its standard VAT rate by 2.5 percentage points. France and Italy (temporarily) decreased their tax bases by applying reduced rates to a wider range of services – for hospitality services in France and on housing renovating activities in Italy. Moreover, France, Italy and in particular Spain took measures changing the timing of VAT payments or accelerating reimbursements, thereby reducing consumption tax revenues.

Moreover, a decreasing ITR can be the consequence of a shift in consumption patterns towards primary goods, which are normally

<sup>(20)</sup> Using the same denominator for all countries ITRs cannot take into account country peculiarities. Moreover, there are limitations to data availability needed for an exact calculation of the ITRs.

<sup>(21)</sup> For more information on the calculation of the implicit tax rates see European Commission (2011a).

Graph 2.16: Decomposition of the implicit tax rate on labour, 2009



Source: Commission services.

subject to lower VAT rates. In addition, there is evidence that tax planning, avoidance and evasion activities rise during times of economic distress, resulting in lower tax revenues relative to the corresponding base.<sup>(22)</sup>

The aggregate level of the ITR on consumption combines a number of taxes, which are different in nature and justification. Graph 2.14 displays the ITR on consumption and disaggregates it into three main subcomponents: VAT, energy and excise duties on tobacco and alcohol, plus a residual. As shown in the graph, the lowest ITR on consumption throughout the whole Union in 2009 is for Spain (12.3%) followed by Greece (14%), and Portugal (16.2%). Among countries with a high ITR on consumption, Denmark stands out with 31.5%, thus over three percentage points above the Member State with the second highest ITR, i.e. Hungary (28.2%), followed by Estonia and Sweden (both 27.6%). These two groups of Member States with high and low ITRs on consumption have been relatively stable with respect to the status quo before the crisis with the exception of Portugal and Estonia. For Estonia the hike in the ITR (by 6.5 percentage points in 2009) reflects VAT rate and base increases and increases in excise duty rates.

### Labour taxes

Labour taxation in the EU and in the euro area (EA) – as measured by the ITR on labour – has remained relatively stable over the last one and a half decades and even since the beginning of the crisis. In 2009, the EU-27 average amounted to 36.0% (EA-17: 38.2%), only 1.5 percentage points below (also for EA-17) its peak level recorded in 1998. However, this pattern masks quite diverse developments in labour taxation across Member States. Almost all of the ten Central and Eastern European Member States that acceded to the EU in 2004 and 2007 show a much stronger decline than the EU-27 average. The average in these Member States has gone down by about 4.3 percentage points since 2000, resulting in an average ITR on labour in the EU-12 of 30.6% in 2009. The Member States that have experienced the highest reductions are Bulgaria, Lithuania and Romania (all above 8 percentage points).

While the first year of the crisis was characterised by an increase in labour taxation, 2009 saw a drop in the EU-27 ITR on labour by 0.7 percentage points.<sup>(23)</sup> This decrease clearly reflects the tax measures in the areas of personal income taxation and social security contributions. Most of the

<sup>(22)</sup> Sancak et al. (2010).

<sup>(23)</sup> See Table A1.3 in Annex 1.

measures focused on reducing the tax base, usually by increasing allowances, but some Member States also enacted significant tax rate cuts.

Graph 2.16 shows significant differences in the ITR of Member States. At one extreme, three Member States stand out with ITR below 25%, while six EU-15 Member States and Hungary have an ITR on labour in excess of 40%. There is wide variation across Member States as regards not only the level but also the composition of labour taxation. On average, nearly two thirds of the overall ITR on labour consists of social security contributions paid by employees and employers. Only in Denmark, Ireland and the United Kingdom do personal income taxes have a share above 50% in total charges paid on labour income. This reflects the choice of Member States on how to finance their social security system and which (pension) services to provide. In some of the Member States, namely Poland, Romania and Slovakia, less than 20% of the ITR on labour consists of personal income tax.

### Taxes on capital

In recent years growing policy attention has been devoted to the taxation of capital and in particular to corporate income taxation. Corporate income tax, although considered the main tax on capital, is not a major source of revenue in the vast majority of EU Member States. In 2009, it represented on average 2.3% of GDP in the EU<sup>(24)</sup> and was less than 4% of GDP in all but three countries. With the inclusion of the other capital taxes, namely on capital income of the self-employed (2.0%), of households (0.9%), and on the stock of capital (wealth) (2.6%), the EU average of capital taxes amounted to 7.9% of GDP.

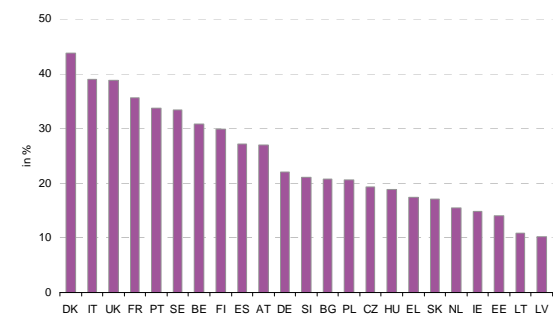
In contrast to the ITRs on consumption and labour, the ITR on capital for the EU-25 shows considerable fluctuation since 1995 (see Graph 2.14). It increased dramatically between 1995 and 2001, before showing a three-year decrease and then a new rise from 2003 to 2006. Since 2007, the ITR has decreased by more than three percentage points, amounting to 30.2% in 2009. Since the beginning of the century the ITR on capital displays strongly differing trends between Member States (compare Table A1.3 in Annex 1); the

<sup>(24)</sup> See Table A1.3 in Annex 1.

overall ITR on capital has decreased in eleven Member States, while it has increased in eight countries.

The strong decrease observed in the ITR on capital since the beginning of the crisis is driven by the development of the ITR on corporate income, which has slumped by more than seven percentage points since 2007 to below 21%. This mainly reflects the trend in the European Union towards lower corporate income tax rates, becoming fully visible only in times of crisis. The average general corporate tax rate in the EU-27 was reduced by 12.1 percentage points in the period from 1995 to 2011. This policy was usually part of a tax-cut-cum-base-widening strategy, where the base was widened by e.g. reducing deductions, exemptions and less generous depreciation rules. As the crisis took effect, many countries (temporarily) reversed some of these base-broadening measures or allowed for payment deferrals.

Graph 2.17: Implicit tax rate on capital income, 2009



Source: Commission services.

Graph 2.17 presents an overview of the ITR on capital in the European Union in 2009. As the UK experienced a drop in the ITR on capital of almost six percentage points in 2009, Denmark now heads the ranking with an ITR of 43.8%. An even higher slump in the ITR on capital was seen in Latvia, now ranking last.

### Environmental taxation

The development of environmental taxation is in most countries driven by the development of energy taxes, which amount to 70% of environmental tax revenues on average in the EU. However, a decrease in environmental taxation,

and in particular in energy taxation – as analysed in sub-section 2.2.2 – does not necessarily indicate that environmental issues do not rank high on the policy agenda. If environmental taxes are effective they should reduce the use of environmentally harmful goods and hence erode the tax base.

Indeed, between 2000 and 2009, final energy consumption, which is the tax base for energy taxes, increased at a much slower pace than the tax bases for the other taxes analysed in section 2.2 as well as GDP. A look at the deflated implicit tax rate (ITR) on energy<sup>(25)</sup> <sup>(26)</sup> — setting energy tax revenues in perspective with final energy consumption — confirms that the real ITR on energy has increased in almost all the new Member States, and decreased in only nine – mostly EU-15 – Member States. The decrease in the ITR in these Member States can be directly linked to lower taxation in real terms despite unchanged nominal rates. In general, excise duties on energy products are levied on measures per unit and not indexed to inflation, so their real value decreases over time. On the other hand the increase in the EU-12 was mostly driven by the need to achieve the minimum

EU rates (as explained above) by 2010. It is particularly interesting that after a period of decreasing real ITRs an increase is noticed in 2009 in almost all Member States, reflecting the discretionary increase in tax rates. As in recent years, Denmark displays the highest ITR on energy by a wide margin, followed by Germany and the Netherlands. Generally, EU-12 countries display markedly lower levels of energy taxation.

The overall decrease in environmental taxation as a percentage of GDP might not only be due to the reduction of the tax base as a percentage of GDP and the loss in real value due to lack of indexation but could partly reflect a change in policy instruments. It has become common to levy fees instead of lump-sum taxes such as road pricing, fees on waste and waste water disposal, etc., which are not recorded as taxes. This of course impacts on the tax share and the respective changes observed. However, neither increasing nor decreasing tax shares can guarantee that corresponding climate and environmental objectives have been achieved – this has to be assessed separately.

---

<sup>(25)</sup> The ITR on energy shows the amount of energy tax, in euro, levied per unit of final energy consumption.

<sup>(26)</sup> See Table A1.5 in Annex 1.





## 3. RECENT REFORMS OF TAX SYSTEMS IN THE EU

This chapter reviews the tax reforms implemented in the 27 EU Member States in 2010 and the first half of 2011. General developments across the EU are reviewed in section 3.1. Section 3.2 goes on to describe tax reforms in the Member States in more detail, looking at each type of tax systematically.

### 3.1. GENERAL TRENDS IN TAX REFORMS

When the financial and economic crisis hit Europe at the end of 2008, Member States responded with coordinated action in the form of the European Economic Recovery Programme (EERP) to temporarily stimulate aggregate demand in 2009 and to a lesser extent in 2010, and to limit the sizeable contraction in output. At the same time, the crisis resulted in unsustainable public finances, due to the recession-driven collapse in revenues, the tax shortfall generated by the sharp drop in asset prices and the discretionary tax and expenditure measures taken to support the economy during the crisis.

Therefore, in 2010 and 2011, most Member States have faced the challenge of consolidating public finances, while at the same time improving their tax structure to make it more growth-friendly, where possible by shifting direct to indirect taxation or by base broadening. In 2011, 24 of the 27 Member States are subject to the excessive deficit procedure (EDP) and have received recommendations from the Council to take effective corrective action with the aim of bringing the deficit-to-GDP ratio below 3% by country-specific deadlines ranging from 2011 to 2015. The national policies presented in the Stability and Convergence Programmes and National Reform Programmes show that Member States (with an unsustainable fiscal path) generally intend to raise taxes in 2011, to complement the curb on public spending.

#### 3.1.1. OVERALL TAX POLICY DIRECTION

Tax policy in 2010-11 has been strongly influenced by the response to the financial and economic crisis that began in the latter part of 2008. 2010 was a year of transition, with no clear overall tendency to increase or decrease taxes. Tax reforms implemented in some countries

were still focusing on expansionary measures to bolster aggregate demand in order to reduce the impact of the crisis. In other countries, the need to consolidate public finances and increase revenues resulted in measures to increase taxes during 2010.

In almost all EU Member States, the tax reforms implemented in 2011 have focused on increasing revenues, although most countries have chosen to concentrate their consolidation efforts more on the expenditure side than on the revenue side.<sup>(27)</sup> However, there is clearly a variation in the extent to which Member States need to tighten fiscal policy and increase revenue, as discussed in section 1 of Chapter 5.

2011 appears to be a turning point for measures on the revenue side, as reflected by the development in overall tax burden. The EU27-average of the total tax burden (including social security contributions) remained unchanged at 39.8% of GDP from 2009 to 2010, but it is forecast to increase to 40.2% of GDP in 2011; however, it is not expected to reach the 2008 level of 40.6% (see section 2 in Chapter 2). This development is mainly due to discretionary measures. The budgetary impact of discretionary measures on the revenue is forecast to amount to 0.1% of GDP in 2010 and increase to 0.5% of GDP in 2011 on the EU average. For the euro area, discretionary measures account for 0.0% and 0.4% of GDP in 2010 and 2011 respectively.

#### 3.1.2. THE OVERALL STRUCTURE OF TAXATION

Table 3.1 briefly summarises the direction of tax changes implemented in the EU Member States in 2010 and 2011.

Most Member States have increased taxes in 2010 or 2011 to speed up fiscal consolidation. A majority of Member States have increased personal income tax, sometimes by raising statutory rates (Greece, France, Ireland, Latvia, Luxembourg, Portugal, Spain and the United Kingdom), although measures to broaden the tax base are prevalent. VAT and excise duties have also been increased in many countries, most frequently in the form of rate increases.

<sup>(27)</sup> For an analysis of expenditure-based consolidations as compared to consolidations based on tax increases see European Commission (2010a).

Table 3.1: Tax changes in 2010 and 2011

		Statutory rates	Base or special regimes
Personal Income Tax	Increase	EL, ES, FR, IE, LV, LU, PT, UK	AT, CZ, DK, EE, ES, FR, IE, LV, PT, RO, SK, UK
	Decrease	DE, DK, FI, HU, NL	AT, BG, DE, FI, IT, LT, SE
Corporate Income Tax	Increase	EL, PT	LU, RO
	Decrease	CZ, EL, HU, LT, NL, UK	AT, BE, DE, ES, LT, NL
Social Security Contributions	Increase	IE, LV	BG, CZ, IE, LT, PT, RO, SK
	Decrease	BG, HU	
Value Added Tax	Increase	CZ, EL, ES, FI, HU, LV, PL, PT, RO, SK, UK	BG, CY, EL, ES, FR, PT, LV
	Decrease	IE	BE, DE, HU, LT, NL, PL
Excise Duties	Increase	AT, BG, CY, CZ, DE, DK, EE, EL, ES, FI, FR, IE, HU, LV, MT, NL, PL, RO, SL, SK, UK	DK, IE, IT, LV
	Decrease	AT, BG, SK	BE, NL
Taxation of Property	Increase	CZ, DE, EL, FR, LV, PT	LV
	Decrease		

*Note:* The table encompasses tax changes implemented in 2010 and 2011 including temporary but significant changes. Minor changes are not included. Introduction of new taxes is listed as an increase in statutory rate. Cut-off date is 30 June 2011.

*Source:* Commission services.

The urgent need for fiscal consolidation has resulted in the overturning of the decade-long trend of shifting revenue from direct to indirect taxes in more than half of EU Member States. Shifting taxation from corporate income and personal income to other sources, primarily to consumption, continued during the outbreak of the crisis in 2008 and 2009. However, this tendency has been less evident in the tax reforms undertaken in 2010 and 2011, as a large number of countries have recently increased personal income tax. Countries with large budgetary deficits, such as Greece and Portugal, have increased taxation on both labour income (personal income tax and and/or social security contributions) and corporate income. VAT and a number of excise duties were also increased.

Around one third of Member States have taken revenue-increasing measures in 2011 in combination with reforms of tax systems aimed at stimulating long term growth. In most of these countries, tax policy initiatives have taken the form of major tax reforms, shifting a proportion of the tax burden from labour or capital to consumption (Denmark, Finland, Germany, Hungary, Lithuania and the Netherlands). Such a shift corresponds to a

move towards less distortive tax bases, as discussed in section 1 of Chapter 4. Measures have also been taken in fifteen countries to widen the tax base for personal income tax and social security contributions, which may also have a positive impact on growth by limiting the need for distortionary increases in tax rates. However, in around 10 countries, tax changes aimed at fostering growth have taken the form of special arrangements targeted at specific sectors or activities, and thus involving the introduction of new tax expenditures in personal and corporate income taxes.

Overall, despite the fact that a large number of Member States have increased personal income taxes, there are signs of a modest shift in the composition of the overall tax burden from direct to indirect taxation in 2010 and 2011 in the EU as a whole. The share of indirect taxes in the total tax burden is forecast to increase from 33.9% in 2009 to 34.9% in 2011, whereas the share of direct taxes is forecast to decrease slightly from 32.6% in 2009 to 32.3% in 2011. However, the share of indirect taxes was low in 2009 due to temporary measures in several Member States that allowed deferred payment of VAT.

## 3.2. MAIN TAX REFORMS IN THE MEMBER STATES

This section covers the main measures carried out in direct taxation (personal income tax and corporate income tax), and social security contributions, followed by reforms in indirect taxes (VAT and excise duties); it ends with a section on other measures including housing taxation, taxation of the financial sector and measures against tax evasion. Further details on tax reforms in each of the 27 Member States are outlined in Table 3.3 at the end of this chapter.

### 3.2.1. DIRECT TAXATION

#### Personal Income Tax

Many Member States have implemented what are, in some cases, substantial changes to personal income tax during 2010 and 2011. The current economic situation has resulted in marked differences across Member States as regards the direction of these tax changes.

Several Member States have lowered personal income taxes (Bulgaria, Denmark, Finland, Germany, Hungary, Lithuania, the Netherlands and Sweden), as has indeed been the trend across the EU during the last decade. However, a larger number of countries (Czech Republic, Estonia, Ireland, France, Greece, Latvia, Luxembourg, Portugal, Romania, Slovakia, Spain and the United Kingdom) raised personal income taxes, although on a more varied scale and often by means of changes to the tax base. In Denmark, personal income taxes were somewhat increased in 2011, following the reform which lowered them in 2010.

For Member States which have room to manoeuvre in shifting the tax burden away from personal income tax, most tax reforms have been aimed at increasing work incentives. The focus has been partly on participation incentives and partly on incentives to work extra hours along the intensive margin. A notable shift away from personal income tax to other sources of taxation has taken place in Denmark, Finland, Germany and Hungary.

The progressive nature of the personal income tax system has been enhanced in several Member States. France increased the highest marginal tax rates as well as tax rates on capital income. Spain introduced two additional top personal income tax brackets of 46% and 47%, and increased tax rates on capital income from savings in 2010. In the United Kingdom, personal income tax has been made more progressive, with higher tax allowances and an additional top rate of 50% — 10 percentage points higher than the previous maximum. <sup>(28)</sup> Greece and Portugal both introduced a new 45%-top rate in addition to the previous top rates of 40% and 42%, respectively. Latvia increased the top rate in 2010 and Luxembourg did likewise in 2011.<sup>(29)</sup> In Ireland a combination of measures to personal income tax and social security contributions means the top marginal rate has increased to 52% for employees and 55% for the self-employed and applies from a lower threshold. Lastly, Germany increased allowances (basic allowance and allowance for

children) and improved the deductibility of social security contributions.

Only in two Member States has there been a change towards less progressive personal income tax schedules, in 2010 and 2011, with the introduction of a flat tax regime (Hungary) and a marked reduction in the top statutory income tax rate (Denmark). The Hungarian flat tax reform in 2011 brought the highest marginal tax rate down from 32% (36% in 2009) to the 16% flat rate, whereas in Denmark, the 2010 reform lowered the highest marginal tax rate from 63.0% to 56.1%.

This overall tendency towards a steeper progression in personal income tax might reflect the fact that personal income tax is the only tax that is well suited to redistribute consumption possibilities among different income groups, whereas other taxes which increased in response to the need for consolidation tend to be flat or even regressive.

In 2010, for the first time in several years, the EU-27 average top personal income tax rate rose, but decreased again slightly in 2011, mainly as a result of the Hungarian reform. Table A1.4 in Annex 1 presents the statutory top personal income tax rates since 1995.

In Austria, a dual income tax system was implemented in 2011, taxing capital gains of financial assets — together with income from interests, dividends, etc. — by a withholding tax of 25% independent of the holding period. Also, Portugal introduced a new flat tax on capital gains, which are now also taxed independently of the holding period, and Romania broadened the personal income tax base to include incomes from capital gains and interests on bank deposits. Several countries also introduced measures to broaden the tax base, often by reducing tax expenditure items. In Denmark, the reduction of statutory rates was partly financed by a broadening of the personal income tax base itself through reductions in the deductibility of work related expenses and interest payments. France replaced the tax deductibility of mortgage interest payments with more targeted subsidised loan schemes in 2010. In Spain, the housing investment deduction in personal income tax was removed for incomes above €24 170.2 in order to reduce the bias towards investment in owner occupied housing. In

<sup>(28)</sup> Furthermore, the United Kingdom has introduced an income ceiling of £100 000 for receiving the basic allowance from April 2011.

<sup>(29)</sup> Latvia increased the top rate from 23% to 26% in 2010 but lowered the rate slightly to 25% in 2011.

the Netherlands, a new top bracket was introduced in the imputed income for owner-occupied housing, increasing the imputed income for the part of the value in excess of €1 million from 0.55% in 2009 to 1.05% in 2011, bringing it closer to the 4% imputed income that applies to other assets. Significant broadening of the personal income tax base was also seen in Latvia. In Italy, a lower proportional tax rate of between 19-21% was introduced on rental income from buildings for residential purposes, replacing the inclusion of 85% of the rental income in the personal income tax base (with a marginal tax rate of around 30% on average).

### Corporate Income Tax

The strong tendency towards lowering the statutory tax rates across the EU has continued, albeit at a slower pace, as most Member States have left corporate income tax rates broadly unchanged.

However, some Member States have made substantial changes. The majority of reforms have led to a decrease in corporate income taxation. Reductions of the statutory rate have taken place as follows in 2010-2011: Hungary introduced a lower rate of 10%, applicable up to HUF 250 million of the tax base in 2011, which will gradually become the top statutory rate from 2013 (replacing the current 19%-rate); Lithuania cut the rate to 15% in 2010 after having increased it from 15% to 20% in 2009. The United Kingdom reduced both corporate income tax rates by 1 percentage point to 27% and 20% respectively, and announced a further decrease in the standard rate by 1 percentage point per year until it reaches 24%; in Greece, the statutory rate is reduced from 25% in 2009, to 24% in 2010 and to 20% for income earned as of 2011. Greece introduced a temporary special contribution for enterprises with a net income above €100 000 in 2009 and beyond. Portugal was the only country to increase the statutory corporate income tax rate, introducing an additional state corporate income tax (IRC) of 2.5% on taxable profits exceeding €2 million. Table A1.4 in Annex 1 provides an overview of the statutory top corporate income tax rates in 2011 compared to previous years.

Some Member States which reduced the tax burden on corporate profits did so by narrowing

the tax base rather than reducing general tax rates (or both, as in the case of Lithuania and the Netherlands). In Germany, the corporate income tax base was reduced by means of a (temporary) increase in depreciation allowances, which has the same economic effect on the marginal tax rate on investment as a decrease in the statutory rate. Other countries introduced special credits for R&D investment (Belgium) or a reduction in taxable profits for firms carrying out investments in certain assets (Lithuania).

In France, the local business tax (taxe professionnelle) has been replaced by a new 'economic territorial contribution' (contribution économique territoriale) as of 2010. The tax is no longer based on the annual value of commercial and industrial equipment, but on the annual rental value of immovable property (cotisation locale d'activité). The tax also consists of a new tax of 1.5% on the added value of the business which applies to taxpayers with a turnover exceeding €152 500 and allowances depending on the amount of turnover (cotisation complémentaire).

Over the last decade or so, the broadening of the corporate income tax base and reduction of tax expenditures has often been one of the sources of financing the general reduction of the statutory corporate income tax rates seen across the EU. However, this has not been the case in 2010 and 2011. On the contrary, several Member States have also introduced new special tax provisions favouring particular sectors. France, Spain and the Netherlands have expanded preferential tax schemes for small and medium sized enterprises (SMEs). For a discussion on the effect of reduced corporate tax rates for small and medium sized enterprises, see sub-section 2.1 in Chapter 5.

### 3.2.2. SOCIAL SECURITY CONTRIBUTIONS

Social security contributions have remained virtually unchanged in the majority of Member States through 2010 and 2011, except for the usual adjustments of contribution thresholds etc.

Where changes have been made, they were mainly in the form of increases. Most often, the increase was achieved by amendments to the base rather than by raising the rates. Standard rates were only

increased in Ireland and Latvia.<sup>(30)</sup> In the Czech Republic and Ireland, social security contributions were increased for high income earners by means of an increase in the contribution ceilings. In most of the Member States where social security contributions were increased, this measure played a major role in increasing tax revenues.

The exceptions were Hungary and Bulgaria (primarily a temporary measure in 2010), which have reduced contribution rates significantly in order to save jobs. Lithuania has introduced a relief in the employer social security contribution for first time employees in order to address the increase in youth unemployment.

Some Member States (e.g. Hungary and Poland) have opted to reallocate social security contributions accruing to pension insurance schemes outside the public sector to the central government budget.

### 3.2.3. INDIRECT TAXATION

#### VAT

A remarkably high proportion of Member States raised the VAT standard rate in 2010 or 2011, in several cases by a considerable amount. Hungary and Romania increased the standard VAT rate by 5 percentage points from 20% to 25% and from 19% to 24% respectively. Greece increased the standard VAT rate in two stages by 4 percentage points overall from 19% to 23%, Portugal increased the standard VAT in two steps by 3 points from 20% to 23%, Spain increased the standard rate from 16% to 18% and, in the United Kingdom, the standard rate was increased from 17.5% to 20%, following the temporary reduction to 15% in 2009. Standard rates also increased in Czech Republic, Finland, Latvia, Poland and Slovakia. At the same time, Greece and Portugal also increased the reduced rates and repealed the exemptions. Moreover, other Member States increased VAT by increasing reduced rates or limiting their scope (notably Cyprus, Latvia and Spain). An exception was Ireland, where the VAT rate was reduced by 0.5 percentage points in 2010

<sup>(30)</sup> In Latvia increase in social security contribution rate was compensated through decreasing personal income tax standard rate and increasing non-taxable-minimum and allowance for dependants.

back to the level of 21% before the steep rise in December 2008.

This development has resulted in a convergence towards the EU maximum standard VAT rate of 25% or close to it. Whereas the average standard VAT rate in EU-27 was 19.8% in 2009, the average in 2011 is 20.7% (see also Table A1.3 in Annex 1). Graph 3.1 shows the convergence of standard VAT rates across Member States from 2009 to 2011.

In Hungary and Denmark, the increase in the statutory VAT rate and the base broadening measures have directly served as an instrument to finance tax reforms for lowering taxes on labour income and the corporate income tax, whereas in other Member States the increases are likely to lead to higher overall tax revenues.

It is interesting to note that several of the Member States which have increased the standard VAT rate — and also some Member States who have not — have extended the use of reduced VAT rates to include additional categories of goods (Belgium, Germany, Hungary, Lithuania and Poland).<sup>(31)</sup> These changes involve a movement away from the economically desirable simple and evasion-robust single rate. In most of these Member States they were justified by distributional concerns (reduced rates on necessities such as food or on merit goods thought to be under consumed).<sup>(32)</sup>

#### Excise duties

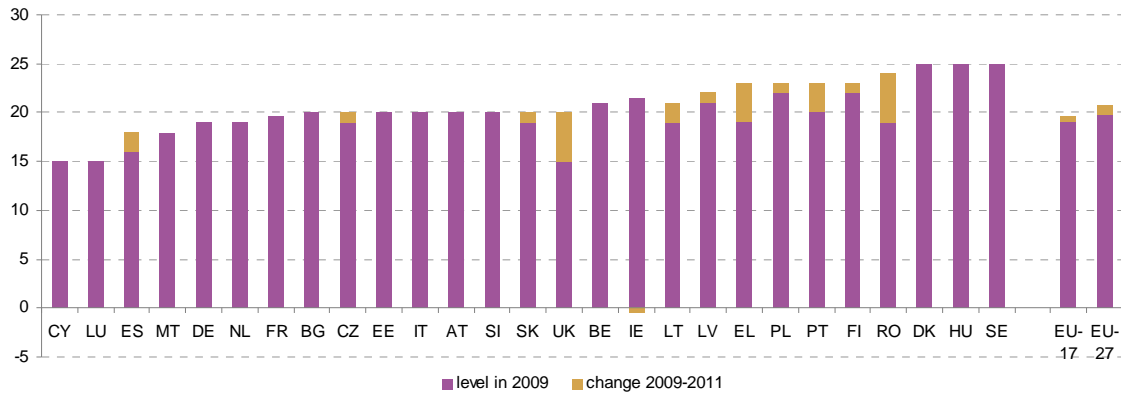
2010 and 2011 saw a significant increase in a large number of excise duty rates in most Member States. In several of the new Member States, excise duties on transport fuels, electricity, tobacco and alcohol have been increased considerably, although in many instances from a low level close to the EU minimum.

Excise duties on energy and other environmental taxes have been increased in a large number of Member States. Germany introduced a tax on

<sup>(31)</sup> In the case of Lithuania, after having increased the standard VAT rate from 19% to 21% as of 1 September 2009.

<sup>(32)</sup> Reduced VAT rates are generally not the most efficient way of redistributing income. For a discussion of the theoretical arguments for reduced VAT rates see Chapter 4, section 4.2.

Graph 3.1: Standard VAT rates in 2009 and changes 2009-2011 in EU Member States



**Note:** Standard VAT rates are recorded on 1 July 2009 and 2011. Lithuania increased VAT from 19 % to 21 % as from 1 September 2009.  
**Source:** Commission services.

nuclear fuel. Austria and Germany introduced a duty on airline tickets for planes leaving from domestic airports. Air passenger duty was also increased in the United Kingdom. In Finland, energy taxation has been restructured to take into account the energy content and CO<sub>2</sub>-emissions of energy products. Ireland introduced a tax on CO<sub>2</sub>-emissions, and Slovakia introduced a tax on ETS quotas allocated free of charge.

Several countries have implemented changes to car taxation. Austria, Belgium, Finland and the Netherlands have increased the CO<sub>2</sub>-incentives in car registration tax. In the case of Belgium and the Netherlands, this has taken the form of a reduction for cars with CO<sub>2</sub> emissions in specific brackets. This leads to the price of selecting a car with marginally larger emissions rising sharply at kink points. Bulgaria abolished its excise duties on cars in 2010. Recurrent taxes on car ownership were changed in Greece, where the road tax on motor vehicles, which is calculated on the basis of the engine capacity and the environmental impact, was increased. In Finland, the annual vehicle taxes were also changed to take the CO<sub>2</sub> emissions of each vehicle into account. Latvia introduced an annual tax on car ownership in 2010.

Excise duties on health related products such as tobacco and alcohol and, in some instances, sugar have been increased in Austria, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, Greece, Latvia, Poland, Romania, Slovakia, Slovenia and Spain. In Denmark, a novel excise duty has been introduced on saturated fats in dairy

products and meat. Finland introduced an excise duty on sweets and ice cream. In Austria, Cyprus, Estonia, Finland and Hungary, increases in excise duties on cigarettes and tobacco in 2010 and 2011 have been relatively steep, whereas increases in excise duties on alcohol were notable in Estonia, Finland and Hungary.

Table 3.2 summarises the tax changes in excise duties across Member States and breaks down the overview from Table 3.1 into two main excise duty categories.

Table 3.2: Excise duty changes in 2010 and 2011

		Statutory rates	Base or special regimes
Energy & Environment	Increase	AT, BG, CZ, CY, DE, DK, EE, EL, FI, FR, IE, HU, LV, MT, RO, SL, SK, UK	DK, IE, IT, LV
	Decrease	AT, BG, SK	BE, NL
Tobacco, Alcohol and Sugar etc.	Increase	AT, BG, CZ, CY, DK, EE, EL, ES, FI, HU, LV, NL, PL, RO, SL, SK	
	Decrease		

**Source:** Commission services.

### 3.2.4. Taxation of real estate property

Few Member States have taken the opportunity of an environment of revenue consolidation to increase recurrent taxes on immovable property. Property taxes have been increased in the Czech Republic, Greece, Portugal and parts of Germany. In the case of the Czech Republic, the property tax rate on land and buildings doubled in 2010, and

only taxes for buildings and non-residential spaces used for other business activity remained unchanged. Greece reintroduced a progressive tax on large properties with rates ranging from 0.1% to 2%, replacing the previous flat tax rate of 1%. In Portugal, real estate tax on specified properties was increased from 1% to 5% in 2011 and a reduced real estate transfer tax for certain properties was revoked. In Latvia, the real estate tax on non-residential land and buildings was increased from 1% to 1.5% of the property value in 2010 and taxation of residential buildings was introduced by progressive rates of 0.1%, 0.2% or 0.3%. There was also a slight increase in housing taxation in the Netherlands, where a progressive element in the imputed income from owner-occupied housing was introduced. In Germany, some states ('Länder') increased the real estate transaction tax in 2010 and 2011. Moreover, many municipalities have increased recurrent real estate taxes. In France, too, local governments increased recurrent real estate taxes (taxe d'habitation and taxe foncière). Hungary introduced a property tax in January 2010 which applied to real estate, water and airborne vehicles, and high powered passenger cars. The tax on real estate as adopted by Parliament was subsequently annulled by the constitutional court, and as a result the property tax was subsequently repealed in full in July 2010.

### 3.2.5. Financial sector taxation

In recent years, the introduction of new taxes on the financial sector has been under discussion in many Member States. The reason for this debate is the role that banks and other financial services companies played in the causes of the crisis, as well as the substantial government support the sector received after the crisis. Furthermore, financial services to final consumers are under-taxed compared to other segments of the economy, as financial activities are generally exempt from VAT.<sup>(33)</sup> Three main types of taxes are being considered: bank levies based on the balance sheet, a financial activities tax (FAT) on the financial sector or a (global) tax on financial transactions (FTT). The European Commission is currently

carrying out an impact assessment of different taxes on the financial sector.

Some Member States have introduced or are planning to introduce new taxes targeted at the financial system. In Austria, Hungary and Portugal, this is implemented in the form of a bank levy based on the balance sheet total (excluding own capital and secured deposits). In the Austrian case, as an additional component of the tax base of the bank levy, 0.013% of the banks' trading volume in derivatives is included. Also, in Cyprus, a levy on the total deposits in banks was introduced and France introduced a levy based on consolidated risk weighted assets. Slovenia plans to introduce a bank levy in 2011 on the assets of the bank. Hungary also implemented a tax on insurance premiums. Denmark increased its financial activity tax (FAT) in 2011, which is a duty on wage and salary costs for businesses engaged in financial services. The rate was raised from effectively 9.13% to 10.5%. In the United Kingdom, specific attention has been paid to financial sector taxation, with the introduction of both a bank levy and a one-off bank payroll tax (i.e. bonus tax) of 50% on bonuses over £25 000 paid by banks and building societies between 9 December 2009 and 5 April 2010. In October 2010, the government also announced that it would examine the pros and cons of introducing a FAT. France also introduced a levy based on consolidated risk weighted assets and a one-off bonus tax. Portugal is the only Member State that has increased VAT and has also introduced or increased the taxation of financial services.<sup>(34)</sup>

### 3.2.6. Tax administration and tax compliance

A number of Member States introduced measures to improve tax collection and combat tax evasion. Bulgaria, Cyprus, Greece, Latvia, Italy, and Slovenia, in particular, decided on a series of measures to increase tax compliance.

In the case of Italy, measures to increase tax compliance have been the main changes made to the tax system over the last two years. Italy has adopted the so-called 'taxometer', a procedure by

<sup>(33)</sup> Financial services provided as inputs to businesses are consequently over-taxed, as the financial institution is not granted credit for VAT on its own inputs. This effect is however of a smaller magnitude.

<sup>(34)</sup> The VAT Directive allows EU Member States the option of taxing financial services and other VAT exempted activities to the extent that this is technically possible.

which a computed level of income based on expenses made by the taxpayer is compared with declared income to detect tax evaders. In addition, the government has introduced a limit on cash payments and an obligation to furnish a tax identification number on purchases above €3 600. Last but not least, the government has stepped up the number of inspections and adopted a number of measures targeting VAT fraud and companies operating in tax havens.

For some of the countries under the economic and financial adjustment programme, improving tax compliance is an important part of a plan to restore financial stability. In Greece, initiatives include the creation of an Attorney-General for economic

crime and more rigorous criminal prosecution, as well as increased penalties and a major reorganisation of the Directorate General for tax audits. In order to reduce tax evasion in the area of VAT, payments above €1 500 have to be made through a bank. See sub-section 2.3 in Chapter 5, where tax governance issues announced by Member States in the NRPs and SCPs are discussed.

Among other measures, Latvia increased the administrative capacities of enforcing agencies, improved the visibility of tax audits, enforced combating of illicit trade, limited the use of cash transfers and set a minimum wage floor for companies participating in public tenders.



Table 3.3: Overview of tax reforms in Member States

### Austria

**Personal income tax decrease.** In 2010, a tax allowance on income of self-employed was introduced.

**Personal income tax increases.** From 2011, capital income tax rates were harmonised at 25 % (also for private trusts) and the holding period after which realised speculative capital gains were tax exempt was abolished. Capital gains on shares, bonds, deposits are now subject to a final 25 % withholding tax. Single earner's allowance is only granted if child support has been received.

**Corporate income tax decreases.** For unincorporated businesses, tax allowances for business profits were increased from 10 % to 13 % from 2010 onwards; however, this was partially offset by the cancellation of the tax-favourable treatment for retained earnings.

**Excise duties increase.** Environmental tax measures cover the introduction of a flight tax, a stronger adjustment of the car registration tax according to the CO<sub>2</sub> emission of the vehicles, and an increase in the mineral oil tax on diesel (+ 5 cents/litre) and petrol (+ 4 cents/litre), whereas commuter allowances were increased by 10 %. The motor vehicle tax for heavy trucks was lowered to the level of international standards. Furthermore, excises on tobacco were increased significantly.

**Other tax increases.** A solidarity bank levy based on the total balance sheet (excluding own capital and secured deposits) was introduced, with rates ranging from 0 % for banks' balance sheets of up to €1 billion, 0.055 % for balance sheets up to €20 billion and 0.085 % above that figure. Trading with derivatives will be taxed at 0.013 % of their volume.

### Belgium

**Personal income tax increases.** The number of overtime hours which qualify for reduced wage withholding tax was increased from 65 hours to 100 hours in 2009 and to 130 hours in 2010.

**Corporate income tax decreases.** The cap on the rate of the notional interest deduction was temporarily lowered from 6.5 % to 3.8 % in 2010 and 2011. This means that the actual ACE rate drops from 4.473 % in 2009 to 3.8 % (4.3 % for SMEs) in 2010 and 2011. As of January 2011, several incentives were introduced for entrepreneurs and companies. Lastly, several anti-abuse measures were introduced. A measure to carry over surpluses of dividends from subsidiaries under the participation exemption regime (PE) has recently been taken as a result of a decision of the European Court of Justice (Cobelfret judgment).

**VAT decrease.** The VAT rate for food served in restaurants and catering services was reduced from 21 % to 12 % from 2010 onwards. The reduced VAT rate of 6 % on renovation works in residential houses and some labour-intensive services has become permanent.

**Excise duties decrease.** Several additional measures aimed at providing incentives for individuals and companies to favour cars with low emission levels. For individuals, a credit (directly on the invoice) of 15 % of the purchase price (up to a maximum of €4270) is granted for cars emitting less than 105g CO<sub>2</sub>/km and 3 % (with a maximum of €800) for cars emitting between 105 and 115g CO<sub>2</sub>/km. For companies, zero-emission cars used for business purposes became deductible at 120 %, while the deduction of fuel costs for cars used for business and private purposes was reduced from 100 % to 75 %.

### Bulgaria

**Personal income tax decrease.** The mortgage interest deduction for dwellings of young families, which was introduced temporarily in 2009, was prolonged and remained effective in 2010.

**Social security contribution decreases.** Social security contributions for the Pension Fund were reduced by 2 percentage points in 2010, but it increased by 1.8 percentage points as of 2011. As of 1 January 2010, the minimum monthly amount of self-employed insurance income on which contributions have to be paid was increased from BGN 260 (around €133) to BGN 420 (€215) in order to limit the grey economy.

**VAT increase.** The reduced VAT rate on organised tourism services was raised as of 2011.

**Excise duties decrease.** Excise duties on cars were abolished in 2010.

**Excise duties increase.** In 2010, excise duties on electricity (for industrial needs), coal and cigarettes were increased. The excise duties on cigarettes were set at a rate that was almost 20 % above the EU required minima. The tax rate on the gross proceeds from gambling was raised from 10 % to 15 %. As of 2011, a tax on insurance premiums was introduced. There were further increases in excise duties in 2011.

### Czech Republic

**Personal income tax increase.** The lump-sum deductions that entrepreneurs can claim instead of actual expenses are reduced for certain categories of tax-payers from 60 % to 40 % of income.

**Corporate income tax decrease.** In accordance with the approved legislation there was a further gradual reduction in corporate income tax to 19 % in 2010.

**Social security contribution increases.** In 2010, the social security contribution for high income earners was increased by raising the ceiling on the annual security contributions base to six times the average annual salary (the previous figure was 4 times).

**VAT increase.** The VAT rates were increased by 1 percentage point from 1 January 2010 to 20 % for the standard rate and 10 % for the reduced rate.

**Excise duties increase.** Several excise duties were increased slightly in 2010 (alcohol, tobacco products, mineral oils and fuels).

**Other tax increases:** The property tax rate was doubled, including the tax on land and buildings; only taxes for buildings and non-residential spaces used for other business activity were unchanged.

### Cyprus

**VAT increase.** A 5 % reduced VAT-rate is applied on food and medicines from 10 January 2011. Previously these commodities were VAT exempt. (0.4 % GDP)

**Excise duties increase.** The tax on fuel products was raised to EU minimum levels in 2010. The tax on tobacco was increased by 20 % for cigarettes and 30 % for loose tobacco in 2011 (0.2 % GDP).

(Continued on the next page)

Table (continued)

**Other tax increases.** The 2010 budget included measures to improve the public finances, targeting tax evasion in particular. VAT collection periods were shortened. From 2011, a bank levy was introduced. The levy is computed as 0.095% of deposits held at banks on 31 December each year with a maximum of 20% of the total taxable profits of the financial institution.

#### Denmark

**Personal income tax decreases.** A major tax reform was introduced in 2010 (the Spring Package 2.0). Reduction of the rate of the bottom tax bracket from 5.26% to 3.76%, abolition of the medium tax bracket with the 6% rate altogether, and increase in the top tax bracket threshold by DKK 28 800 (€3 860). The top tax threshold was to be further increased by DKK in 2011. The reform reduced the lowest marginal tax rate from 42.4% to 41.0% and the highest marginal tax rate from 63.0% to 56.1% (Overall by DKK 29 billion in 2010). To compensate for the increases in excise duties, a 'green check' of DKK 1 300 (€ 175) was introduced for everyone above 18 years and DKK 300 per child for up to two children. The nominally fixed 'green check' is being rapidly phased out for incomes above DKK 360 000 (€48 300). Broadening of the tax base is a main source of finance for the reform. The measures include a gradual reduction of the tax value during the period 2012 to 2019 from 33.5% to 25.5% of assessment oriented deductions and limitations of the tax deductibility of net interest payments over a nominal threshold of DKK 50 000 (DKK 100 000 for married couples). Also the deductibility of payments above DKK 100 000 a year to individual pension insurance schemes with less than lifelong coverage is limited, and the tax treatment of company cars and other fringe benefits have been tightened. As of 1 June 2011, Denmark has introduced a temporary deduction for wage expenses for household services and refurbishment.

**Personal income tax increases.** A Fiscal Consolidation Agreement was reached in May 2010, including a number of tax measures from 2011: Suspension from 2011 to 2013 of automatic adjustments in various tax thresholds (including personal allowances). Postponement of the planned increase from the Spring Package 2.0 of the threshold for the top income tax rate from 2011 to 2014. The tax deductibility of labour union membership fees is limited to DKK 3 000 (€403) from 2011. The annual amount of total child allowance is limited to DKK 35 000 (€4 696) and child allowances will be gradually reduced by 5% until 2013.

Furthermore, a 6% tax is imposed from 2011 on pension payments exceeding DKK 362 800 (part of the Spring Package).

**VAT increase.** VAT exemptions removed for travel agencies, property management and the supply of buildings and building land (DKK 1.2 billion in 2011).

**Excise duties increase.** The 2010-reform is partly financed by higher taxes on energy (15% increase except for petrol and diesel) and transport and environmental taxes and also by increases of excise rates on health-related goods (fat, candy, sugary drinks, tobacco). (Overall DKK 8.7 billion (€1.2 billion) in 2011).

**Other tax increases.** As of 2011, increase in FAT, a duty on wage and salary costs for businesses engaged in financial services, from effectively 9.13% to 10.5%.

#### Estonia

**Personal income tax increases.** Additional basic allowance for the first child and right to deduct trade union membership fees and interest on study loans in income taxation was abolished in 2010. The long-term plan to cut the income tax rate by 1 percentage point annually has been frozen. Also, the basic allowance will remain at EEK 27 000 (€1 726).

**Excise duties increases.** Increase in the excise duty on fuel, tobacco and alcohol by 5 – 64% and the excise duty on electricity by 40% (overall 0.8% of GDP in 2010). In 2011, excise duty on tobacco was further increased by 10%.

#### France

**Personal income tax increases.** As from January 2010, the overall amount of tax incentives (*niches fiscales*) that a taxpayer may obtain during a fiscal year for individual income tax purposes has been capped at the level of the household (*foyer fiscal*) at €20 000 plus 8% of the taxable income. From 1 January 2010, capital gains realised by individuals on the disposal of shares are fully subject to social security contributions at an overall rate of 12.1%. On 20 January 2010, the government tabled an amending Finance Law 2010 before the French Parliament providing for a tax of 50% on bonuses exceeding €27 500 paid in 2009 by financial institutions to their traders. As from 2011, the highest marginal income tax rate was increased from 40 to 41%; taxes on capital income and gains were also raised by one point.

**Corporate income tax changes.** Since 1 January 2010, the local business tax (*taxe professionnelle*) levied on firms to finance local governments has been replaced by a new 'economic territorial contribution' (*contribution économique territoriale*). The tax is no longer based on the annual value of commercial and industrial equipment, but on the annual rental value of immovable property (*cotisation locale d'activité*). The tax also consists of a new tax of 1.5% on the added value of the business applicable to taxpayers with a turnover exceeding €152 500 and allowances depending on the amount of the turnover (*cotisation complémentaire*). In addition, a special tax on the capital stock of network industries was introduced. Overall reduction in tax burden by 0.5% of GDP in 2010 and by 0.2% thereafter. Since 2009, under certain conditions, capital invested in SMEs gives rise to a tax credit of 25% for individual income tax purposes. This favourable regime is extended by the Finance Law 2010.

**VAT increase.**

As from 1 January 2011 the standard rate is applied on the so-called 'triple play' services (€1.1 billion). The reduced VAT on air conditioning equipment was abolished with effect from 1 January 2010.

**Excise duties increases.** As of 2011, regions have been offered the possibility to raise the diesel fuel tax (*TIPP*) up to 1.35 euro per hectolitre (instead of 1.15 previously), with the new resources being dedicated to financing sustainable transport infrastructures. 17 out of 22 regions have increased the diesel fuel tax up to the new ceiling.

**Other tax increases.** A bank levy of 0.25% of the minimum capital required under French regulatory rules, as computed on the basis of risk-weighted assets, was introduced as of 2011 (€500 million in 2011). On average, local governments have increased housing taxes (*taxe d'habitation and taxe foncière*).

(Continued on the next page)

Table (continued)

### Finland

**Personal income tax decreases.** The income tax rate was reduced by 0.5 p.p. across the four income brackets in 2010. The employment income deduction as well as the basic allowance for the municipal taxation was increased in order to lower the tax burden for low-income earners. The taxation of pension income was reduced in parallel. Generally, the aim of these measures is to compensate for increased employee social security contributions, the impact of a higher income level due to progressivity and likely increases in the municipal tax rates.

**VAT changes.** Adjustments were made in the VAT system from 1 July 2010. The 12% reduced rate of VAT for food was broadened to include restaurants. To finance this change, a general increase of the reduced VAT rates from 12% to 13% and from 8% to 9% for newspapers, books, medicines and labour-intensive services was introduced. The standard VAT rate was increased from 22% to 23% as of 2011.

**Excise duties increase.** Excise duties on tobacco products were raised by 5-15% in 2010. In 2011, the energy taxation has been restructured and increased. A tax on sweets and ice cream was introduced from 1 January 2011 at a rate of 0.75ct per kg. The existing tax on soft drinks was raised at the same time to 0.75ct (from 0.45ct) per litre. A minor shift in the green tax has been applied, as taxes on fuel used for heat and power production as well as the energy tax on electricity were raised to offset the loss of revenue due to the abolition of the national pension contribution in 2010. Car registration tax and annual vehicle taxes have been changed from 2011 to take the CO<sub>2</sub> emissions of each vehicle into account.

### Germany

**Personal income tax decreases.** Following the reduction in the lowest personal income tax rate from 15% to 14% in 2009, the personal income tax allowance and thresholds were increased for a second time as of 1 January 2010 (following the 2009 increase). The tax allowance for children was also increased for a second consecutive time (to €7008 as of 2010, from €6024 in 2009, previously €5808). Since 2010, the deductibility of payments for health and nursing care insurance has been improved. These costs are now fully deductible (0.4% of GDP).

**Corporate income tax decreases.** The application of the so-called interest barrier rule (*Zinsschranke*) was relaxed (the interest barrier rule sets a profit-based limit on the deduction of interest expenses if net interest expenses exceed a certain ceiling; the ceiling was raised from €1 million to €3 million). The depreciation allowance for low-value assets was improved in 2010.

**VAT decrease.** The reduced 7% VAT rate is now also applied to short-term accommodation.

**Excise duties increase.** A tax on nuclear fuel (*Kernbrennstoffsteuergesetz*) is introduced as of 2011 (annual tax revenues of €2.3 billion over the period 2011-2016). Introduction of a duty on all airline tickets booked after 1 September 2010 levied for flights departing from Germany. Rates depend on the flight distance (€8 for short distance flights, €25 for medium distance flights and €45 for long distance flights).

### Greece

The economic adjustment programme (European Commission, 2010i) agreed between Greece, the European Commission, the ECB and the IMF has led to a series of tax changes. The majority of the reforms were aimed at increasing overall tax revenues. Overall, tax measures amount to 4% of GDP.

**Personal income tax increases.** Introduction of a new unified progressive taxation scheme with nine brackets (instead of four) in 2010, with a 45% top rate (above €100000, replacing previous 40% top rate. The differential treatment of sources other than employment income and pensions was eliminated. The tax increases gradually from €1000 to €25000 for income above €900000. Bonuses to business executives in the financial sector were subject to a special progressive levy in 2010 (between 20% and 90%). In 2010, a 1% extraordinary one-time contribution was applied on the income of individuals above €100000 for 2009. The tax treatment of company cars was changed so that the use and maintenance of company cars with an ex-factory value of above €17000 is taxed as salary income. Greece also introduced 'presumptive taxation'. This means that, depending on the ownership of certain 'luxury' goods (major houses, cars, leisure boats, private planes etc.), a minimum taxable amount is determined by the tax authorities according to certain objective criteria. The taxable person can challenge this 'presumption' in certain cases (e.g. unemployment).

**Corporate income tax decreases.** The statutory corporate income tax rate was reduced from 25% applicable to income earned in 2009, to 24% applicable to income earned in 2010. In March 2011, a new tax law reduced the CIT rate to 20% for income earned in 2011 and later years. Profits distributed by corporations, limited liability companies and cooperatives will be subject to a withholding tax rate of 25% as of the financial year 2012 (for profits distributed in 2011 and later years). A 21% withholding tax was applied to profits distributed in 2010 in the financial year 2011. If the beneficiary of the respective income is a natural person subject to a lower tax rate for his/her taxable income, the dividends shall be taxed according to the general provisions and the credited balance shall be reimbursed. Otherwise, the tax liability shall be exhausted with the withholding tax. The split system of retained and distributed profits introduced in April 2010 was abandoned in March 2011.

**Corporate income tax increases.** A special, one-time contribution was imposed at progressive rates on all enterprises, except sole proprietorships, whose net income for the fiscal year 2010 exceeds €100000. The application was recently extended up to 2014. The rate for partnerships was increased from 20% to 25%.

**VAT increase:** VAT rates were subject to several increases. The standard VAT rate was raised from 19% to 21% and subsequently to 23%. The reduced rate and the former super-reduced rate went up in three steps from 9% to 13% and from 4.5 to 6.5% respectively. Changes in the application of the rates to different commodities were implemented with a view to broadening the tax base. Moreover, VAT exemptions of several categories of professionals were repealed. A special tax on luxury goods was introduced in 2010.

**Excise duties increase.** The road tax on motor vehicles was increased (to up to €300), calculated on the basis of the engine capacity and the environmental impact. An additional road tax (ranging from €350 to €650) is collected on high capacity private vehicles and motorcycles. Taxes on mobile telephones as well as excise duties on fuel were increased, and excise duties on electricity were introduced. Excise duties on cigarettes and alcohol were also raised.

(Continued on the next page)

Table (continued)

**Other tax increases.** Greece reintroduced a progressive tax on large property to replace the previous flat-rate tax of 1%. Rates range from 0.1% to 1% for individuals, whereas for legal entities a 0.6% flat rate applies. The 1% top rate applicable above €800 000 was increased to 2% for property values above €5 million for a period of three years. As a base broadening measure, church property not used for religious, education and charitable purposes is now included in the base. A special levy on high-value real estate was raised. The progressivity of the taxation of inheritances, gifts and parental provisions was increased. The new system has four brackets, ranging from 0% to 10% (above €600 000) for close relatives and from 0% to 20% (above €300 000) for other relatives. Greece has recently implemented a series of measures to increase tax compliance. Among others, criminal penalties were increased, the bank secrecy was lifted for high overdue debts to the state, a high-level tax evasion committee was established, a public prosecutor of economic crime introduced, a new tax arbitrage regime was provided for big tax cases and tax audits were restructured. In order to reduce tax evasion, particularly in the area of VAT, new rules for the issuing of invoices in electronic form were adopted. Payments above €1 500 have to be made via the banks.

### Hungary

**Personal income tax decreases.** As part of the 2009/10 tax reform, income tax rates were reduced and thresholds increased across the board. The additional solidarity tax of 4% on the highest income bracket was abolished. The tax base was broadened by the abolition of allowances. A flat personal income tax of 16% was introduced in January 2011, applicable to income from wages, rental and capital. The inclusion of the employer's social security contribution in the tax base will remain in 2011, but it will be reduced by half in 2012 and phased out completely by 2013. The income thresholds for the employment tax credit will be reduced in 2011. Substantial tax credits for families with children have also been introduced; these are particularly favourable for families with 3 or more children (HUF 1 000/child/month for 1-2 children, families with 3 or more HUF 33 000/child/month). (Overall -1.8% of GDP in 2011).

**Corporate income tax decreases.** In 2010, an increase in the rate from 16% to 19% was accompanied by a broadening of the tax base. A lower rate of 10% was introduced as being generally applicable up to HUF 250 million of the tax base, and thereafter it is 19%. The solidarity tax of 4% was simultaneously abolished, which actually reduced the overall rate by 1 percentage point. From 2011-13, a flat rate of 10% will be levied on the entire tax base. Moreover, the taxes on certain economic sectors will be deductible from the corporate income tax base. The overall total gross revenue impact is estimated at -0.7% of GDP.

**Social security contribution decreases.** As part of the 2009/10 tax reform the employers' social security contributions were reduced by 5 percentage points and the employee's flat rate health contribution was abolished.

**VAT increase.** The reduction of taxes on labour in 2009/10 was financed primarily through an increase in the statutory VAT rate from 20% to 25%. Simultaneously, a new reduced VAT rate of 18% was introduced for dairy and bakery products, which was later extended to district heating and accommodation services.

**Excise duties increase.** Excise duties on motor fuels, alcohol and tobacco were also raised in January 2010 (by between 7.5% and 10%), following the July 2009 increase (by 5% to 7%).

**Other increases.** Several levies on major sectors of the economy have been introduced to finance the 2011 reform. A levy on financial institutions was introduced in June 2010, retroactive from January. The modified balance sheet comprises the tax base of credit institutions, and a progressive tax rate of 0.15% is applied up to 50 billion HUF; thereafter the rate is 0.5% on the excessive amount. Insurance companies are taxed on their premiums at a rate of 6.2%. Various rules apply to the other different types of institutions in the financial sector. The gross revenue of this tax is estimated to correspond to 0.7% of GDP. In October 2010, this tax was accompanied by the introduction of additional levies on the retail, telecoms and energy sectors (0.6% GDP). The tax base is the company's net revenue from the listed activities. Progressive rates are applied for the retail and telecom sectors, while the tax on energy suppliers is a flat rate of 1.05%. The total gross fiscal impact of these measures, including the extraordinary levy on financial institutions, amounts to 1.3% of GDP. According to the adopted law, most of these taxes are to be phased out from 2013. In addition, a special temporary tax on energy suppliers introduced in 2009 for a two-year period, i.e. the 8% on pre-tax profits, has now also been prolonged. As an additional means of funding, the government has also decided to allocate the full social security contribution revenue to the state budget during the next 14 months. Private pension fund members are also provided with strong incentives to transfer their funds back to the public pension fund.

### Ireland

**Personal income tax increases.** The biggest contribution to the consolidation in 2011 in terms of revenue comes from income tax with more than €1.2 billion, mainly through the reduction of tax credits (€435 million) and changes in the rate band (€395 million).

**Social security contribution increases.** With regard to pensions, both employee's and employer's contributions have been increased, leading to higher revenue of €40 million for each group. The pay related social insurance ceiling of €75 036 was abolished. Both the income levy and the health levy (also known as the health contribution) have been replaced by the Universal Social Charge (USC) since 1 January 2011. The USC is zero for income below €4 004, 2% for income up to €10 036, 4% from €10 037 to €16 016 and 7% for income above the latter amount. For 2011, the change to USC is revenue neutral. The estimated additional annual revenue of the USC is €420 million in the future.

**VAT decrease.** The VAT rate was reduced by 0.5 percentage points to 21% in 2010, bringing it back to the pre-December 2008 level (annually € -167 million).

**Excise duties increase.** The carbon tax introduced in December 2009 was extended in scope in May 2010 (annually €330 million, incl. VAT). The Mineral Oil Tax on Petrol and Auto-Diesel was increased by 4 cent and by 2 cent respectively in 2011 (€106 million).

### Italy

**Personal income tax decreases.** Changes to the municipal fiscal system were enacted in 2011 (Law n. 42/2009). Among other things this involves: i) Taxing rental income from buildings for residential purposes at a separate, flat rate of 19-21%, rather than including it in the personal income tax base (average rates around 30%) with around 20% of the revenue accruing to municipalities; ii) Allowing an additional income tax (between 0.2% and 0.4%) to be levied by town councils rather than by central government.

(Continued on the next page)

Table (continued)

**Excise duties increase.** Imposing of tolls on some motorways that were previously free of charge.

**Other increases.** Changes to the municipal fiscal system enacted in 2011 also involve: iii) Introduction of a new tax on residential property to be levied by town councils on people owning second homes in the town and iv) allowing town councils to keep up to 50% of revenue collected by measures against tax evasion on their territory.

Additional revenues are expected by 2012 from enhanced measures to combat tax evasion. The new measures adopted against tax evasion include: i) Mandatory use of electronic invoices for amounts above € 3000 (0.05% of GDP by 2012); ii) Introduction of new benchmarks to check tax self-assessments of self-employed people (0.05% of GDP by 2012); iii) Firms persistently reporting losses will be more closely inspected (0.05% of GDP by 2012); iv) Banks must withhold 10% of customers' specific payments for house renovation works that benefit from tax incentives (0.05% of GDP by 2010); v) Streamlining of procedures to collect unpaid tax dues (0.1% of GDP by 2012); vi) Tax compensation will no longer be allowed if there are tax arrears (0.1% of GDP by 2012); vii) Introduction of an administrative filter for claims of VAT refunds above €10,000 and viii) Improved selection of taxpayers for audits on the basis of risk analysis, improved targeting of investigations.

#### Latvia

**Personal income tax increases.** Increase of the general rate from 23% to 26% in 2010 (0.8% of GDP). Taxation of fringe benefits (e.g. company cars) in 2010 (0.3% of GDP). Broadening of the base to include all capital income, dividends and interests (0.2% of GDP) in 2010. Taxation of employer's gifts by eliminating the exemption (0.2% of GDP). In 2011, the general personal income tax rate was slightly lowered again to 25%. Also, non-taxable-minimum and allowance for dependants was increased in 2011.

**Social security contribution increases.** The social security contribution rate was increased by 2 percentage points as of January 2011 to compensate for the lowering of the general personal income tax rate.

**VAT increase.** From January 2011, the general VAT rate was increased by 1 percentage point to 22% and the reduced rate by 2 percentage points to 12%. The reduced rate on electricity has been abolished, thereby increasing the rate from 10% to 22%. (In 2009, the standard VAT rate had been increased from 18% to 21% and the reduced rate from 5% to 10%).

**Excise duties increase.** Introduction of an annual fee for cars and motorcycles (0.2% of GDP) in 2010. Further increasing taxes on luxury cars and motorcycles with powerful engines in 2011. Abolishing the reduced excise duty rate for oils with 5% biofuel admixture. Excise duties on tobacco and alcohol were increased in both 2010 and 2011.

**Other tax increases.** From January 2010 the real estate tax on non-residential land and buildings was increased from 1% to 1.5% of the property value, while the tax base was widened by adding engineering constructions and non-cultivated agricultural land (0.2% of GDP). Latvia also introduced taxation of residential buildings by applying a progressive rate of 0.1%, 0.2% or 0.3% based on the property value (0.1% of GDP). Measures against tax evasion included an increase in the administrative capacities of enforcing agencies, improved visibility of tax audits, enforced combating of illicit trade, a limit on the use of cash transfers and a minimum wage floor for companies participating in public tenders.

#### Lithuania

**Personal income tax decreases.** The tax rate on income of self-employed persons was reduced from 15% to 5% and is applied on profits derived from individuals' business activities, such as production (agriculture included), trade or various services.

**Corporate income tax decreases.** The corporate income tax rate was cut back to 15% in 2010 after having been increased from 15% to 20% in 2009. Withholding taxes on dividends were also cut from 20% to 15%. The special small companies' rate was cut from 13% to 5% in 2010. From 2009 to 2013, a reduction of up to 50% in taxable profit, subject to conditions, has been granted to firms acquiring assets such as plant and machinery, structures, ICT equipment, and rights on intangible assets. A 10% reduced rate for agricultural income (below certain limits) was introduced in 2010, instead of more favourable special treatment for agricultural income. The rate went up to the general level of 15% in 2011.

**Social security contribution decreases.** On 1 August 2010, relief from social security contributions for first-time employees was introduced.

**VAT decreases.** The 9% reduced VAT rate was extended to include accommodation at hotels and other special accommodation services as of 2011. The reduced rates of 5% (medicine) and 9% (books and non-periodical publications and residential heating) were made temporary as part of the general VAT increase in 2009. They have been prolonged until 31 December 2011 with the reduced rate for books and non-periodical publications made permanent again.

#### Luxembourg

**Personal income tax increases.** As of January 2011, the top income tax rate is increased from 38% to 39%. In addition, the surcharge for the employment fund (solidarity tax) is increased from 2.5% to 4% for income up to €150,000 and to 6% for income above €150,000. A temporary crisis tax amounting to 0.8% levied on total income except minimum wage salaries was introduced for the years 2011 and 2012. As a result, the aggregate top personal income tax rate has increased from 38.95% to 42.14%.

**Corporate income tax increases.** On 1 February 2010 a self-assessment system for corporate taxation entered into force. The surcharge has been increased from 4% to 5% for contributing to unemployment social security, which results in a combined tax rate for Luxembourg of 28.8%, instead of 28.59%. The 2011 tax plan also introduced a minimum fixed corporate income tax of €1,500 per year levied on entities subject to corporate income tax whose financial assets exceed 90% of total assets and which are not subject to a business licence or controlled by a supervisory authority. The tax credit for investments was increased and additional measures (e.g. specific depreciation provisions) have been introduced to promote energy saving and to protect the environment. The tax plan 2011 imposes restrictions on the deductibility of departure indemnities granted to employees.

**Other increases.** The annual subscription tax (*taxe d'abonnement*) of 0.05% was abolished for exchange traded funds as of January 2011.

(Continued on the next page)

Table (continued)

### Malta

**Excise duties decrease.** The levy on credit cards (€ 16.31) was abolished in 2010.

**Excise duties increase.** As of 2010 a registration tax is levied on Euro 3 and lower-standard commercial vehicles.

### The Netherlands

**Personal income tax increases.** As of January 2011, the tax rate in the first bracket of personal income tax and wages tax is reduced from 2.30% to 1.85% (from 2012, the rate will be 2.00%). A new top bracket was introduced in the imputed income for owner-occupied housing, increasing the imputed income from 0.55% to 0.8% for the part of the value that exceeds € 1010000 in 2010. In 2011, the imputed value was further increased to 1.05 of the value that exceeds € 1 020000. The top imputed value will increase to 2.35% by 2016. The tax plan 2011 increased the exemption for business succession, introduced in 2010, from 75% to 100% for businesses with a maximum value up to € 1 006 000, and to 83% for the excess. For the tax due, a 10 year tax deferral is granted.

**Corporate income tax increases.** As of January 2010, the 'patents box' scheme was turned into an 'innovation box' for innovative entrepreneurs: income derived from R&D is taxed at a rate of 5% instead of 10%, and the ceilings were abolished. Furthermore, a 3-year carry-back period was introduced for losses incurred in 2009 and 2010. As of January 2011, the corporate income tax rate is reduced to 25% from 25.5% for profits above € 200000. The 2011 tax plan reduced the environment investment deduction from 15% to 13.5%, 30% to 27% and 40% to 36%, depending on the type of investment. As part of an extra crisis package, the rates of the environment investment deduction had been increased temporarily from 15%, 30% and 40% to 35%, 50% and 60% from July 2009 until December 2010. As of 1 January 2010, the profit exemption for SMEs, granted under the tax plan 2009, was raised from 10.5% to 12%. The minimum criterion for spending time on the business was dropped, making it more attractive to carry on a business alongside salaried employment. To foster business growth, the small-scale investment tax credit (KIA) was substantially increased. An exemption for investment in SMEs was introduced in Box 2 of the personal income tax.

**VAT decrease.** The tax plan 2011 introduced a temporary reduction in the VAT rate from 19% to 6% on labour used in the renovation of dwellings older than 2 years until 1 July 2011.

**Excise duties increase.** Excise duties on cigarettes and tobacco were increased as of 1 March 2011. The increase amounts to € 11.68 per 1 000 cigarettes. Highly fuel-efficient cars are no longer subject to motor vehicle taxation (since 2009 based on CO2 emissions) and, as of January 2010, they benefit from a € 500 (€ 750 in 2010) reduction of car purchase tax.

### Poland

**Social security contribution increases.** A reform of the pension system scheme aimed at preventing public debt from rising to excessive levels entered into force in April 2011. The intention is to progressively reduce transfers to privately managed pension funds from 7.3% to 2.3% of workers' salaries and redirect the 5% into the public old-age pension system. This will not change the effective tax burden on either the employees or the employers.

**VAT increase.** A series of measures in the VAT area came into force in 2011. The VAT rates were temporarily increased (for the years 2011-13) by 1 percentage point, from 7% to 8% and from 22% to 23%. At the same time, a new reduced rate of 5% was introduced for, amongst others, basic foodstuffs. The plan is that if this increase in VAT rates does not help to reduce the public debt, there will be two further such rises, each of 1 percentage point, in the years to come.

**Excise duties increase.** On 1 January 2011, excise duty on tobacco was increased by 4% (PLN 220m (€55m)). Further increases in the excise duty rates on tobacco products by 4% a year in 2012 and 2013 are being considered. In line with the Energy Directive, as of 2012 the excise tax will also apply to coal and coke, which has so far been exempted.

### Portugal

**Personal income tax increases.** As part of the consolidation measures, the personal income taxation (*IRS*) rates were increased by 1 percentage point up to the 3rd bracket and by 1.5 percentage points as of the 4th bracket from 1 July 2010. Also, as of 1 July 2010, a new top tax bracket of 45.88% for income above € 150000 was introduced, which is applicable to the whole of 2010. The withholding tax rates were also increased by 1.5 percentage points. A new 20% tax rate applies to capital gains exceeding € 500 annually derived as from 1 January 2010 and without the previous distinction of the holding period. As of 2011, expense related tax credits were somewhat reduced in personal income tax by imposing an overall ceiling for the two highest income tax brackets.

**Corporate income tax increases.** Portugal introduced an additional state corporate income tax (*IRC*) of 2.5 percentage points to taxable profits exceeding € 2 million as of July 2010. The 2011 budget includes several changes for corporate income tax, such as an increase in the minimum corporate income tax assessed, as compared to the amount that would have been assessed in the absence of tax benefits and special regimes.

**Social security contribution increases.** The contribution rates of workers to the civil servants security schemes will increase by one percentage point as of 1 January 2011 (thereby aligning this rate with the contribution rate for the general social security scheme).

**VAT increase.** The standard, intermediate and reduced VAT rates were increased by one percentage point to 21%, 13% and 6%, respectively as of July 2010 (0.3% of GDP in 2010 and 0.7% in 2011). The 2011 budget included a further increase in the standard VAT rate to 23% as of January 2011. The 2011 budget also included minor changes in the goods and services that should be subject to the reduced rates of 6% and 13%.

(Continued on the next page)

Table (continued)

### Romania

**Personal income tax increases.** Broadening of the personal income tax base to cover incomes from capital gains, including interests on bank deposits, severance payments and lunch vouchers. Any income obtained by individuals after 1 January 2011 ascertained by the tax authorities, for which the source has not been identified, will be taxed at a rate of 16%. The taxable base is adjusted on the basis of the procedures and indirect methods for the reconstitution of revenues or expenses.

**Corporate income tax increases.** The 3% tax rate on gross income obtained by micro-companies (having 1-9 employees and a turnover of less than €100000) is reintroduced as an alternative to the general CIT rate (16%).

**Social security contribution increases.** Equalising the cap of social contributions for both employers and employees. With effect from 1 January 2011, an obligation to pay a health contribution (5.5%) when pension income is higher than €173 (i.e. the contribution will apply to the total pension amount) was introduced.

**VAT increase.** Increase in standard VAT rate from 19% to 24% in July 2010. Rules determining the place of supply for goods and services (and hence the place for VAT taxation) have been fully harmonised with EU Directive 112/2006 and EU Directive 8 / 2008 regarding VAT. Approval of the Code of Tax Procedure, which aims to address VAT fraud, improve management of tax arrears, and increase inspection of the largest taxpayers.

**Excise duties increases.** Excise duties on energy and cigarettes were increased.

**Other tax decreases.** Incomes obtained from prizes and from gambling, in money and/or in kind, that are below RON 600 for each prize or from the same organiser or payer during a single day, are not taxable. Previously such gains were subject to a 25% withholding tax.

**Other tax increases (e.g. vehicle tax, taxes on the issue of certificates, notices and authorisations for advertising).** Increase in several local taxes (e.g. vehicle tax, taxes on the issue of certificates, notices and authorisations for advertising).

### Slovakia

**Personal income tax increases.** In 2011, deductions for contributions to supplementary pension insurance and amounts deposited on savings schemes are abolished. Also, the personal allowances can be claimed only with respect to aggregate income from employment, business activities and independent professional activities.

**Social security contribution increases.** Non-monetary benefits provided to an employee, which are considered to be taxable employment income, are also subject to social security and health insurance contributions (as from 1 January 2011).

**VAT increase.** From 2011, the standard VAT rate was (temporarily) increased from 19% to 20%. This rate will be applicable until the last day of the calendar year in which Eurostat declares that the deficit of the Slovak Republic is below 3% of GDP.

**Excise duties decrease.** In January 2010, the excise duty on diesel fuel was reduced.

**Excise duties increase.** Introduction of a tax on CO2 emission quotas (effective as of 1 January 2011), which is imposed on the emission allowances allocated free of charge to the taxpayer in the period 2011-2012. The tax rate is 80% of the tax base which is constituted by: i) the transferred emission quota (valued at market price for the calendar month preceding the transfer), and ii) the non-consumed emission quota (valued at the average market price for the respective calendar year). The calculated amount of tax on emission quota is not considered as a tax deductible expense. There were increases in various excise duties (e.g. tobacco) from 2011. Excise duties on spirits were increased as of March 2010.

### Slovenia

**Personal income tax decrease.** Both the general allowance and the investment allowance to individual entrepreneurs were extended in 2010.

**Corporate income tax decrease.** The last stage of the reduction of the corporate income tax was implemented, resulting in a tax rate of 20%.

**Excise duties increase.** Excise duties on energy and tobacco (cigarettes) and alcohol were increased by around 7% in 2010.

**Other tax increases.** A balance sheet tax for banks is effective since August 2011. The aim of the tax is to stimulate banks to extend loans to the non-financial sector rather than a fiscal purpose. The tax of 0.1% is levied on the total assets of the bank, but 0.167% of loans granted to the non-financial is deducted sector and could possibly reduce the tax due to zero.

### Spain

**Personal income tax increases.** Measures to consolidate personal income tax were implemented in 2010. Phasing out of the €400 personal income tax credit for working and self-employed taxpayers over €12000 of the tax base (0.5% in 2010). The personal income tax credit of €2500 for each child born or adopted in the tax year is repealed in 2011 (0.25% in 2010). Taxation of savings income by a progressive system of 19% and 21% (above €6000) from 2010 instead of a flat 18% rate (0.07% in 2010). The 2011 Budget also includes a number of further changes to personal income tax aimed at raising revenue. Increase in central government component of top personal income tax rate by 1 percentage point (income from €120000 to €175000) and by 2 percentage points for income above €175000. Elimination of the housing investment deduction in personal income tax for income over €24170.2 from 2011. Change in capital income taxation that cancels some deferrals from 2011.

**Corporate income tax decreases.** Broadening of the application of the SMEs tax regime (e.g. higher ceiling for turnover and taxable amount, longer application period of three years after relaxing of conditions).

**VAT increase.** Increase in general VAT rate by 2 percentage points to 18% and a 1 percentage point reduction to 8% from July 2010 (0.25% in 2010, around 0.5% of GDP in 2011).

**Excise duties increase.** A Royal Decree in late 2010 included an increase in excise duties for cigarettes and other types of tobacco (€780 million annual revenue increase).

(Continued on the next page)

Table (continued)

### Sweden

**Personal income tax decreases.** In 2010, the fourth stage of the earned-income tax credit was introduced. Including the fourth stage, the EITC has reduced the tax on earned income by a total of SEK 71 billion (€7.84 billion). The Budget Bill for 2011 included an increase in the basic allowance for individuals over 65 years old. The estimated tax reduction is around SEK 7.5 billion (€828 million) in 2011.

### United Kingdom

**Personal income tax increases.** Increase in tax progression via higher tax allowances and an additional top rate. From April 2010, an additional rate of income tax of 50% applies to income over GBP 150 000. Personal income tax allowance was restricted for annual incomes over GBP 100 000 from April 2010. From April 2011, tax relief on pension contributions is restricted for those with incomes of GBP 150 000 and over, and tapers down until it reaches 20%.

**Corporate income tax decreases.** In 2011, the standard and reduced corporate income tax rates have been reduced by 1 percentage point to 27% and 20% respectively. The government aims to further decrease the standard rate by 1 percentage point annually until it reaches 24%.

**VAT increase.** In 2011, the standard VAT rate has been increased from 17.5% to 20% (between 1 December 2008 and 31 December 2009 the rate had been temporarily lowered to 15%).

**Excise duties.** Several environment-related taxes have increased, such as air passenger duty or landfill taxes.

**Other tax increases.** A bank levy and a one-off bank payroll tax (i.e. bonus tax) of 50% on bonuses over GBP 25 000 paid by banks and building societies between 9 December 2009 and 5 April 2010. In October 2010, the government also announced that it would consider the pros and cons of introducing a FAT.

---

**Note:** Cut-off date is 30 June 2011.

**Source:** Commission services.

---



## 4. QUALITY OF TAXATION

The current economic and budgetary situation both offers an opportunity and stresses the need for improving or rethinking current revenue (and expenditure) systems. Considerations on the quality of taxation have increasingly moved into the spotlight of both academic and political debate. As referred to in Chapter 1, the Europe 2020 strategy calls for particular attention to be paid to the quality of the revenue/tax system. This has been confirmed by the Annual Growth Survey (AGS), opening the ‘European Semester’ and the ‘Euro Plus Pact’.

Tax policy serves to raise the necessary funds for the desired level of public expenditure, to redistribute income (progressive income taxation), to stabilise <sup>(35)</sup> the economy, to address externalities (environmental taxes, taxes on alcohol and tobacco) and to influence the allocation of resources. By sending a price signal it can also direct agents’ choices towards more sustainable consumption and production. Moreover, a good tax system should create the right incentives and lay the groundwork for green growth. Green growth is the path that ensures jobs and growth, and provides the answers on how to use scarce energy resources in a more intelligent manner. Ultimately, taxation pursues many policy objectives which may create trade-offs.

The quality of taxation is a multi-faceted concept. It deals with the design of tax policy to achieve desired policy objectives, while minimising distortions and the cost of tax collection, and thus minimising the negative impact of taxation on economic growth. For any given level of taxation, different economic outcomes can be obtained, depending on the way a tax system is designed in terms of tax structure and individual tax design, and the interaction between the different tax instruments. The discussion on the quality of taxation in this chapter will focus on the effects of taxation on GDP and on long-term and sustainable economic growth. This reflects the key priority for Europe of achieving smart, sustainable and inclusive growth.

---

<sup>(35)</sup> Taxation plays an important role as an automatic stabiliser and complements other stabilisation policies such as automatic stabilisers on the expenditure side, discretionary fiscal policy and monetary policy. For a thorough analysis of stabilisers in the tax system, see European Commission (2010e).

Economic theory links taxation to growth through its influence on the decisions of individual economic agents. Taxation changes economic decisions and can thereby affect economic growth. Considering a simple production function, it is obvious that taxation can affect GDP and economic growth through its impact on i) physical capital ii) human capital and iii) total factor productivity (TFP). <sup>(36)</sup>

The first section (4.1) examines how the structure of taxation by main type of tax could be growth-enhancing. Section (4.2) deals with the specific issues related to the design of particular types of tax with a view to making them more growth-friendly. Section (4.3) illustrates the importance of the interaction between the different tax systems in the EU. <sup>(37)</sup>

### 4.1. STRUCTURE OF TAX SYSTEMS

This section <sup>(38)</sup> examines the effects of the structure of tax systems on growth. It reviews the main theoretical arguments and presents some recent empirical findings.

#### 4.1.1. OVERVIEW OF THE MAIN THEORETICAL ARGUMENTS

The following paragraphs give some indications of how taxation might influence growth-relevant decisions focusing on the tax categories of labour, capital, consumption, property taxes and environment. However, the overall impact on employment, GDP and growth is also determined by the composition and quality of public expenditure, the design of individual taxes and the interaction of taxation across jurisdictions. The empirical findings reviewed in sub-section 4.1.2 put the theoretical arguments into perspective.

#### Taxes on labour

Taxes on labour (i.e. personal income taxes, payroll taxes and social security contributions) can

---

<sup>(36)</sup> Myles (2009a) reviews different production functions and effects of taxation on GDP and economic growth.

<sup>(37)</sup> Distributive and equality considerations and properties of tax systems, while clearly important issues, are not analysed.

<sup>(38)</sup> Sub-sections 4.1.1 and 4.1.2 draw on Prammer (2011).

affect economic decisions in three major ways, by altering: i) the allocation of time between labour and leisure, ii) human capital accumulation, and iii) occupational and entrepreneurial choices. <sup>(39)</sup> In particular, labour taxes can affect labour supply decisions, concerning both the decision on whether or not to participate in the labour market (extensive margin) and on the number of hours worked <sup>(40)</sup> (intensive margin). However, the exact effect of taxation on the labour market depends also on the labour demand elasticity, the degree of centralisation of wage bargaining and the distribution of taxable incomes. <sup>(41)</sup>

Additionally, labour taxes, in particular progressive taxes, may affect the decision to undergo additional education and training (human capital formation), because they alter the expected returns on education and training. Progressive taxation reduces the return to human capital formation because it lowers the expected after tax income by a larger amount than a generally linear tax deduction granted during the education period. Hence, the net present value of the investment in education and training is reduced. <sup>(42)</sup>

Furthermore, progressive labour taxes may affect work effort, given the number of hours worked and thus the quality of labour supply, by reducing the net return of achieving promotion and wage increases. <sup>(43)</sup> Progressivity may also adversely affect entrepreneurship and lower the expected after-tax return from risk-taking. <sup>(44)</sup>

---

<sup>(39)</sup> This classification is suggested based on Meghir and Phillips (2010), Myles (2009c) and Bocconi University (2010).

<sup>(40)</sup> Economic literature distinguishes between the substitution effect and income effect. Considering, for example, the introduction of a wage tax, the income effect will make the worker work more, in order to maintain the level of total income, while the substitution effect will push in the opposite direction, as the free time allocated to working is remunerated at a lower net income. The overall effect on labour supply is therefore ambiguous. Moreover, marginal tax rates and average tax rates affect different groups of workers differently. For example high income groups are found to be sensitive to marginal rates, while second earner's labour supply is found to be very sensitive to average tax rates.

<sup>(41)</sup> For details on these aspects see Meghir and Phillips (2010) or Bocconi University (2010).

<sup>(42)</sup> A detailed discussion can be found in Wöhlbier (2002).

<sup>(43)</sup> See Ljunge (2010) and Clark and Tomlinson (2001).

<sup>(44)</sup> See De Mooij and Nicodeme (2006) for a discussion.

Moreover, the varying scope for tax evasion/avoidance across occupations might affect job-related choices. As reviewed by Bocconi University (2010), high marginal income taxes can not only bias the compensation packages towards less taxed items, but also skew occupational choices towards those where tax avoidance is easier. Hence, taxes on labour not only affect short-term decision making, they also impact on life-cycle decisions.

### Taxes on capital

Taxes on capital include both taxes on business profits, and taxes on the return to savings of individuals, respectively on income in the form of capital gains, dividends and interests. Taxation of capital distorts the capital accumulation of business, and in effect the productivity of labour, as well as the savings and investment decisions made by individuals. By changing the return on capital, capital taxes alter the intertemporal allocation of resources.

Considering a small open economy and assuming perfect capital mobility, several authors <sup>(45)</sup> state that the capital income taxes should be zero in the long run in the light of these distortions. <sup>(46)</sup>

As reviewed by Soerensen (2007), later models, which introduce uncertainty in labour markets, or models allowing for complementarity between leisure and future consumption indicate however that a positive capital income tax could be optimal.

In a world of increased international capital mobility, and in particular in an integrated market such as the European Union, source-based corporate income taxes may impact on growth at different levels. The corporate tax system can affect (i) where firms choose to locate their investment, (ii) how much they invest and (iii) where they choose to locate their profits. Research predicts that the average effective tax rate in different countries might influence the first decision, the marginal effective tax rate the second, and the statutory tax rate the third. <sup>(47)</sup>

---

<sup>(45)</sup> See, e.g., Judd (1985), Chamely (1986) and Jones et al. (1997).

<sup>(46)</sup> See Samuelson (1954) and Tiebout (1956).

<sup>(47)</sup> See Nicodeme (2008) for further details.

Myles (2009c) shows that income taxes (both corporate tax and personal income tax) can influence the decision to engage in entrepreneurial activity, due to changes in the risk-return profile related to it. Given that the return on (risky) innovation is changed, this might reduce the investment in R&D as well as human capital formation, thereby impacting on long-term growth.

The tax treatment of capital gains as well as other returns to capital, such as interests and dividends, can distort companies' financing decisions. Most of the EU corporate tax systems are characterised by the deductibility of interest payments, whereas dividend payments do not reduce the tax base. Due to this tax discrimination, companies may favour debt-financing over equity-financing for their investments (see part 4.2.2 and 4.2.3). This favours companies with access to debt financing and leads to high leverage ratios. High leverage ratios make companies more vulnerable to financial market fluctuations.

Taxation of the return to savings of individuals (dividends, interest, capital gains etc.) distorts the savings decision. It makes the overall level of savings and its allocation across assets deviate from an economically optimal allocation, particularly if tax rates on an accrual basis deviate between different assets. In addition, taxation of capital income under the personal income tax relative to the taxation of labour income affects the incentive for the self-employed to transform labour income into capital income or vice versa.<sup>(48)</sup>

Lastly, capital gains taxes can also hinder the efficient reallocation of capital, as capital is left in inefficient investments in order to avoid taxes levied on realisation ('locking in' of capital).

### Consumption Taxes

Consumption taxes — mainly value added taxes (VAT) and excise duties — are often regarded as less distortionary than income taxes, as they do not distort intertemporal decisions the way income taxes do. Consumption taxes fall partly on accumulated assets, which are an inelastic tax base. Moreover, consumption taxes do not impact on the returns to saving and, usually, do not have a

progressive tax structure.<sup>(49)</sup> Taxes on goods and services allow different components of consumption to be taxed at different rates. In a seminal contribution made in 1927, Ramsey developed a system whereby taxes on commodities would change consumers' buying decisions as little as possible. This system depends heavily on the price elasticity of the taxed goods and services. When the price elasticity is high, even small price rises reduce demand significantly. In this case, levying a consumption tax (or an excise duty) will alter consumers' buying decisions significantly and thus create a large deadweight loss. The price elastic goods are not likely to be good candidates for high consumption tax rates in an efficient tax system. On the other hand, price-inelastic goods may be good candidates for high indirect tax rates, as they change consumers' buying decisions only moderately. However, this result — referred to as the inverse elasticity rule — is simply a special case of the Ramsey rule, relying on strong assumptions. In general, the optimal structure of VAT rates also depends on cross price elasticities, making it very difficult to draw firm conclusions on how to differentiate optimally between consumption taxes across commodities. Subsequent research favours taxing complements to leisure at the highest rate, in order to make them unattractive compared to work.<sup>(50)</sup>

More recent research<sup>(51)</sup> suggests that there might be a case for taxing consumption which uses little household time — or even saves time — less heavily than other leisure commodities. The argument is that high tax wedges (high marginal income tax and high VAT rates) make it very expensive to buy these services on the market and make it more attractive 'to do-it-yourself'. Hence, highly skilled professionals, who are subject to particularly high marginal tax rates on account of the progressive nature of income taxation, have the greatest tax incentive to spend time on these time consuming activities at home. Lower taxation on these services, such as child care, or catering services, might encourage people to spend (more productive) time in the labour market instead of producing these services themselves. Furthermore,

<sup>(49)</sup> As explained by Stiglitz (1999) a more progressive tax results in a greater deadweight loss, and is hence less efficient than a proportional tax.

<sup>(50)</sup> This is referred to as the Corlett-Hague Rule, (Corlett and Hague, 1953).

<sup>(51)</sup> See Kleven et al. (2000), Kleven (2004).

<sup>(48)</sup> See Sorensen (2007).

goods which are conducive to health should also be taxed at lower rates. They might prevent people from falling ill, thereby reducing time off work and even lengthening people's working life.

While Crawford et al. (2010) confirm the theoretical argument for an optimally differentiated rate structure, they question its practicability and the overall social gains that could be achieved. Hence, what usually remains from the idea of taxing different commodities differently is some non-optimal form of VAT differentiation and excise taxes which are levied on specific products. The efficiency gains and losses of these differentiated rates are discussed in detail in sub-section 4.2.4.

Kleven (2004) uses optimal tax theory to make a case for higher taxation of inter alia health damaging goods, which may come in the form of excise taxes. Moreover, excise taxes are a way to correct for externalities (costs imposed on others) and even costs imposed on oneself in the case of alcohol and tobacco, which arise during production or final consumption of these products.<sup>(52)</sup> Hence, in the case of excise taxes, the distortionary — i.e. the corrective — effect of taxes is welcomed, mostly in the area of alcoholic drinks and tobacco products, as well as in respect of environmentally harmful behaviour and products.

### Environmental taxes

Environmental taxes (i.e. generally excise duties levied on environmentally harmful tax bases such as energy products, transport, polluting activities and resource use) aim to influence consumers and producers via price incentives towards the desired — i.e. less environmentally harmful — behaviour. An ideal Pigouvian tax — a tax that is intended to correct market externalities — should raise the marginal private costs to the level where it equals the higher marginal social cost. It takes into account the cost imposed by pollution on others and thus internalises external costs.<sup>(53)</sup> The revenue raised could then be used to decrease distortive taxation on labour, for example, thereby

---

<sup>(52)</sup> A standard implication of the optimal tax literature is that VAT does not affect production decisions.

<sup>(53)</sup> Taxation represents one instrument to tackle externalities which might need to be complemented by different other instruments such as permits and standards, or charges.

achieving a 'double dividend', i.e. protecting the environment and increasing employment and GDP.

However, other strands of the literature<sup>(54)</sup> point out that, given pre-existing distortions in the tax system, an environmental tax itself creates (unintended) distortions. The tax increases the production costs, and if the cost increase is passed on to consumer prices, the real net wage of households is lowered, which might affect labour supply in a similar way to labour taxes. Also, the increase in production costs may change firms' investment and production decisions, and thereby might impact on labour demand.<sup>(55)</sup> Hence, the existence of a 'double dividend' is controversial in the literature.<sup>(56)</sup>

On the other hand, as environmental taxes set a price for each unit of pollution, they provide an ongoing incentive to reduce pollution at each unit and encourage the lowest cost abatement across polluters. Thereby, environmental taxes might encourage innovation and R&D activities to develop new, less polluting technologies, although the presence of market failures and consumer myopia might blur this effect. Usually, a wide tax base (in a geographical sense) generates more innovation activity, as the opportunities to benefit from the innovation, for example by selling it to others, are greater.<sup>(57)</sup>

### Property Taxes

The OECD classification of taxes includes in this tax category recurrent taxes on immovable property (paid by both households and businesses), taxes on net wealth (paid by both households and businesses), taxes on gifts and inheritance and taxes on financial and capital transactions. As these taxes are obviously very heterogeneous in nature, they have different effects on decisions relevant to growth.

---

<sup>(54)</sup> As reviewed by Parry and Oates (1998).

<sup>(55)</sup> As explained above, higher production costs might lead to investments aiming at efficiency improvements.

<sup>(56)</sup> For a summary of relevant literature see Kosonen and Nicodeme (2009). While being controversial, recent studies (European Commission, 2011, OECD, 2011) have found a positive impact from recycling energy taxation on GDP.

<sup>(57)</sup> There is growing evidence that targeted support to green innovation in complement to environmental taxation would allow innovation to take off in a more cost-effective way than environmental taxes alone (see Acemoglu et al., 2009, Aghion et al., 2010 or Conte et al., 2010).

Taxation of immovable property is usually considered as the least distortionary, because these taxes do not affect the decisions of economic agents to supply labour and to invest in human and physical capital as directly as other taxes do. <sup>(58)</sup> Moreover, the immobility of the tax base is another appealing property. However, even though property might be immovable in the medium term, property taxes might influence the initial location decision of businesses and also property prices, as future taxes might be priced in. Moreover, they might introduce behavioural changes, when they are charged on business property, affecting investment decisions and competitiveness with foreign producers. Hence, the literature suggests <sup>(59)</sup> that land values (value of property minus value of building) should be used as a tax base instead of property values, to avoid a disincentive — even for individuals — to add to the value of their properties.

Depending on the bequest motive, inheritance and gift taxes are found to have different impacts on economic efficiency. <sup>(60)</sup> Taxation on planned bequest introduces distortions by discouraging capital accumulation and creating disincentives. However, if inheritances are the unplanned result of a precautionary, consumption-smoothing saving motive, then inheritance taxes should not change economic behaviour.

Periodic taxes on wealth are considered by Boadway et al. (2010, p. 776) as *'roughly analogous to a tax on capital income on that wealth'*. Accordingly their effects on economic activity could also be considered as similar. Hence, as explained above, these taxes might distort decisions to build up capital, i.e. to save and invest, which in turn impacts on long-term productivity.

Taxation on financial and capital transactions is reviewed in Boadway et al. (2010) as discouraging asset transactions and therefore hindering the efficiency of asset markets. <sup>(61)</sup> Thus these taxes might distort investment decision by increasing the firm's cost of capital or by discouraging share owners from making investments that increase

share value. The impact of transaction taxes on risk taking is ambiguous, although there is broad evidence that transaction taxes may increase market volatility. <sup>(62)</sup>

#### Interaction in tax and expenditure systems

Two other factors were not taken into account when assessing the distortions of taxation and possible effects on growth, namely the interaction with public expenditure and the interaction between taxes. Barro (1990) shows that the provision of a public input, even when financed by distortive taxation, can have a beneficial effect on growth in a non-monotonic way. In his model, at a certain threshold the distortions imposed by the tax outweigh the benefit of the public good and hence curb growth. While taxes are a necessity to finance growth-enhancing public expenditure, there might be a way to finance in the least distortionary manner.

Usually, tax reforms do not consist of changing a single tax rate, but include a combination of base and rate changes — often of various taxes. Hence, the interaction between individual taxes should also be taken into account. Besides economic criteria, the analysis of quality of taxation also needs to take into account compliance and administrative costs. According to Shaw et al. (2010) modern 'optimal tax theory' has for the most part ignored any costs other than those created by distorting people's behaviour. However, one of the core problems of taxation is the asymmetry of information between the tax administration and the taxpayer about his true ability to pay. Assessing how much tax people owe and ensuring that it is paid is a costly activity for both taxpayers and administrations. The associated compliance and administrative costs will arise as soon as taxes are levied. While 'natural' administrative costs will arise, even in a world with honest taxpayers, these costs increase considerably when taxpayers try to reduce their tax liabilities by either tax avoidance or tax evasion. These activities also increase any 'natural' compliance cost that exists, as taxpayers have to find their way through tax laws. Tax avoidance often goes hand in hand with the complexity of tax systems. The more complex a system is and the harder the tax base is to determine, the more scope

<sup>(58)</sup> See Johansson et al. (2008) or Boadway et al. (2010).

<sup>(59)</sup> See Boadway et al. (2010).

<sup>(60)</sup> For a review see Kremer and Pestieau (2003).

<sup>(61)</sup> For a theoretical and empirical analysis see Bond et al. (2004).

<sup>(62)</sup> See Hemmelgarn et al. (2011) for a review.

there is usually for tax avoidance. Non-compliance is likely to increase tax distortions, as tax rates/bases have to be increased for the whole society as a result.

### Political feasibility of tax system reforms

Given the above observations on the degree of distortion introduced by taxes, it seems that some taxes — at least according to theory — should be preferred to others. In policy terms, a shift in the tax structure to a less distortive tax system may therefore be supportive to growth. Theoretical reasoning suggests that environmental taxes, property taxes on immovable property and consumption taxes introduce fewer distortions than income taxation does.

However, implementing tax shifts may be difficult from a political point of view. The literature has indeed identified a bias in the status quo, which basically states that voters are opposed to change. <sup>(63)</sup> Given this preference, the rationale for the reform has to be communicated efficiently and be understood by the electorate as necessary or welfare-improving and fair.

The timing of a tax reform has to be chosen properly, not only with respect to the initial public finance conditions but also with respect to the time-span (or speed) of its implementation. A sudden tax reform may limit the scope for negotiations and hinder economic agents' reactions in the short-term e.g. by preventing the bringing forward of consumption in the case of a VAT increase. A gradual reform allows the splitting of the reform into different chunks, such that only one group at a time is affected, which could lead to acceptance by the majority. <sup>(64)</sup> Moreover, a long-term perspective with early announcements of tax reforms offers a stable and predictable economic environment, which allows households and businesses to take optimal long-term decisions, such as investment in human and physical capital.

Although it presented the theoretical behavioural effects of taxes, the above analysis did not give any quantification of the effect of changes in the tax system. The next section will provide a summary of the evaluation of changes in the tax

system on GDP and GDP growth respectively, based on simulations as well as on econometric estimations.

### 4.1.2. Overview of findings from simulations

As shown above, according to economic theory, taxation — with the sole exception of lump sum taxes — creates distortions and in turn may have an adverse impact on economic growth. Thus, cutting taxes (and respective expenditure) might be considered as a reasonable option to promote employment and economic growth. However, at the current juncture of additional consolidation needs, considerations are more likely to focus on the question of how to increase a tax system's capacities to raise revenues, promote growth and employment, while still maintaining the redistributive and allocative functions.

The following overview will therefore report some empirical findings of the effects of (budgetary neutral) changes in the tax structure on GDP and growth. <sup>(65)</sup>

### Simulations

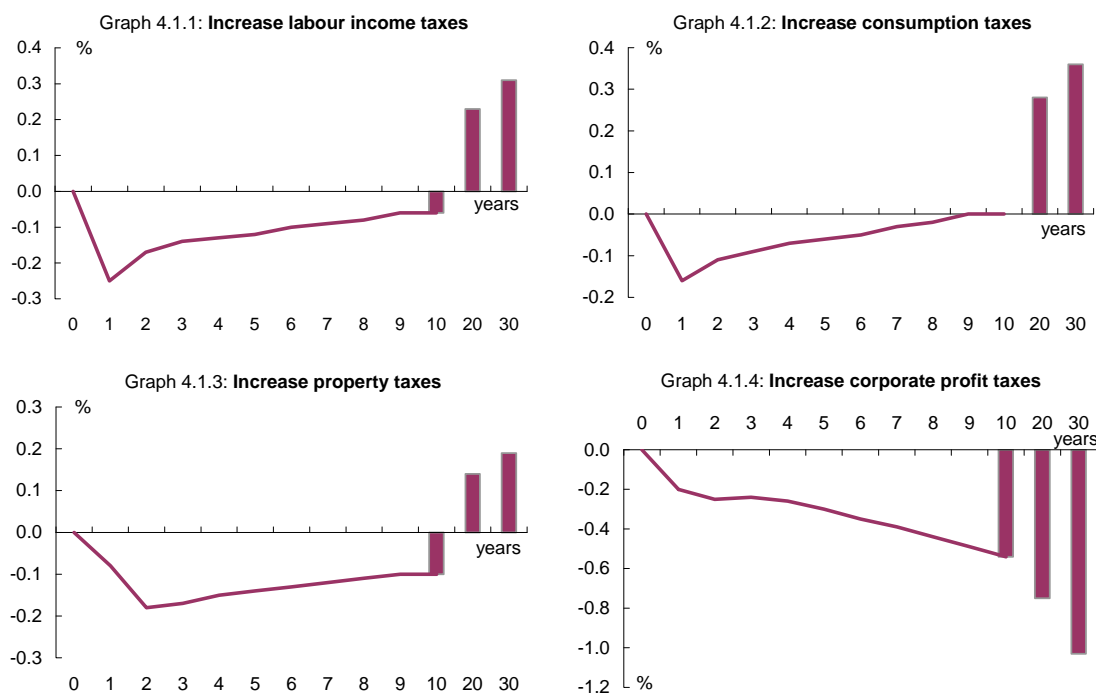
The simulation models surveyed in Myles (2009a) display the different results of tax reforms on growth. While some only note minor effects from changes in the tax structure, others draw attention to the existence of non-negligible effects on GDP and its growth. The effects depend on the way the governments sector is modelled (including productive or just wasteful government spending), the degree of detail represented in modelling growth channels and the calibrated parameters. Despite these widely varying outcomes for tax-reform simulations, Myles concludes that *'...almost all the results support the claim that a move from income taxation to consumption taxation will raise the rate of growth even though the predicted effect may vary.'* (Myles, 2009a, p. 44).

<sup>(63)</sup> For a survey see Castanheira et al. (2011).

<sup>(64)</sup> See Castanheira et al. (2011).

<sup>(65)</sup> The following section reviews studies simulating the impact of a generally revenue-neutral tax shift. There are numerous studies analysing the impact of tax cuts (with corresponding expenditure cuts) on GDP, among which Coenen et al. (2007). It shall also be stressed that this section largely abstract from equity and redistribution impacts of the reforms, which are important policy objectives as well.

Graph 4.1: GDP effects of budget consolidation via taxes



Source: Commission services, QUEST III model.

Recently, the European Commission <sup>(66)</sup> reported on the effects of an energy tax reform on employment and growth. The simulations — performed by Cambridge Econometrics with the E3ME model <sup>(67)</sup> — assume that the additional revenues from increased energy taxation are recycled to reduce the employers' social security contributions. The impact of the different specifications of the energy tax on employment and GDP are reported as small, but positive. This positive impact on GDP and employment is driven by the modelling assumption that additional revenue from energy taxation would be used to reduce the employers' social security contributions. Lower labour costs boost employment and increase private consumption. <sup>(68)</sup>

Moreover, there are a number of recent country specific simulations assessing the impact of tax reforms and tax shifts. Botman and Danninger (2007) simulate the impact of the 2007/2008 German tax reform on growth using the IMF's global fiscal model. Assuming an increase in VAT rates partly compensated by lower payroll taxes and a corporate income tax reduction in the following years, the initial negative effects on GDP growth turn slightly positive in the medium term. For Italy, Annicchiaro et al (2011) analyse the effect of a shift from taxing labour to taxing consumption, implemented by a decrease in employers' social security contributions and an increase in the consumption tax rate. The assumed reductions in disincentives and distortions in the labour market should lead to an increase in the level of employment and output.

<sup>(66)</sup> European Commission (2011f): SEC(2011) 409.

<sup>(67)</sup> The E3ME model of Cambridge Econometrics is a dynamic macro-econometric model designed to deal with E3 interactions (economy- energy -environment). It is a European model treating each Member State separately and keeping the rest of the world exogenous.

<sup>(68)</sup> In addition to the E3ME model, other models developed by MODELS (2010) also point to the positive effects of the recycling of, in particular, ETS revenues on GDP.

#### Quest based simulations

These effects of taxes on GDP are confirmed by simulations using the European Commission's Quest III model. The estimation results reported in European Commission (2008) indicate that a

budgetary neutral tax shift of the order of 1% of GDP from labour taxes to consumption taxes will have a positive effect on employment and GDP. The long-run effects are greater when a coordinated euro-area wide tax shift is considered, than in the case of a unilateral tax shift, regardless of whether it is a small or large country making this shift. However, in the short run, the gains might be larger in the case of unilateral individual country shifts due to competitiveness effects. The quantitative results of a coordinated shift point to an increase in employment and real GDP of about 0.25% in the long run. <sup>(69)</sup>

A related simulation using the Quest III model is reported in Roeger and Veld (2010) and European Commission (2010a, 2010e and 2010h). Here, the effects of a permanent reduction of the government deficit by 1% of GDP through different tax increases are simulated. It is assumed that interest rates (risk premium) fall and at the same time the stock of outstanding debt gradually declines. This creates additional fiscal space which is used in all the simulations to gradually reduce labour income taxes, offsetting the effects of the initial consolidation and raising employment and GDP in the medium and long run. <sup>(70)</sup> The results are displayed in Graph 4.1, which shows the short-term effects of tax consolidations on GDP as lines and the long-term effects on GDP for 10, 20 and 30 years as bars. A consolidation by increasing consumption taxes is found to be the most favourable of all tax-based consolidations as regards long run GDP — while in the short run all tax consolidations result in GDP losses (see Graph 4.1 below). A 1%-of-GDP consolidation achieved by raising consumption taxes would lead to an initial decline in GDP of 0.1-0.2 per cent; in the long run the GDP would be higher by 0.3-0.4 per cent compared to the baseline scenario of no consolidation. A consolidation by increasing labour taxes would lead to stronger initial GDP losses and lower long-run gains. <sup>(71)</sup> By contrast,

---

<sup>(69)</sup> The Quest simulations refer to the GDP level, not to changes in long-term growth rates, which have not been investigated.

<sup>(70)</sup> The result of the simulation is thus not only the result of the tax respectively tax increase but also the macroeconomic impact of permanently reducing the deficit and lowering labour taxes.

<sup>(71)</sup> The assumptions on the use of fiscal space from a gradually lower interest burden means that consolidation through labour taxes in the long run leads to lower labour taxes than in the baseline with no consolidation.

an increase in corporate profit taxes would lead to relatively small short-run losses in GDP. However, these losses build up over time as investment is depressed and the capital stock declines, leading to the highest GDP losses in the long run.

To sum up, while the effects of a pure tax shifts towards less distortionary taxation seem to be limited, the proper design of a consolidation appears to have sizeable effects on GDP in the long-run.

### Some econometric estimations

Empirical research is largely driven by the theoretical underpinnings that some taxes are more detrimental to growth than others. In his survey of empirical literature, Myles (2009b) finds some evidence that consumption taxes are less damaging to growth than income taxes. However, he considers the absence of structural modelling of the estimated equations as a serious limitation on the interpretation of the results, and underlines that causality issues could not be resolved by these estimations.

Recently, Arnold (2008) has investigated the effect of the tax structure on long-run GDP, using a panel regression (an error correction model) for 21 OECD countries for the period 1971-2004. Based on the results of his estimations the author suggests a growth-friendliness ranking for tax instruments, which is led by property taxes, in particular by recurrent taxes on immovable property, followed by consumption taxes. The author classifies personal income taxes as inferior to these two tax instruments, and corporate income taxes as having the most negative effects on GDP per capita. This ranking is confirmed by Johansson et al. (2008), replicating Arnold's estimations. <sup>(72)</sup>

Analysing the impact of reforms in reducing labour taxes, Bocconi University (2011) finds only weak evidence of any effects on the labour market. However, focusing on the reforms targeted at women, and those in which the social partners (i.e.

---

<sup>(72)</sup> Xing (2010) challenges these results. She replicates the estimations by Johansson (2008) using slightly different specifications and performing robustness tests. The author concludes that income taxes and consumption taxes are worse than property taxes. However, she does not find strong evidence for any further ranking between consumption taxes, personal and corporate income taxes.



labour and employers' unions) were involved, highlights the anticipated positive impact on the labour market.

## 4.2. DESIGN OF INDIVIDUAL TAXES

Taxation might alter individual behaviour and influence growth, not only through the structure of tax systems, but also through the — sometimes sizeable — distortions that result from the design of individual taxes. The tax design debate has moved back into the spotlight of both academia and politics since the crisis. In particular, the debt equity bias in tax systems was cited as possibly having contributed to the crisis. <sup>(73)</sup> Moreover, given the consolidation needs, the efficiency of expenditures, including tax expenditures, together with a possible increase in mass taxes such as VAT, has attracted attention. Moreover, the design of environmental taxation can contribute to achieving the environmental objectives of the Europe 2020 strategy.

Therefore, this section covers three important horizontal issues related to direct taxation, namely tax expenditures, debt equity bias in corporate taxation and debt bias in housing taxation. It goes on to tackle two more issues concerning indirect taxation, namely the efficiency of VAT systems and the need to increase the environmental performance of indirect taxation.

### 4.2.1. Tax expenditure in direct taxation: an obstacle to broader tax bases

#### The difficulty of identifying tax expenditures

Tax expenditures can be defined as *'provisions of tax law, regulation or practices that reduce or postpone revenue for a comparatively narrow population of taxpayers relative to a benchmark tax'*. <sup>(74)</sup> <sup>(75)</sup> This general definition clearly exposes the problem related to the assessment of tax expenditures, since *'some tax measures may not be readily classified as part of the benchmark*

*or an exception to it'*. <sup>(76)</sup> In a wide definition, tax expenditures could cover all types of special tax provisions, including deductibility mechanisms, tax credits, exemptions and lower rates.

One general criterion used to determine whether a tax measure can be considered as tax expenditure is usually that its scope is narrow; on the other hand, a measure which aims to benefit a large majority of taxpayers is more likely to be considered as a part of the benchmark system. In some cases, even the 'age' of a tax measure can be relevant, with the 'oldest' measures being considered as part of the benchmark at a certain point. The focus in the following will be on tax expenditures concerning direct taxes, i.e. personal and corporate income taxation.

#### Drawbacks and risks for macroeconomic surveillance

Although tax expenditures may rely on justified grounds (equity considerations) they lower the efficiency of the tax system. This is particularly the case when the creation of new tax expenditures is not subject to thorough ex ante assessments and ex post scrutiny to monitor their current relevance. The existence of tax expenditures increases compliance costs and tax collection costs. Reducing or streamlining tax expenditure can thus reduce the complexity of the tax system, compliance costs and the costs of tax collection.

Tax expenditures can also create unproductive niches or inefficient rent-seeking behaviours. Moreover, they often represent costly second-best options compared with the more direct and efficient ways of achieving their initial objectives, such as direct benefits for those on low incomes.

From a more dynamic viewpoint, tax expenditures tend to be maintained, or more correctly 'forgotten', once they no longer have a 'raison d'être', which places an unnecessary cost burden on public finances, while creating potential distortions in the allocation of resources. They can also become inconsistent with new policies or new tax expenditures that are put in place.

Tax expenditures can also pose a threat to the soundness of the budgetary framework and hence

<sup>(73)</sup> Compare European Commission (2010e).

<sup>(74)</sup> See Anderson (2010).

<sup>(75)</sup> Note that in the economic literature there is a variety of tax expenditures definitions and that many European countries define in their tax codes tax expenditures differently i.e. the corresponding benchmark tax structure deviates across countries, see also Toder (2005).

<sup>(76)</sup> See Whitehouse (1999).

of public finances. Due to the problems of defining the benchmark system, the budgetary cost of tax expenditures is often underestimated and projections regarding their budgetary impact are often biased downwards. Moreover, they are usually not assessed against criteria that reflect their objectives in terms of economic policy, and their substitutability by public expenditure offers the opportunity to bypass the existing spending rules. Consequently, properly identified and controllable expenditures can be replaced by tax expenditures, which are much less transparent and whose development is more uncertain and more difficult to monitor. Given these risks, tax expenditures ought to be subject to the same scrutiny (and surveillance) as public expenditures.

#### 4.2.2. The debt-equity bias in corporate taxation

Scrutiny is also needed when assessing distortions that result from incentives built into individual taxes. This sub-section deals with the consequences of the unequal tax treatment of debt and equity financing, known as the debt-equity bias. The tax deductibility of interest payments in most corporate income tax systems without any such beneficial treatment for equity financing creates at least two types of tax distortions.

First, it may promote excessively high corporate leverage. Taking the favourable treatment of debt financing into account, the value of a leveraged firm becomes higher than the unleveraged firm and this creates an incentive for companies to finance over debt. This in return can lead to credit constraints, especially in times when banks tend to restrict their credit supply. A well-designed tax base that reduces the leverage distortion could make companies less vulnerable to a short-term reduction in credit available on the capital market. Second, this distortion in financing exacerbates opportunities to shift and decrease reported profit via debt-shifting or the use of hybrid instruments that combine characteristics of debt and equity, such as convertible debt obligations or asset-backed securities. These instruments qualify as debt and therefore allow for the deduction of interest paid, but have equity-like characteristics. And last but not least, the beneficial tax treatment of debt over equity financing leads to inefficient allocation of capital, since some investment projects which would not otherwise be profitable

turn out to be profitable because of the tax discrimination.

Correcting the debt bias may therefore lead to beneficial effects. It is peculiar that, in the present context of seeking corrective taxes to curb risk, the current corporate tax system actually contains tax distortions that have the opposite effect and provide incentives to take up too much debt.

The corporate tax debt bias interacts with several other non-tax determinants of corporate structure and with taxes at the personal and cross-border level. The next sections will therefore review these two aspects in turn. In addition, the extent and size of these distortions, as well as their impact on welfare, will be analysed. The current part ends with a review of the policy options to correct this bias and by stressing some of the possible consequences.

#### The determinants of corporate structure

The standard Modigliani-Miller (1958) theorem states that, in the absence of agency and bankruptcy costs, asymmetric information, taxes, and assuming market efficiency, a firm is indifferent between various sources of financing (either issuing stocks or issuing debt).<sup>(77)</sup> In this environment, the value of an unleveraged firm is equal to the value of a leverage firm:  $VL=VU$ .

However, in most corporate tax systems, debt-financing is favoured through the tax-deductibility of interest payments. When this aspect is taken into account, the value of the leveraged firm is equal to the value of the unleveraged firm, augmented by the tax shield value of the debt. This tax shield equals the amount of debt times the corporate tax rate:  $VL = VU + tD$ . Hence, a company can maximise its value by being financed 100% by debt.

There are, however, other theoretical reasons why debt and equity-financing may be distorted. First, highly-leveraged firms are more vulnerable and face bankruptcy costs (sometimes also called 'the cost of financial distress') which increase with the level of debt. Second, so-called agency costs may lead to an increased use of debt. Agency costs reflect conflicts of interest between shareholders

---

<sup>(77)</sup> In addition, its dividend policy shall not matter.

and managers on the one hand, and bondholders on the other hand. In the first case, asymmetry of information on the situation of the firm gives an incentive to shareholders to promote debt financing, as this restricts the Free Cash Flow available in the company.<sup>(78)</sup> This is because the Free Cash Flow usually derives from rent-generating activities and provides managers with funds to invest in wasteful investments. Managers could promise to give back this Free Cash Flow to shareholders via higher future dividends, but the dividend policy can easily be reversed. Therefore, by substituting debt for equity, managers are bound to pay out the cash flows, because bondholders (who may be shareholders) have the right to take the firm to court. This can be a determinant of the capital structure of companies.<sup>(79)</sup>

#### Is there a rationale for discrimination?

Some of the aspects reviewed above may offer theoretical economic rationales for using the tax system to discriminate between debt and equity. However, as De Mooij pointed out (2011a and 2011b), the shrinking gap between debt and equity instruments alters the relevance of these theories.

In the majority of tax systems — the more so with the use of sophisticated instruments — the distinction between debt and equity is subject to the application of several criteria, such as the degree of variability of the claim, the control of the size of the payment by the management, the priority placed on cash-flows, the type of maturity (fixed or variable / infinite), etc. Devereux and Gerritsen (2010) show that there are no objective legal reasons for distinguishing between the two sources of financing. On the contrary, the rise in administrative complexity would actually require a similar tax treatment. The distinction could possibly originate from an artificial distinction created by the traditional view that dividends represent the remuneration of capital, while interest payments are a business cost.

As reported by EEAG (2011), the issue of high leverage in the banking sector has been the subject

of research. Some of the arguments to justify this high debt point to the role of debt in disciplining managers (the agency cost discussed above), the increased funding costs because equity is more risky, and possible credit rationing.

#### Interaction with other taxes

One possible rationale for favouring debt over equity through corporate taxation could lie in the analysis of taxation at shareholder and bondholder levels. Personal income taxation discriminate if the interest received is taxed in full at personal income tax rates, while capital gains and dividends are often taxed separately at lower final withholding tax rates, which is often the case.<sup>(80)</sup> There is also evidence that the level of debt is negatively related to the personal tax penalty.<sup>(81)</sup> According to Graham (2011), the empirical evidence indicates that the PIT disadvantage is between 1/3 and 1/2 of the CIT advantage, so that overall the tax advantage of debt is maintained. Normally, an optimal personal income taxation of different sources of capital income would be to tax them at the same rate (on an accrual basis).

Lastly, there is evidence that the tax advantage of debt encourages profit shifting activities. For example, Huizinga et al. (2008) review economic literature that considers the debt financing of multinationals with either parent companies or subsidiaries in the United States<sup>(82)</sup>, Germany<sup>(83)</sup>, Canada<sup>(84)</sup> and the EU<sup>(85)</sup>. This literature is consistent with the objectives of firms to minimise tax using their financial structure and interest and income flows across borders. Taking data from 32 European countries between 1994 and 2003, they find that a 10% increase in the tax rate increases leverage by 1.8%. For multinationals with two equal-sized establishments in two countries, a 10% increase in the tax rate in one country leads to a 2.4% increase in the leverage of the company located in that country and a 0.6% decrease in

<sup>(78)</sup> Free cash flow is cash flow in excess of that required to fund all projects that have positive net present values when discounted at the relevant cost of capital, Jensen (1986).

<sup>(79)</sup> See Jensen (1986).

<sup>(80)</sup> Gordon (2011).

<sup>(81)</sup> Graham (1999).

<sup>(82)</sup> Hines and Hubbard (1990), Collins and Shackelford (1992), Froot and Hines (1992), Grubert (1998), Altshuler and Grubert (2003), Newberry and Dhaliwal (2001), Desai, Foley and Hines (2004) and Mills and Newberry (2004).

<sup>(83)</sup> Ramb and Weichenrieder (2004) and Mintz and Weichenrieder (2005).

<sup>(84)</sup> Jog and Tang (2001).

<sup>(85)</sup> Moore and Ruane (2005).

leverage in the affiliated foreign company, which points to debt-shifting.

In the same vein, De Mooij (2011a and 2011b) looks at the effect of taxes on gross bank profitability and finds semi-elasticities of between -6 and -8.5, which are very large compared to non-financial firms, and which lead him to conclude that banks seem to engage in more tax avoidance than is the case for non-financial firms.

### Extent and Size of the Distortions

Because of the tax deductibility, most tax systems in Europe actually provide a subsidy when financing via debt. Reacting to this benefit, the economic literature provides ample evidence of a positive correlation between the level of leverage and the level of corporate taxation. It is beyond the remit of this section to conduct an exhaustive review of the existing literature. Such a review is proposed by De Mooij (2011a and 2011b) and uses 267 tax elasticities found in 19 studies to perform a meta-analysis. The mean tax elasticity across studies is 0.65 (the median stands at 0.51), but with a large standard deviation of 0.57. Interestingly, 78% of the regression results are significantly different from zero. The result of the regressions also indicates that the response increases over time and that the relationship may not be linear. Finally, internal debt seems more responsive to taxation than external debt, and short-term debt is more responsive than long-term debt.

De Mooij (2011a and 2011b) also uses a sample of 14377 banks from 82 countries across Europe, Asia and the Americas between 2001 and 2009. He finds that, on average, the leverage ratio of banks is 88.1%, compared to a ratio of between 40% and 60% for non-financial firms. This is a strong indication that the leverage issue is more acute for banks.

### Impact on Welfare

Because of the tax bias, debt financing creates a welfare cost. This welfare cost has been estimated by Weichenrieder and Klautke (2008) at between 0.08% and 0.23% of GDP, while Gordon (2011) estimates it at around 0.25% of GDP. As rightly pointed out by De Mooij (2011a and 2011b), these estimates assume an average elasticity that applies to a representative firm and does not take into

account the heterogeneity of responses and hence the additional welfare costs due to misallocations. They also fail to include the broader welfare costs of the negative externalities of using debt, such as the systemic risk, the probability of default and the social costs of business cycle fluctuations. Lastly, they do not take into account the distortions created by debt-shifting activities and the misallocation due to international tax arbitrage<sup>(86)</sup>, as well as the administrative and compliance costs.

### 4.2.3. The debt bias in the taxation of housing

A similar debt bias in the taxation system is often observed in the taxation of housing investment, in particular through tax deductibility of mortgage interest payments (or even capital payments). The decision to buy a house and live in it is both a consumption and an investment decision. The consumption decision relates to the fact that the buyer will occupy the house, and relates to issues concerning, for example, space and location. The investment decision refers to the possibility of an increase (or decrease) of the value of the house while living in it. The issue of the tax treatment is more relevant for the latter decision, which in turn has an impact on the housing market and house prices.<sup>(87)</sup>

If the house is considered as an investment good, tax neutrality implies that it should be taxed in the same way as other assets. Ideally the rental income from the house, less depreciation allowances and interest payments (i.e. the net rental income), should be subject to personal income tax. In the case of owner-occupied housing, this translates into taxing an imputed rental income, while at the same time allowing for mortgage interest deductibility (and depreciation).<sup>(88)</sup> As a second-best option, imputed rental income could be approximated through a recurrent annual tax on the property under the condition that the value of the tax base is regularly updated. Note that a tax on imputed income is a direct tax and that the tax burden might therefore depend on the taxpayer's overall income, while a recurrent property tax is classified as an indirect tax and the tax burden is

<sup>(86)</sup> See De Mooij (2011a and 2011b).

<sup>(87)</sup> See last year's edition for a discussion (European Commission, 2010e).

<sup>(88)</sup> Apart from the taxes discussed here, capital gains of housing transactions should also be taxed in order to achieve tax neutrality vis-à-vis other financial assets.

therefore normally independent of the taxpayer's income situation. If interest deductibility is provided to house-owners, while imputed rental income is either (i) not taxed or taxed too low or (ii) approximated with a low recurrent property tax, a tax subsidy is provided which favours investments in owner-occupied housing. To provide neither mortgage interest deductibility nor tax imputed rental incomes will in general not ensure tax neutrality, if the return from other types of investment is taxed. <sup>(89)</sup>

Providing tax subsidies (under taxation) for homeownership presumes that home ownership generates positive externalities for society. Better social outcomes for the children of homeowners, as well as more engagement in the local community, are among the positive externalities that motivate public policies favouring homeownership. However, it is often difficult to clearly separate the positive externality of home ownership from the private benefit, as the relationships might be casual or suffer from endogeneity bias. A drawback of home ownership is that it tends to reduce labour mobility, particularly if high transaction taxes are imposed. <sup>(90)</sup>

The deductibility of mortgage interest payments reduces the cost for the homeowner and encourages the household to buy rather than to rent their housing. A risk is that the policy encourages households to invest too much in housing in relation to other assets. This could also lead to a higher private sector debt if households do not offset the lending for housing investment by savings in other assets. Moreover, as discussed in last year's edition of the report, it could have contributed to the housing price bubble. <sup>(91)</sup>

Moreover, to the extent that reduced interest costs are capitalised into higher house prices, the tax policy also risks being inefficient or even counter-productive. Capozza et al. (1996), Harris (2010) and Agell et al. (1995) find that the removal of or a reduction in the interest rate deductibility would lower house prices significantly in the U.S. and Sweden respectively. Recent empirical results

indicate that demand shocks (e.g. through financial deregulation) have a greater likelihood of being capitalised into real house prices when the country provides generous tax relief for mortgage cost payments. <sup>(92)</sup>

No clear relationship has been found between the degree of tax relief and the aggregate homeownership rate in a cross-country comparison of OECD-countries. Moreover, the use of tax subsidies through the deductibility of mortgage interest payments risks being a regressive policy. As the tax subsidy normally takes the form of a deduction against earned income, and not the form of a tax credit, it is worth more for high-income earners. This is consistent with the finding that homeownership inequality <sup>(93)</sup>, defined as the ratio of the homeownership ratio in the top income quartile to the ratio in the second quartile, appears to be higher in countries with generous tax subsidies.

At the lower end of the income distribution, there is also a risk that, if the tax relief is capitalised into house prices, this impact crowds out the effect of the reduced debt costs. Andrews and Caldera Sanchez (2011) look at this indirectly (due to data limitation) and investigate whether the impact of financial markets regulation on homeownership rates differs depending on the degree of tax relief. It is shown that a generous tax relief reduces the impact of financial deregulation (through higher loan-to-value ratio) on the homeownership rate. This indicates that a tax subsidy can distort the impact of financial deregulation and potentially contribute to crowding financially constrained households out of the market through higher house prices.

Tax subsidies for mortgage interest payments have also been found to be correlated with price volatility on the housing market. Van den Noord (2005) provides evidence for higher price volatility in countries with more generous tax relief for home ownership. The study covers the period from 1970 to 2001 and includes eight euro area countries (Germany, France, Italy, Spain, the Netherlands, Belgium, Finland and Ireland). More recent empirical results in Andrews (2010) also indicate that more generous tax subsidies for

<sup>(89)</sup> See e.g. Keen (2010) and Andrews et al. (2011).

<sup>(90)</sup> See Andrews and Caldera Sanchez (2011) for an overview of benefits and costs of homeownership (box 1).

<sup>(91)</sup> See European Commission (2010e).

<sup>(92)</sup> See Andrews (2010).

<sup>(93)</sup> See, e.g., Andrews et al. (2011).

mortgage debt could lead to greater volatility of house prices.

#### 4.2.4. VAT efficiency

The particular importance of consumption taxation for a growth supportive tax system as reviewed in section 4.1 merits a more thorough investigation of its overall efficiency. As VAT accounts for the majority of consumption taxation, this sub-section will focus on VAT efficiency.

Following the considerations set out in sub-section 4.1.1, an economically efficient VAT system could, in theory, be non-uniform, imposing higher VAT rates on price inelastic rather than price elastic goods. However, given that it is impossible to measure the required price elasticities to any serious extent, a consensus among economists has emerged that the best course would be to opt for a single uniform VAT rate.

This argument relies partly on the practical advantages of uniform VAT rates, and partly on the insight that differentiating VAT rates without a detailed knowledge of the underlying price elasticities is unlikely to lead to gains in efficiency and may even lead to sizable losses in efficiency, as the 'wrong' goods or services are given reduced VAT rates.

However, the existing VAT system within the European Community is far from uniform. Member States apply widely differing VAT rates, thereby creating a highly diversified and complex VAT system. This is generally justified by three types of considerations, one based on efficiency or labour market arguments, the other based on distributional considerations, and the third on the existence of merit goods.

#### Reduced VAT rates and efficiency

The case for moving away from a uniform VAT rate on efficiency grounds was discussed, for instance, by Copenhagen Economics (2007), in a study commissioned by the Directorate General for Taxation and Customs Union of the European Commission. In line with the considerations expressed above, the study argues that there is a strong general argument for having uniform VAT rates in the European Union, as uniform rates are a

better way to maintain a high degree of economic efficiency, to minimise otherwise substantial compliance costs and to smooth the functioning of the internal market, but it also identifies some possible exceptions to this general rule.

In line with the theoretical arguments put forward in sub-section 4.1.1, the same study sets out theoretical and empirical arguments for extending reduced VAT rates (or other subsidies) to sectors whose services are easily substituted for do-it-yourself or underground work, including by highly skilled workers, e.g. locally supplied services and some parts of the hospitality sector.

Another — albeit contested — argument for reduced VAT rates on certain goods is the idea commonly put forward that labour-intensive goods and services should benefit from reduced VAT rates.

The theoretical argument is that reduced VAT rates, by boosting demand for such services, stimulate demand for low-skilled workers, and push up their wages such that employment becomes a more attractive option than unemployment. This argument only holds in countries with rigid and non-flexible labour markets for low-skilled workers; otherwise, increased demand may simply stimulate wages for this segment of the labour market.

However, the Copenhagen Economics' simulations indicate that the overall impact on demand for low skilled workers is small, because differences in low skilled employment between industries are limited. Moreover, the losses from distortions in the composition of consumption are likely to outweigh the benefits.

#### Reduced VAT rates and distributional concerns

A more common rationale for differentiating VAT rates is linked to distribution considerations. Ever since the 19<sup>th</sup> century, indirect taxation has been criticised on the grounds that it is regressive. Historically, this was one of the reasons for the rise of direct taxation, which is much better suited to introducing progressivity into the tax system.

The regressivity argument is based on the fact that low-income households pay VAT on a higher proportion of their income, because they generally

save less than higher-income households. As it is a consumption tax, VAT does not tax savings until the savings are spent.

Although there is little doubt that low-income households pay VAT on a higher share of income, theory has been qualifying the significance of this result. First, it has been shown that looking at tax payments over the entire lifecycle, instead of at a cross-section of households, reduces the regressivity of the tax, as the savings are decumulated following retirement and spent on consumption goods<sup>(94)</sup>; second, and more important, it has been shown in several studies that reduced VAT rates (or exemptions) are not a cost-effective policy instrument — it generally costs less to redistribute the same amount of income by other means, on the expenditure side through targeted benefits or on the revenue side by measures such as cutting income tax for the lowest bracket and/or increasing the basic tax-free allowance. The Mirrlees Review (2010), among others, found that for the UK it would be possible to more than offset the abolition of reduced rates for the lowest three deciles of the income distribution and still gain net tax revenue of GBP 11 billion, which could be used to reduce other taxes or to spend on poverty reduction programmes. However, the UK has a particularly extensive system of reduced rates.<sup>(95)</sup>

Boeters et al. (2006)<sup>(96)</sup> nevertheless found similar results for Germany, where the scope of reduced rates is close to the EU average. The authors, using an applied general equilibrium model, found that abolishing reduced rates would have only a small redistributive effect towards greater inequality, and that if the abolition of reduced rates is offset by reductions in the marginal income tax rate or by cuts in social security contributions, there is scope for significant gains in overall welfare. They conclude that (in Germany), ‘*VAT differentiation can hardly be considered an effective means of redistribution policy*’ and that ‘*the abolition of VAT differentials has only negligible redistributive effects*’.<sup>(97)</sup> Moreover, the analysis of the standard

and reduced VAT rates in Germany commissioned by the German Federal Ministry of Finance concluded that none of the reduced rates except the VAT rates on food could be justified from a social, economic, tax or budgetary point of view.<sup>(98)</sup>

Another interesting conclusion of the paper by Boeters et al. (2006) is that, given that the reduced rate also benefits producers of the goods or services in question<sup>(99)</sup>, ‘*VAT rate differentiation can be viewed primarily as an industry-specific subsidy rather than an instrument of redistribution*’. This conclusion is topical, because it highlights a major practical downside of reduced rates: once introduced, they are very difficult to revoke or curtail, and they generate political pressure from other producers to extend the favourable treatment. This pressure is inherently difficult to resist, given the lack of clear criteria, or at least clear lines of demarcation, for deciding which goods deserve reduced rates and for communicating the results to the taxpayer. In the context of the EU, this problem is compounded by the unanimity requirement in the taxation area, by the sensitivity in negotiating over reduced rates in an international context, and by the fear that any expansion of reduced rates in a partner country will generate similar demands at home.

For the EU as a whole, Copenhagen Economics (2007) found that there is a limited and contingent argument for applying reduced VAT rates (or other subsidies) to sectors particularly favoured by low income households in order to improve the (post consumption) income distribution, but the argument *only* holds for countries with significant and stable consumption differences between high and low income groups. This is because if better-off households consume a similar (if larger) basket of goods, they too benefit from the reduced tax rate, augmenting its cost without any benefit. In practice, literature has not found systematically different consumption patterns between low-income and high-income households. The authors of the study therefore argue that the only relevant sector for which VAT rate reduction could make sense is food. Reducing VAT rates on food, which constitutes a larger share of consumption for low income households than for high income households, results in a cost saving that is

<sup>(94)</sup> See for instance, for the UK VAT, Davis and Kay (1985), several other studies have found a similar pattern in commodity taxes.

<sup>(95)</sup> See discussion in the section ‘The scope of reduced VAT rates in the EU’.

<sup>(96)</sup> Boeters et al. (2006).

<sup>(97)</sup> Boeters et al. (2006), p. 3.

<sup>(98)</sup> Bundesministerium der Finanzen (2010).

<sup>(99)</sup> Boeters et al. (2006), p. 3.

particularly beneficial for low income households. The larger the difference in consumption shares, the more effective the argument becomes. Simulations show that the argument has some empirical support in certain countries, in particular those with high initial income inequality.<sup>(100)</sup> Overall, Copenhagen Economics (2007) concludes that reduced VAT rates are not the best instrument for redistribution, particularly in Member States with broad, well-developed social security systems.

### VAT and merit goods

Copenhagen Economics (2007) also claims that there is a limited and contingent argument for extending reduced VAT rates (or other subsidies) to sectors which, for some (good) reason, are under-consumed. The motivation may be to make cultural (merit) goods more available for low income households or to stimulate consumption of goods with positive externalities. Possible examples of the former include books, music and cultural events. However, it is often difficult to verify whether low income households are actually motivated to purchase more merit goods or whether the lower rates act as a subsidy to high income households initially consuming more merit goods. Furthermore, reduced rates on some merit goods such as books and music can create serious tensions in the functioning of the internal market, primarily due to the ease of electronic trade.

The same study also identified a number of concerns that should be carefully evaluated when lowering VAT rates. For instance, most arguments in favour of lower VAT are equally valid for other policy instruments, such as targeted subsidy schemes or targeted changes in income tax. For this reason, in any specific case it is important to evaluate carefully whether lower VAT is actually the best instrument to achieve the desired effects.

All the empirical evidence indicates that compliance costs associated with lower VAT rates can be considerable. Differences in VAT rates between similar products may in particular give rise to a substantial number of administrative and

legal conflicts about the correct classification of specific goods.

The key to an efficient application of lower VAT or any other subsidy is to keep mechanical revenue losses low. Mechanical revenue losses arise when lower VAT (or any other subsidy) is ceded to consumption that does not contribute to reaching the desired goal. For example, if lower VAT is ceded to food in order to improve the income distribution there will be a mechanical revenue loss because high income households will also benefit from lower VAT.

The choice of a financing scheme to secure budget neutrality should be carefully considered in the context of the goals to be achieved by reduced VAT rates. For example, if lower VAT on locally supplied services (in order to increase productivity) is financed by higher marginal income taxes, the desired effect may be neutralised or reversed. If lower VAT on food (in order to improve the income distribution) is financed by higher VAT on items primarily consumed by high income households, the desired effects may be reinforced. On the other hand, the application of a uniform VAT rate to a broad base diminishes the need for high rates of other more distortionary taxes.

### The application of reduced VAT rates in the EU

As mentioned above, owing to the range of reduced rates and exemptions, the application of VAT in the EU does not comprise the entire consumption expenditure, which would be the base of the 'ideal' pure consumption tax. Although VAT is a harmonised tax, the degree of subsidiarity granted by the EU Directive is in practice considerable, as Member States can set the level of VAT rates within wide limits. There are lower limits (15% for the standard rate and 5% for the reduced rate<sup>(101)</sup>), but in either case all Member States except one impose higher levels.

Where the VAT directive imposes a binding constraint is in the limitation of the number of rates (in general, one standard and two reduced rates, except when derogations have been granted) and in allowing their application only to certain types of goods, listed in its Annex III, essentially

---

<sup>(100)</sup> Other studies, however, seem more sceptical. The Mirrlees report states for the UK, where income inequality is relatively high, that '...the policy rationale for the zero-rating of food [...] is extremely weak', p. 300.

---

<sup>(101)</sup> Super-reduced rates, below 5%, exist in five countries.



foodstuffs (including beverages, but excluding alcoholic beverages), water supplies, medicines and medical products, passenger transport, social housing, cultural goods, sporting events or facilities, social services, waste collection, hotels, restaurants and catering, and some labour-intensive personal services such as hairdressing. Exemptions (whether or not in combination with the right to deduct the VAT incurred by suppliers in producing it) are also limited to specific goods or services, most notably financial services and services in the general interest or produced by public entities.

The limitations on the rates are dictated by various considerations. As regards the lower limit of the standard rate, the limit was introduced in the run-up to the 1992 Single Market programme, as a response to fears that the abolition of internal frontiers, by making cross-border shopping easier, could put excessive downward pressure on rates. In practice, however, these fears do not seem to have been confirmed: nearly 20 years after the launch of the single market, standard rates are clearly growing. As for the upper limit on the standard rate, this is a political and not a legal commitment by Member States; it was introduced to prevent a further widening of the gap between minimum and maximum rates, particularly in view of the long-term aim to switch to the origin-based system of VAT, which requires a close degree of approximation of rates. All in all, the fact that all Member States but one have exceeded the 15% minimum limit suggests that the pressure on standard rates from cross-border shopping is limited. The pressure to go beyond the 25% upper limit also appears relatively limited<sup>(102)</sup>.

The landscape is completely different for reduced rates. Experience shows that domestic political pressure for granting beneficial treatment to specific goods (and therefore to specific producers) is typically quite strong. Member States often fear that when another country is calling for the application of a reduced rate in a specific sector, this will spark similar requests domestically, which will be hard to resist. The extension of reduced rates may therefore be seen as creating policy 'externalities' for other Member States, even in the absence of significant inter-state commerce of the good or service in question. In this respect, the

limits of the reduced rates can be seen as providing a superior policy framework and preventing the risk of a fragmentation of the VAT regime and of a race to reduce rates even more. The limitations on the number of reduced rates also seem to be a useful safeguard against the proliferation of special regimes.

The limitations to Member State sovereignty in terms of the legal form of the VAT are founded on the importance that a reasonably uniform VAT system has in ensuring manageable costs for intra-EU commerce. Even under current circumstances, there is good reason to believe that the differences between national VAT regimes lead to much higher compliance costs for firms that export to another EU Member State than for those that sell their products domestically.<sup>(103)</sup> A harmonised VAT system therefore seems to be an essential building block of the Single Market.

The above discussion shows that there are sound arguments for the coordination of policies on VAT rates among Member States. The current framework allows for considerable flexibility at rate level and for some common structure at the level of the VAT system, although there could be room for improvement on either level. However, the framework is constrained by the unanimity rule which applies generally in the taxation area, and which typically results in very long adaptation periods. Indeed, the Monti report (2010) identified taxation as one area where a strengthening of the working of the Internal Market would be advisable. As for the structural elements of the VAT system other than rates such as the general design of the system, the rules on zero-rating of exports, and in particular the rules targeting the risk of double taxation (where the rules on place of supply of goods and services were not harmonised), the rationale for coordination between Member States is even stronger, justifying the solution adopted by the EU Treaties on harmonisation: namely wide latitude for Member States on the rates, but within a common legal framework.

#### 4.2.5. Environmental taxation

Environmental policy objectives, though high on the policy agenda, introduce a necessary and

<sup>(102)</sup> Although it should be mentioned that three Member States have a 25% standard rate.

<sup>(103)</sup> European Commission (2010f).

justified constraint on the economy. Several types of taxes can be applied to achieve the environment policy objective. However, the design of the specific tax is essential in order to achieve the desired outcome.

Environmental taxes will, as mentioned in section 4.1.1, tax the source of the negative externality directly in proportion to the environmental bad. Thus, the tax should be levied in direct relation to the environmental damage, i.e. emissions or pollution. In comparison with alternative policy measures, e.g. freely allocated emissions or pollution allowances or regulation, taxes have the advantage that they generate fiscal revenue, which can contribute to fiscal consolidation. Alternatively, the revenue can be used to mitigate potentially negative impacts of the tax on vulnerable groups or to reduce other distortive taxes in the economy.

Moreover, environmental incentives can also be integrated into the design of other taxes. A disincentive can be created by levying a higher tax on products that are negative for the environment, or alternatively — and more frequently — incentives can be created by providing a tax subsidy for a more environmentally friendly choice. Examples of such tax differentiation are CO<sub>2</sub>-related vehicle taxation and reduced VAT rates on environmental merit goods.

When designing an environmentally friendly tax, it is vital to ensure that the design being considered will actually generate the intended outcome in terms of changed behaviour. This section looks more closely at two areas of environmentally related taxation which have been discussed recently at EU-level. First, the state of play of the revision of the Energy Tax Directive (ETD) is reviewed. Secondly, the issue of reduced VAT on energy-saving products is analysed more closely.

#### State of play of environmental taxation at EU level

According to the current stage of Community law in taxation, EU Member States are free to shape their tax legislation and apply tax measures to achieve their policy objectives. In the field of environmental taxation, Member States may levy taxes on excise goods, provided they respect existing EU harmonisation provisions in indirect

taxation, the EU Treaties and the case-law of the European Court of Justice. In addition, ‘the levying of such taxes may not, in trade between Member States, give rise to formalities connected with the crossing of frontiers.’<sup>(104)</sup> Against this background, governments have to ensure that the tax measures applied do not lead to discrimination and therefore to distortions in the Internal Market.

In the Green Paper<sup>(105)</sup> on market-based instruments for environment and related policy purposes, the Commission encourages the utilisation of instruments such as indirect taxation and tradable emission rights for achieving environmental policy objectives. The economic reasoning for applying such instruments is based on their capacity to improve resource allocation by internalising external costs. As a result a market failure may be corrected in a cost-efficient way. As mentioned in the Green Paper, it also remains important to reform and remove environmentally harmful subsidies so as to ensure that the policy framework is consistent. These policy objectives, i.e. to use market-based instruments and phase out environmentally harmful subsidies, also form part of the Europe 2020 Strategy<sup>(106)</sup> and a Communication on resource-efficient Europe as part of this Strategy.<sup>(107)</sup> The abovementioned considerations concerning market-based instruments play an important role in reforming EU energy taxation. On 13 April 2011 the Commission adopted a proposal<sup>(108)</sup> for an amendment of the Energy Taxation Directive (ETD). The point of the revision of the ETD is to bring energy taxation into line with general strategic policy objectives as set out in Europe 2020 by helping to make the European economy more resource efficient, greener and more competitive.<sup>(109)</sup>

A major drawback of the current ETD (2003/96/EC) is that the minimum rates for the taxation of energy products are based on historical rates and levied in terms of the volume of energy consumption. Thus, the rates do not relate to the energy content of the energy products or to their carbon content. This causes a number of important

<sup>(104)</sup> OJ (2009): Council Directive 2008/118/EC.

<sup>(105)</sup> European Commission (2007): COM(2007) 140 final.

<sup>(106)</sup> European Commission (2010c).

<sup>(107)</sup> European Commission (2011m): COM(2011) 21.

<sup>(108)</sup> European Commission (2011d): COM(2011) 169/3.

<sup>(109)</sup> European Commission (2010c): COM(2010) 2020.

distortions. <sup>(110)</sup> First, it does not provide incentives to the efficient use of energy products and it distorts the functioning of the Internal Market. Second, it does not promote the environmental-friendly use of energy by distinguishing between greenhouse gas and non-greenhouse gas emissions. Lastly, it does not encourage the use of renewable energy sources, because it taxes renewables at the standard fuel rate even though they have lower energy content in general.

The proposal for a revision of the ETD takes these aspects into account and rebalances the taxation of energy products according to their energy content and their CO<sub>2</sub> emissions. In addition, the proposal for a revised directive ensures that the directive complements the EU Emission Trading System.

In conjunction with the proposal for a revision of the ETD, the Commission also published an Impact Assessment <sup>(111)</sup> on the micro- and macro-economic impacts of the amendments. Macro simulations demonstrate that the most positive impacts result from a growth-friendly environmental tax reform, i.e. shifting the tax burden from labour taxation to environmental taxation. In quantitative terms, the first-best scenario shows that Member States could collect substantial additional revenue of almost 40 billion euro and benefit from GDP growth of 0.27% by 2030. The option implies the introduction by Member States of a CO<sub>2</sub>-tax of EUR 20 per tonne of CO<sub>2</sub> on the top of their current national tax rates, and using the revenue gains to reduce labour taxation. In all other respects, the impact of the proposed revision of the ETD is limited in scope, but still positive.

#### Reduced VAT on energy saving products

One particular type of merit good consists of environmentally-friendly products, usually identified as appliances that incorporate energy-saving technology. The arguments for reduced VAT rates on such products are often mentioned in the context of the efforts to reduce energy consumption.

The Copenhagen Economics study on reduced VAT for environmentally-friendly products (2008) shows that the best approach to reducing GHG emissions is to tax at source. Carbon taxes, and also the EU Emissions Trading Scheme (ETS), are examples of a tax at source. Indeed, ETS covers emissions of CO<sub>2</sub> from nearly all electricity consumption and district heating by households. Due to the nature of a cap-and-trade system, the level of emissions is determined exclusively by the number of allowances allocated. Thus, any new measures encouraging lower electricity use by households will lead to a lower price of ETS emission allowances, but will leave the level of CO<sub>2</sub> emissions unchanged.

Consequently, the real issue is whether additional action, such as providing tax breaks to the most energy efficient variant of a specific product, is able to reduce the cost of CO<sub>2</sub> abatement beyond what is offered by the EU ETS. Promotion of energy efficient product variants should be about lowering the costs of meeting climate and energy policy targets by pushing consumers in the direction of the ‘low hanging fruit’.

It is essential that consumers are provided with accurate information about the energy consumption of the different variants of the same product, for example freezers. This enables them to save money and energy by choosing the most energy efficient product. The EU Commission launched a major programme in July 2008 to encourage more widespread and improved energy labelling of products, thus allowing consumers to choose the products with the lowest overall costs during the lifetime of the product. In many countries, consumers are also encouraged to carry out so-called ‘energy audits’ to identify how to save energy cost-effectively.

However, even with improved labelling in place, consumers may be reluctant in practice to switch to more energy efficient products, even if such products save them money. The price of energy-intensive products— for example light bulbs — may be so low that consumers do not really focus on the energy costs associated with the *use* of the product when buying it. This situation may call for either minimum efficiency standards to remove the ‘worst’ performing (inefficient) products from the market and potentially a subsidy such as a reduced VAT rate to promote the ‘best’ performers

<sup>(110)</sup> European Commission (2011e): COM(2011) 168/3.

<sup>(111)</sup> European Commission (2011f): SEC(2011) 409.

(efficient). Furthermore, some products may actually be so expensive that cash-strapped households choose the variant which is less expensive but which consumes more energy. In both cases, the idea is to reduce the upfront purchase price rather than letting price incentives work through lower user costs during the lifetime of the product.

Copenhagen Economics (2008) sets out three main conclusions on the effectiveness and efficiency of using reduced VAT rates to encourage consumers to save energy. First, it is not clear whether energy savings will inevitably follow from such purchase rewards. The energy efficient appliances will gain market share from the inefficient ones, but at the same time more and larger electric appliances may be bought, as the price of these products falls significantly. This will shift overall consumption towards products that are energy intensive in use. Modelling results suggest that net effects on energy consumption are highly dependent on both how the VAT subsidy is calibrated in terms of product coverage, energy efficiency requirements, and country specific circumstances.

Second, a lower VAT rate is a ‘blunt instrument’ and may also lead to compliance problems in the real world. These problems could most likely be reduced or eliminated by using alternative measures that provide more targeted incentives to shape consumers’ purchase decisions. For instance, rather than offering a VAT rate cut to all boilers/freezers that are classified as being energy efficient, consumers could be offered a fixed amount of money.

Third, many of the products considered for inclusion under the lower VAT rates, such as freezers, have ‘cross-border trade potential’ because they are relatively expensive.

#### 4.3. INTERACTION BETWEEN DIFFERENT TAX SYSTEMS IN THE EU

The effect that tax structures might have on sustainable growth does not stop at national boundaries. Given the high degree of integration of the EU single market, and the high mobility of certain factors, policy makers’ decisions might be influenced by tax competition and tax evasion considerations. As mentioned in Chapter 1, the

Euro Plus Pact, adopted at the European Council of 24/25 March 2011, stipulates that pragmatic coordination of tax policies is key to supporting fiscal consolidation and economic growth in the euro area. Under the ‘Euro Plus Pact’, Member States commit to engage in structured discussions on tax policy issues, notably with a view to ensuring the exchange of best practices, avoiding harmful practices and fighting against fraud and tax evasion.

The Monti report of 2010<sup>(112)</sup> stresses ‘...that it is important to devise solutions that minimise harmful tax competition and remove the in-built bias towards taxation of less mobile basis’. One of the Commission’s priorities for the near future<sup>(113)</sup> is to remove cross-border tax obstacles for EU citizens.

Against this background this chapter deals with the economic rationales for intergovernmental tax cooperation and tax competition from the theoretical and empirical points of view. In addition, the potential of tax cooperation for increasing the efficiency of the EU Internal Market will be depicted.

#### Theoretical background

The standard theoretical model of tax competition<sup>(114)</sup> was developed by Zodrow and Mieszkowski (1986), as well as Wilson (1986). In this model there are two production factors: capital (mobile) and land (immobile). The local government does not waste or overtax and pursues the maximisation of its citizens’ utility (benevolent government). It levies a tax to finance the provision of a public good. In a first-best situation without capital outflow (closed economy), the government sets an optimal tax rate at which the marginal benefit of supplying the good equals the marginal cost of raising the tax.

However, the model shows that capital flow liberalisation leads to the outflow of capital. In an open economy, therefore, the marginal costs of tax setting are higher due to the additional cost of capital outflow (base effect). For this reason the

---

<sup>(112)</sup> Monti (2010), p. 80.

<sup>(113)</sup> European Commission (2010g): COM(2010).

<sup>(114)</sup> Following Nicodeme (2006) tax competition refers to non-cooperative tax setting by independent governments to attract mobile tax base.

local government is forced to reduce its supply of public goods due to a fall in tax revenue. What the local government does not take into account is the fact that a loss in the tax base of one country results in an increase in the tax base of another country. Under the assumption that world capital supply is fixed, an increase in a country tax rate leads to a positive externality. However, the capital export country does not take this into account, as it is concerned only with maximising the welfare of its own households. As a consequence, without tax coordination, there is under-provision of public goods.<sup>(115)</sup>

Based on this model, there are two ways of dealing with this dilemma. The first one is through tax coordination; the countries decide to increase all tax rates by the same amount. As a consequence, the welfare increases in all countries since the additional cost of capital outflow are zero and the marginal cost of taxation equals the marginal benefit of the provision of public goods. Another theoretical option is to limit capital mobility, i.e. to close the economy. In this situation capital outflow is not possible and a capital tax equals a lump-sum tax. Therefore, every country could set its tax rate at a socially desired level.

Bucovetsky and Wilson (1991) modified the model depicted above so as to allow for country size bias and labour taxation. The results show that smaller countries face a more elastic corporate tax base and prefer to set their capital tax rate at a lower level. Bigger countries, on the other hand, have a less elastic tax base and choose to set their tax rates at higher levels to restore equilibrium.

The introduction of labour taxation into the model demonstrates that smaller countries will tax labour only. The reason for that lies in the elasticity of labour; it is assumed to be inelastic (the labour-leisure trade-off is left out of consideration). Thus labour taxation is similar to a lump-sum tax.

Capital, on the contrary, from a small country perspective, is completely elastic since it cannot be affected. Sizable countries, on the other hand, will

tax labour and capital according to the elasticity of capital supply. The less elastic the capital base, the higher its contribution to the provision of public goods.

The predictions of the models presented above derive inter alia from the assumption that the government is benevolent, i.e. it pursues the maximisation of its citizens' welfare. Challenging this assumption, however, changes the results of the standard competition model significantly. Edwards and Keen (1996), for example, set up a theoretical model in which the objective function of the government includes two parts: a household's utility objective and a revenue raising objective. The model outcome shows that two parameters determine whether tax coordination is worthwhile: (1) the marginal excess burden of taxation approximated by the marginal deadweight loss per dollar of revenue and (2) the marginal propensity of the policy makers to waste. The first parameter is an approximation of the marginal benefit and the second of the marginal cost of tax coordination. Therefore, tax coordination<sup>(116)</sup> is desirable 'if, and only if, the former exceeds the latter (the efficiency gain then being sufficient to outweigh the policy-maker's tendency to waste)'.

More recently, Devereux et al. (2008) developed a model to account for strategic tax rate setting between open economies. Their model is an extension of the Zodrow and Mieszkowski model presented above so as to allow for tax competition analysis through both an effective marginal tax rate (EMTR) and a statutory tax rate. The authors therefore introduced mobility of corporate profit, i.e. the possibility of profit-shifting via transfer pricing into the model. In addition, Devereux et al. (2008) explicitly examined the slopes of the reaction function so as to be able to achieve testable predictions. The results of the modified model unambiguously show that there is strategic interaction between countries without capital flow restrictions. Moreover, governments compete over both of the tax instruments examined — namely statutory tax rates and EMTRs.

#### Empirical evidence

As shown above, the theoretical literature on international tax competition has developed

<sup>(115)</sup> Race-to-the-bottom is used in similar manner to describe a situation in which governments have an incentive to engage in wasteful competition by cutting tax rates to attract mobile bases. Under-provision of public goods from this point of view is the result of a race-to-the-bottom, see also Dhillon et al. (2006).

<sup>(116)</sup> Edwards and Keen (1996), p. 131.

significantly in recent years, inter alia by extending the standard model in order to consider: the degree of mobility of production factors, heterogeneous regions and Leviathan behaviour, as well as strategic interactions via different tax instruments. The empirical literature has also evolved in assessing the magnitude and statistical significance of tax competition effects.

Against the theoretical background presented above, the results of an empirical study performed by Garrett (1995) are surprising. The outcome of a panel analysis, including 15 OECD countries for the period 1976-1990, indicates that international trade used as a proxy for liberalisation is positively related to capital taxation as a share of GDP. In the same manner, Swank (1998) identified a positive relationship for 17 industrial economies between capital mobility and a proxy for corporate taxation.

On the other hand, a panel analysis of 19 OECD countries for the period 1965-1991 carried out by Rodrik (1997) shows that capital taxes are significantly and negatively influenced by openness. Labour taxes, on the other hand, are significantly and positively affected by international liberalisation. However, these results are not robust to dummies for capital account restrictions.

Bretschger and Hettich (2001) apply a panel analysis to 14 OECD countries for the period 1976-1996. Their results show that corporate taxes are significantly and negatively related to globalisation and economic integration. Labour taxes and social expenditure, on the other hand, depend positively and significantly on economic integration. The empirical outcome clearly demonstrates that there is a change in the tax mix from an increasingly elastic corporate tax base towards a relatively inelastic labour tax base. Finally, by including an endogenous variable for labour taxation in the estimation equations, they found a significant positive impact of globalisation on labour taxes.

A more recent study by Stewart and Webb (2006) reaches different conclusions. The authors exploit a different variable, namely the corporate tax burden measured as corporate tax revenue as a percentage of GDP and of total taxation. Stewart and Webb applied both cointegration and descriptive analysis for OECD countries for the

period 1950-1999 and found no indication of a 'race-to-the-bottom'.

Devereux et al. (2008) used the above presented theoretical model of strategic interaction between governments as a base for an empirical investigation of the reasons behind the fall in statutory tax rates in OECD countries during the period between 1982 and 1999. The authors found clear empirical evidence of strategic tax rate settings between open economies. The regression results show that countries compete over both statutory tax rates and EMTRs, but especially over the former. In addition, Devereux et al. (2008) tested whether the empirical evidence of strategic interaction is due to other factors, such as yardstick competition or tax mimicking. The test results show that the reason behind the evident strategic interaction cannot be explained by yardstick competition and tax mimicking, but is due to competition over mobile profit, as the theoretical model predicted.

Another type of tax interaction stems from the implications for price and income of tax changes which affect trade and competitiveness. These issues are especially relevant in integrated economic areas such as the EU, suggesting that the economic implications of tax changes should be appraised in the wider European context to give a more comprehensive account of their potential distortionary effects. Recent simulations conducted by the Institute for Prospective Technological Studies of the European Commission's Joint Research Centre (JRC-IPTS) using the CGE model GEM-E3 calculate the distortive effect of tax increases in the EU. <sup>(117)</sup> The analysis uses the concept of 'marginal cost of public funds' (MCPF), which measures the welfare loss to the economy (in monetary terms) for each additional euro collected by the government. Generally this cost is found to be positive, although it differs across tax categories depending on their distortionary effect on economic activity. <sup>(118)</sup> The JRC-IPTS simulations were conducted for two tax categories, namely VAT and labour taxes, for all EU countries (except Cyprus, Malta and Luxembourg) calibrated on 2005 data. These

---

<sup>(117)</sup> More information about the GEM-E3 model can be found at [www.gem-e3.net](http://www.gem-e3.net).

<sup>(118)</sup> For a comprehensive review of the literature on MCPF see Dahlby (2008).

results show that the loss of efficiency due to tax increases (as measured by the MCPF) would be reduced if these tax rises were to be coordinated across countries in order to internalise trade-related spillover effects. In addition, these results indicate that, while the efficiency gains of cross-country tax coordination would be sizeable for both tax categories, these would be potentially higher for VAT vs. labour taxes. Box 4.1 at the end of the section provides a more detailed account of these simulation results and the GEM-E3 model.

#### Increasing the efficiency of the Internal Market through tax coordination

Tax coordination at EU level could lead to efficiency gains by removing the obstacles imposed by uncoordinated tax measures on the Single Market. According to the current state of Community law in taxation matters, Member States are free to design tax policy and apply tax measures to achieve their policy objectives. EU governments, however, have to ensure that the measures applied are compatible with the Internal Market and State aid rules and that they comply with EU legislation in tax matters, the Treaty provisions and the case-law of the European Court of Justice (e.g. on non-discrimination).

There are cases, however, where Member States' rules conflict with the Treaty freedoms as in taxation of gains, dividend taxation, group taxation, taxation of branches and anti-avoidance rules<sup>(119)</sup>, as well as in regard to individual taxation.<sup>(120)</sup> The complexity of tax laws, even in the presence of large body of European Court of Justice case law, makes it difficult for tax administration, domestic courts and tax payers to apply the Treaty freedoms in a consistent manner.

Past experience has shown that it has been difficult in many cases to respect the non-discrimination rule.<sup>(121)</sup> The unilateral response to remove certain tax advantages or apply the same requirements in domestic and cross-border situations has often been ineffective. As a result, the competitiveness of Member States' economies has been undermined.

Another important issue to be dealt with is double taxation, which is a major cross-border obstacle for the Internal Market and investment in the EU.<sup>(122)</sup> Double taxation causes costs that businesses and citizens have to bear by operating cross border in Europe and dealing with up to 27 different tax systems. This is therefore a classic example of an obstacle due to a lack of coordination in taxation, which can only be resolved by coordination between Member States.

In addition, insufficient tax coordination may lead to inadvertent non-taxation and tax evasion detrimental to much needed tax revenues and the erosion of the social system of the Member States. Moreover, uncoordinated tax measures may have external impacts on the tax systems of other Member States. These externalities may be detrimental, especially under a common currency or a fixed exchange rate.

Lastly, it is important to note that tax measures may fall within the scope of EU rules on State aid. Article 107(1) TFEU states that 'any aid granted by a Member State or through State resources in any form whatsoever which distorts or threatens to distort competition by favouring certain undertakings or the production of certain goods shall, in so far as it affects trade between Member States, be incompatible with the Internal Market'. In applying the EU rules on State aid, it is therefore irrelevant whether the measure is a tax measure, since Article 107 applies to aid measures 'in any form whatsoever'.

Tax measures meeting the cumulative criteria of Article 107(1) are subject to a system of prior Commission authorisation and Member States may not put the proposed aid measures into effect until the Commission has approved them.

When designing their tax measures, Member States therefore have to assess the need to notify the Commission of their proposed tax measure, in particular where it appears that such tax measures introduce favourable tax treatments for certain categories of undertakings or for the production of certain goods.

<sup>(119)</sup> European Commission (2006): COM(2006).

<sup>(120)</sup> European Commission (2010g).

<sup>(121)</sup> European Commission (2010g).

<sup>(122)</sup> European Commission (2006), *ibid.*

**Box 4.1: The marginal cost of multilateral vs. unilateral tax increases in the European Union: recent estimates based on the GEM-E3 model**

In the wake of the global finance crisis EU Member States are confronted with the need to consolidate their public finances while promoting economic growth. This implies raising taxes or reshuffling the tax systems towards less distortive taxes, which may entail complex distortionary effects on production costs and consumption prices and thus market equilibrium. Given the level of economic integration in the EU, the economic costs of tax increases should be appraised in the wider European context, as it may partly be dependent on the degree of economic coordination. The degree of distortion is likely to be influenced by whether the tax increase is implemented unilaterally or in coordination with other (trading-partner) countries, and whether the cross-border effects of a tax change are taken into account.

One possible way to assess the size of the distortions related to tax changes is to calculate the marginal cost of public funds (MCPF) which measures the relative welfare loss (and benefits) incurred through tax increases. Such an approach is one of the most used tools for the evaluation of the distortionary effects of tax reforms, public expenditure programs and other public policies (see in particular Dahlby, 2008). This Box provides estimates of the MCPF for EU countries with a focus on distortions linked to cross-border effects of tax changes making use of the Computable General Equilibrium (CGE) GEM-E3. The analysis is performed for all EU countries (except Cyprus, Malta and Luxembourg) and for two tax categories, namely labour taxes and VAT.

**The GEM-E3 model for tax analysis: strengths and caveats**

The model GEM-E3 models the interactions between the economy, the energy system and the environment at country and EU level. <sup>(1)</sup> The model GEM-E3 is especially appropriate for the purpose of estimating the MCPF for European countries for at least three important reasons. First, the calibration of the GEM-E3 model is based on social accounting matrices (SAM) for 2005. As a result, the tax rates are calibrated as an effective rate, i.e. the ratio between the tax revenues and the corresponding tax basis for each tax category as reported in the SAMs, which provides a fairly reliable picture of the economy and the tax system in order to simulate the effects of policy changes. Second, the GEM-E3 model offers a great level of detail regarding tax systems as it distinguishes between nine categories of government receipts, namely indirect taxes, environmental taxes, direct taxes, value added taxes, production subsidies, social security contributions, import duties, foreign transfers and government firms. Third, the GEM-E3 model comprises all sectors of the economy broken down into 18 sectors while private consumption is divided among 13 durable and non-durable goods. Such level of detail allows for a consistent evaluation of the distributional effects of tax policy changes for the different sectors of activity and economic agents.

Despite their analytical appeal, the use of CGEs to estimate the MCPF is subject to a number of caveats. First, despite the relative high degree of disaggregation a CGE model remains an abstraction of the real world. For instance in most countries “capital taxation” is very complex and it cannot be perfectly mimicked in a CGE model. Second, the EU Member States are linked through bilateral trade; however, cross-border shopping is not modelled. Third, the version of the model GEM-E3 used here is based on a highly stylised representation of labour markets as labour supply is the result of a trade-off between leisure and consumption and a flexible market-clearing wage balances labour supply and demand. The model therefore does not take into account – at this stage – the possibility of involuntary unemployment nor does it consider a potential wage gap (implied for instance by the existence of minimum wages). These simplifications do not necessarily affect the analysis of trade-related tax spillovers when tax policy changes take place

<sup>(1)</sup> The GEM-E3 model is hosted by the Institute for Prospective Technological Studies (IPTS) of the European Commission Joint Research Centre. The JRC has also provided the results reported in this Box. For more information regarding this model, see [www.gem-e3.net](http://www.gem-e3.net).

*(Continued on the next page)*



*Box (continued)*

however, unless one assumes that labour market imperfections directly affect the strength of cross-country tax spillovers <sup>(2)</sup>.

#### The concept of marginal cost of public funds

The estimation of the MCPF can be undertaken using a general equilibrium approach encompassing all the potential market effects of a given tax increase as well as the interactions between economic agents and resulting changes in the tax bases. The MCPF can be calculated using the following formula:

$$MCPF_{i,k} = \frac{\Delta W_{i,k}}{\Delta TR_{i,k}} \quad (1)$$

where  $\Delta W_{i,k}$  is the welfare loss due to the increase of tax  $k$  in country  $i$  and is calculated as the change in consumer utility based on the indirect utility function in order to give it a monetary value. It could be conceptualised as the reduction in consumption relative to a benchmark case of no-policy change, where prices and incomes are fixed at their "no-policy-change" benchmark level <sup>(3)</sup>. The term  $\Delta TR_{i,k}$  in equation (1) represents the corresponding change in tax collection in country  $i$ .

The MCPF provides a metric for the loss in welfare (the efficiency loss) per unit of tax revenue gain. If the MCPF equals one, then the tax is merely a lump-sum transfer from the households to the government with no distortion. Typically, however, the MCPF is greater than one such that  $MCPF = 1 + \alpha$ , with  $\alpha > 0$  representing the cost of the distortion. This means that for every euro that goes into the government's purse, the economy pays an efficiency cost of  $\alpha$  euros. The higher the MCPF, the larger the distortive cost vs. the tax revenue gains.

The results presented in Table 1 provide estimations of the MCPF for a very small tax increase of 0,001% of the effective tax rate in 2005. The small increment is intended to capture the marginal nature of the tax change. In practice the proceeds of a given tax increase are used to finance policy objectives such as an increase in public expenditure, a subsidy, or to repay public debt. As the impact of the allocation of tax proceeds is beyond the scope of this Box, the estimate of the MCPF of a given tax increase is isolated by allocating the (small amount of) additional tax revenues to the rest of the world (i.e. outside the EU).

This Box reports the values of the MCPF for labour taxes and VAT related to a tax increase implemented simultaneously by all EU countries vs. a benchmark case of unilateral tax increases. As mentioned above, the externality modelled in GEM-E3 stems from bilateral trade relationships. A given tax policy change will affect bilateral trade flows and, thus, economic activity (i.e. production and consumption). It will also impact on tax revenues via two channels: tax changes will affect both i) relative prices of domestically produced vs. foreign goods and services and ii) disposable income through changes in price levels and purchasing power. Tax changes will also spill through the production chain: for instance countries importing intermediates from a country implementing a tax increase will face higher production costs if substitution possibilities (i.e. import from alternative suppliers) are limited. Tax changes also affect demand for intermediates produced abroad. A country implementing a tax increase will thus face a competitiveness loss as well as lower purchasing power. Furthermore, partner countries may benefit on the one hand from a price-competitiveness gain if their exports are close substitutes of the goods and services produced by the tax-increasing country. On the other hand, partner countries may eventually lose if their exports are complementary to those of the tax-increasing country or if the lower economic activity in the tax-increasing country reduces its imports from the partner country. Therefore the net effect of tax change on trading partners can be either positive or negative.

<sup>(2)</sup> For comparability across scenarios, budget-neutrality is assumed for the tax changing country as well as for the other EU Member States.

<sup>(3)</sup> This technically corresponds to the "equivalent" variation. Alternatively, using the "compensating" variation would imply using the prices and income corresponding to "policy change" scenario. See Dahlby (2008) for a discussion.

*(Continued on the next page)*

*Box (continued)*

The MCPF as in equation (1) is calculated for a unilateral tax increase for each EU country separately and an average single value is obtained using the respective GDPs as weight. In Table 1, this value is then compared to the results of two alternative MCPF measures (as explained below in equations 2 and 3) which enable the evaluation of the tax spillovers.

An alternative MCPF measure, denoted  $MCPF_k^{EU}$ , is computed for all EU countries when they jointly implement the same tax increase as in equation (2) below:

$$MCPF_k^{EU} = \frac{\sum_i \Delta W_i}{\sum_i \Delta R_i} \quad (2)$$

where  $W_i$  and  $R_i$  are the equivalent variation in welfare and tax revenues changes, respectively, linked to a marginal increase in the tax rate  $k$  of country  $i$ . The value of  $MCPF_k^{EU}$  is obtained from a single simulation where all countries increase a given tax simultaneously once and results for  $W$  and  $R$  are added across countries. Thus, while equation (1) adopts the perspective of a single country which does not take into account any spillover effects of its own tax increase, by contrast equation (2) adopts the perspective of a simultaneous multi-country tax change where all externalities between participating countries are internalized.<sup>(4)</sup>

Alternatively one can also derive a measure of the MCPF where tax-related spillovers are taken into account by considering unilateral tax increases as indicated in equation (3) below:

$$MCPF_{i,k} = \frac{\Delta W_i}{\Delta R_i + \sum_{j \neq i} \Delta R_j} + \frac{\sum_{j \neq i} \Delta W_j}{\Delta R_i + \sum_{j \neq i} \Delta R_j} \quad (3)$$

where  $i$  is the country implementing a given tax change while  $j$  are the other countries (not implementing any tax change). The second term of equation (3) represents the spillover effect which can be compared to the first term of equation (3) which represents the impact of a tax change for the country implementing it only. The average MCPF for unilateral tax increases calculated as in (1) can then be compared to the average value of the MCPF for unilateral tax increases including the impact of unilateral tax increases on other countries welfare and tax revenues as calculated in (3).

#### **Findings: tax coordination reduces the cost of tax hikes**

The results of calculating (2) and (3) are reported in Table 1. The first row of Table 1 provides results of the difference (in percentage change) in the cost of tax rises (as measured by the MCPF) for labour tax and VAT in the case where all countries implement simultaneously the same tax increase vs. the case where a single country unilaterally makes such a change.<sup>(5)</sup> These results show that the MCPF is lower for both the VAT and labour taxes in the multilateral compared to the unilateral tax increase cases. The MCPF in (2) is lower as it internalizes the positive effects to the partner regions. In the case of the VAT this effect is even higher, suggesting that the spillover effects related to price-competition effects and income effects are stronger for VAT compared to labour taxes. Turning to the calculation of (3) and comparing it with (1) one finds similar evidence suggesting that the positive trade-related tax spillovers reduce the MCPF by 7% and 9.8% for labour taxes and VAT respectively as indicated in the second row of Table 1. Therefore, the two methods provide very similar results.

<sup>(4)</sup> One must note that a minor part of the differences between the weighted form of equation (1) and equation (3) are due to the weight measures (and not the result of spillover effects). The unilateral increase calculated as the weighted average of (1) across countries uses the GDP level as weight, whereas equation (3) implicitly uses  $W$  and  $R$  as weights. However, these three variables are by construction closely related.

<sup>(5)</sup> For comparability across scenarios, budget-neutrality is assumed for the tax changing country as well as for the other EU Member States.

*(Continued on the next page)*

Box (continued)

**Table 1: Change in the marginal cost of public funds for a multilateral vs. unilateral tax increase**

	<b>Labour</b>	<b>VAT</b>
(a) Difference in MCPF between, multilateral vs. unilateral tax increase -difference between eq. (1) and eq. (2)	-6.3%	-9.8%
(b) Change in MCPF linked to tax spillover - difference between eq. (1) and eq. (3)	-7.0%	-9.8%

*Source:* Commission services.

The simulations conducted with the GEM-E3 model therefore suggest that the efficiency loss related to tax increases (as measured by the MCPF) are reduced if these are coordinated across countries in order to internalise spillover effects. In the model used here this result can be entirely attributable to trade-related spillovers and, more specifically price-competitiveness and income effects. These results also indicate that efficiency gains are potentially higher for VAT vs. labour taxes thus suggesting that tax coordination is also likely to offer greater scope for minimising tax-increase distortions in the former case. It is worth noting that the existence of relatively large spillovers for VAT is found despite the fact that GEM-E3 does not model cross-border shopping effect in VAT (which are potentially important in the EU, especially in small Member States). Future work should be conducted in this area in order to extend the analysis to others tax categories (e.g. capital and energy taxes) and also in order to consider labour market imperfections which are likely to be important to analyse the joint effect of tax increases and structural reforms.



## 5. TAX POLICY CHALLENGES IN EURO-AREA MEMBER STATES IN DIFFICULT TIMES

This chapter aims to identify the nature and scope of the macroeconomic challenges that individual euro-area Member States are facing in difficult times in the field of taxation and tax policy. The importance of tax challenges in the overall policy setting is heavily stressed in the context of the annual cycle of policy coordination (the ‘European Semester’), as highlighted in Chapter 1. The challenges have mainly to do with two particular macroeconomic dimensions of taxation: the sustainability of public finances and the growth-friendliness of tax structures (including fostering employment/making work pay). Taxation issues are particularly relevant in a context where Member States need to speed up their consolidation effort by also considering revenue-raising measures, while preserving fragile economic growth by enhancing the quality of taxation.

In addition to the two overarching challenges of fiscal consolidation and growth-friendly tax structures, there are other more specific but nevertheless fairly universal challenges. They relate to: (i) reducing tax expenditures affecting direct taxation, (ii) reducing the debt bias in the tax system, (iii) increasing VAT efficiency, (iv) issues related to environmental taxation, and (v) tax governance issues (tax evasion/avoidance and tax administration).

Many tax policy challenges are, however, rather country-specific and depend very much on the tax system or the institutional set-up in place in a given Member State. Such challenges may often not be identified when applying a horizontal approach. These country-specific challenges, which tend to be related to the complexity of a Member State’s tax system, the relationship between tiers of government, and the favourable tax treatment of specific sectors, will not be addressed in this chapter. As a consequence, the findings presented here are a contribution to the overall Commission assessment rather than policy prescriptions.

As a first attempt to identify macroeconomic country-specific challenges in the field of taxation and revenue-raising policy, this chapter only considers euro-area Member States in order to deal

with a more tractable set of countries. The Euro Plus Pact, endorsed by euro-area Heads of State and Government (as well as other Member States on a voluntary basis) at the March 2011 meeting of the European Council, stressed the particular relevance of taxation issues for the euro area. However, the Commission services continue to expand the analysis to non-euro area countries, in particular to those participating in the Euro Plus Pact.

The first step of the analysis consists in a preliminary horizontal quantitative screening of euro-area Member States to identify countries that may need to consider tax policy measures in the area of fiscal consolidation (section 5.1). Based on the analysis of the quality of taxation set out in Chapter 4, a first quantitative screening will then be used to determine which euro-area Member States could enhance the growth-friendliness of their tax structure (section 5.2). Countries will then be screened against a list of additional horizontal challenges, as outlined above (section 5.3). Finally, section 5.4 will summarise the results and present a synopsis of the tax policy challenges faced by individual euro-area Member States.

### 5.1. CHALLENGES RELATING TO FISCAL CONSOLIDATION: A FIRST QUANTITATIVE SCREENING

In this section, euro-area Member States are subject to a preliminary horizontal quantitative screening — against common criteria and indicators — to identify needs for tax policy measures in the areas of fiscal consolidation and the sustainability of public finances. A large need for fiscal consolidation paired with a rather low tax burden in a Member State may indicate potential room for tax increases to contribute to fiscal sustainability.

#### 5.1.1. Main screening principles

While experience from successful consolidations suggests that fiscal adjustment should primarily come from the expenditure side of the budget, <sup>(123)</sup> the 2011 Annual Growth Survey (AGS) states that,

---

<sup>(123)</sup> See European Commission (2010a).

given the need for rigorous fiscal consolidation in the aftermath of the crisis, a contribution from additional tax revenues will be necessary in some Member States. As an important caveat, it should be noted that the aim of the indicator-based analysis is to identify ‘potential options for increasing tax revenues’, rather than recommending tax increases in any definitive way. One major risk inherent to tax-side consolidation is that it can create disincentives to engage in serious expenditure-based consolidation focusing on inefficiency in public spending, which should remain the priority of national strategies.<sup>(124)</sup> Moreover, low current tax-to-GDP ratios might also be indicative of a need to improve tax compliance and administration rather than change the tax code by increasing tax rates or broadening tax bases. With these caveats in mind and against the backdrop of country-specific features, raising tax-to-GDP ratios may be recommendable if the following criteria are met (see Box 5.2 for a schematic sketch of the screening approach).

The first necessary condition is a need for sizeable fiscal consolidation, which suggests that, apart from reining in expenditure, increasing government revenues might also be required. This potential need for revenue-raising measures is gauged on the basis of the sustainability gap indicator S2, with a particular focus on its ‘initial budgetary position’ component (see Box 5.1 for a brief presentation of the S2 indicator). The required adjustment given by this initial budgetary position is the gap (in % of GDP) between the initial structural primary balance and the debt-stabilising primary balance (primary balance required to ensure the long-term sustainability of public finances under no policy change assumptions, i.e. without ageing-related fiscal adjustment). The second component of S2 corresponds to the required additional adjustment due to the long-term changes in government expenditure. A high value of the long-

term component of S2 indicates that the expenditure side of the budget will already be much burdened by necessary cuts in age-related spending (through, for instance, phasing out early retirement schemes, pension reform and welfare state reforms including health and long-term care systems).

As such, a high sustainability gap arising primarily from an initial budgetary position insufficient to stabilise debt is indicative of a need for either tax increases or spending cuts. However, when combined with a high value of the age-related component of S2 it points to an additional need to substantially reduce public expenditure over the medium-to-longer term which may limit the pace of feasible expenditure-based consolidation. Therefore, while the focus remains on consolidation measures needed in the short-to-medium term, considering both components of S2 is useful in order to identify potential needs for raising taxes to supplement expenditure controls. While not part of the screening criteria, the use of other indicators of the urgency of consolidation, such as the fiscal risk indicator, will complement the analysis based on the (components of the) S2 indicator and help ascertain its robustness (see Box 5.3 for an overview of the fiscal risk indicator).

Empirically, the potential need for using taxes to help consolidation is assessed on the basis of the significance of the ‘initial budgetary position’ component and the ageing component of S2 for 2011. It is important to note in this context that the S2 projections rest on the assumption that consolidation measures announced for 2011 are successfully implemented, in particular measures agreed in the framework of the adjustment programmes for countries receiving financial assistance. Compared to previous calculations for 2010, this has generally led to considerable improvements particularly in the ‘initial budgetary position’ component of S2. The assessment is, therefore, based on strict adherence to consolidation plans and remains subject to an implementation risk.<sup>(125)</sup>

---

<sup>(124)</sup>Annex 2 to the AGS provides general guidance on the composition of the required fiscal adjustment: ‘Expenditure-based corrections, especially corrections of current primary expenditure, are more likely to produce a lasting improvement in public finances and a milder, under some circumstances even a positive, impact on short-run economic growth than revenue-based corrections. Curbing expenditure developments is less distortive for growth than raising the tax burden, which is already high in the EU though significant variation exists among the Member States’. See European Commission (2011b).

---

<sup>(125)</sup>In the case of Greece, this implementation risk also refers to the ageing-related component of S2, which rests on the assumption that the pension reform included in the July 2010 economic adjustment programme is successfully implemented.

### Box 5.1: The concept of fiscal sustainability

The concept of the sustainability of public finances concerns the ability of a government to finance its current debt and expected expenditure. There is no single clear-cut definition of a sustainable fiscal position but rather a number of alternative theoretical and practical approaches. In general, it can be stated that, in the first instance, a sustainable position involves a debt level that does not entail interest payments so large that they cannot be paid. Thus, the sustainability of public finances considers the ability of a government to service the costs of its debt through future revenues. It is therefore a long-term concept and differs from liquidity which is concerned with the immediate (short run) ability of a country to raise debt to finance its expenditure.

A first way of framing the widest definition of sustainability is to look at the solvency condition for the general government through its inter-temporal budget constraint.<sup>(1)</sup> The inter-temporal budget constraint is satisfied if the projected outflows of the government (current public debt and the discounted value of all future expenditure, including the projected increase in age-related expenditure) are covered by the discounted value of all future government revenue. This is equivalent to saying that the government must run sufficiently large primary surpluses (receipts minus spending excluding interest payments) going forward to cover the cost of servicing its debt.

Depending on the time horizon considered — finite or infinite — two sustainability gap indicators can be derived, showing the size of the permanent budget adjustment required to ensure that the inter-temporal budget constraint is met.

The S1 indicator shows the durable adjustment to the structural primary balance (i.e. an increase in taxes or cuts in expenditure) required to reach a target debt of 60% of GDP in 2060, including paying for any additional expenditure from now to the target date, arising from an ageing population. The choice of the debt target for the S1 indicator is in line with the debt threshold in the Treaty.

The S2 indicator shows the adjustment to the structural primary balance required to fulfil the infinite horizon inter-temporal budget constraint, including paying for any additional expenditure arising from an ageing population. In contrast to S1, S2 does not take into account the additional budgetary effort to reach the debt target by 2060. Given its infinite horizon, S2 is more stringent than S1 and is mostly used in budgetary surveillance.

#### Summarising the sustainability indicators

	Required adjustment given the initial budgetary position (IBP)		Required adjustment to reach debt to GDP ratio of 60% in 2060 (DR)		Required adjustment due to long-term changes in the primary balance (LTC)
S1=	Gap to the debt-stabilising primary balance	+	Additional adjustment required to reach a debt target of 60% of GDP in 2060	+	Additional adjustment required to finance the increase in public expenditure due to ageing up to 2060
S2=	Gap to the debt-stabilising primary balance	+	0	+	Additional adjustment required to finance the increase in public expenditure due to ageing over an infinite horizon

*Source:* Commission services.

$$^{(1)} D_{t_0} - \sum_{t=t_0+1}^{\infty} \frac{PB_t}{(1+r)^{t-t_0}} = 0$$

where  $D_{t_0}$  is gross debt as a share of GDP in the year before the long-term projections,  $PB_t$  is the structural primary balance (receipts minus spending excluding interest payments), adjusted for cyclical movements and excluding one-off transactions at time  $t$  and  $r$  is the differential between the nominal interest rate and the nominal GDP growth rate. For further details see European Commission (2009b).

Regarding the initial budgetary position component, a value of over 2.5 is considered as significant given the EU and euro-area averages of 2.2 and 1.7 (see Table 5.1).<sup>(126)</sup> Regarding the ageing component, a value of over 3.5 is considered as significant, as the EU and euro-area averages stand at 3.2 and 3.4 respectively. Together this implies a high value of at least 6 for the composite sustainability gap indicator S2. The (structural) primary deficit in 2011 (based on the Commission's spring 2011 forecast) can provide important extra information as, where this is high, it is unlikely that consolidation efforts can be achieved without raising taxes. Similarly, a high value of the fiscal risk indicator points to the urgency of taking substantial fiscal measures. It should be noted that the two additional indicators are not part of the quantitative screening process, but provide complementary information.

A simple approach is to benchmark each country for each of the two indicators against the euro-area average. This euro-area average benchmark suits the purpose of the analysis, being aimed at identifying *substantial* macroeconomic underperformance associated with tax systems. Countries not displaying a strong tax challenge may still require subtle policy adjustments, which would deserve a more detailed analysis with respect to best practices rather than euro-area average performance.<sup>(127)</sup>

The second necessary condition is the availability of some 'tax space', as approximated by a relatively low tax-to-GDP ratio in comparison to

---

<sup>(126)</sup> Furthermore, assuming that the public deficit is at its debt-stabilising level, an initial budgetary position component of S2 of 2.5% and over would push the public deficit over the Treaty-based threshold of 3%. This results from the fact that the debt-stabilising primary balance without ageing-related fiscal adjustment corresponds to a deficit running at between 0.5 and 3%, depending upon the country-specific growth prospect and public debt level.

<sup>(127)</sup> Euro-area averages of individual indicators are used as a natural benchmark throughout this chapter, justified by its focus on tax policy challenges in countries having adopted the single currency. For future analysis it may be desirable to raise the benchmark by considering best performers in specific policy areas, possibly including non-euro area and non-EU countries. While best performers are somewhat more difficult to identify, the average performances of the top three countries may be used as a starting benchmark. However, this mechanical identification of good practices would need to be further substantiated by more qualitative assessments and a comprehensive and holistic analysis of tax systems, since strength in some areas may be associated with weaknesses in other areas.

the euro-area average, although some countries, especially those with less advanced economies and less developed welfare systems, may require lower tax ratios. Research shows that revenue-based consolidation is more likely to be successful when the initial tax-to-GDP ratio is low.<sup>(128)</sup>

Given that the impact of a possible tax increase on the economy is greatly influenced by past developments in the tax-to-GDP ratio and the current composition of the tax mix, the 'tax space' criterion is qualified by controlling for the following two criteria,

- Revenue raising measures have not yet been utilised extensively in the recent past, i.e. the tax-to-GDP ratio has not risen significantly over the past few years due to new discretionary measures.
- The analysis of the tax structure shows that there is scope for increasing tax categories least detrimental to growth (mainly consumption and property taxes).<sup>(129)</sup> This criterion will be studied in more detail in section 5.2 and can be applied more widely to improve the growth-friendliness of the tax structure at a constant overall tax burden. Even if there is no room for a further rise in overall tax pressure, there may be scope for revenue-neutral tax reforms.

Lastly, an analysis of the expenditure side of the budget can provide indicative evidence of further need for revenue-side consolidation efforts. Where low primary expenditure-to-GDP ratios, and particularly low public investment in growth-enhancing areas, make further expenditure-based consolidation more difficult, the necessity of tax increases may be more acute. More generally, wherever controlling or cutting expenditures proves arduous, e.g. because they are linked to legal entitlements earned in the past, tax increases become unavoidable to meet consolidation requirements.

---

<sup>(128)</sup> See European Commission (2010a).

<sup>(129)</sup> A high ratio of efficient taxes relative to other countries does not by itself imply that the ratio could not be increased even further. However, in cases where the ratio is low, policy measures actually tapping available overall tax space are likely to entail relatively limited distortions and implementation risk, such as leakage effects of VAT hikes to neighbouring countries. In that sense the criterion (in combination with the availability of overall tax space) is sufficient but not strictly necessary.



**Box 5.2: Screening principles to identify a potential need for tax-based consolidation**

A quantitative screening on the basis of selected indicators is applied to euro-area Member States with a view to identifying countries that could consider making use of taxation — in addition to expenditure control — to consolidate their public finances and bring them on a more sustainable path. It should identify both a strong need for consolidation and the availability of tax space. The following screening criteria are considered:

***Fiscal sustainability***

Fiscal sustainability is very problematic since:

1(a) *The ‘initial budgetary position component’ (in % of GDP) of the sustainability gap is very high (2½ and above).* This value stands clearly above the euro-area average and corresponds to a risk of breaching the deficit threshold of 3% of GDP stipulated in the Treaty. A high initial deficit also reduces the likelihood of achieving fiscal consolidation only through expenditure control.

AND

1(b) *The long-term budgetary projections are unfavourable (age-related component (in % of GDP) of the sustainability indicator S2 above 3½).* A high sustainability gap arising primarily from an initial budgetary position insufficient to stabilise debt is indicative of a need for either tax increases or spending cuts. However, the combination with a high value of the age-related component of S2 points to an additional need to substantially reduce public expenditure over the medium- to longer term that may limit the pace of feasible expenditure based consolidation.

AND

***Availability of tax space***

2) *There is ‘tax space’ currently available (relatively low tax-to-GDP ratio).* This main criterion needs to be met in conjunction with one of the two qualifying criteria below:

AND EITHER

2(a) *Revenue-raising measures have not yet been utilised extensively in the recent past (i.e. no marked tax increase in the past).* Recent changes in tax-to-GDP ratios are assessed against (i) the size of the total consolidation effort over 2009-11, as measured by the change in the primary structural balance and (ii) the consolidation need as captured by the distance of the structural deficit to its medium-term budgetary objective (MTO).

OR

2(b) *There is still scope for increasing the least distortionary taxes (i.e. the share of indirect taxes/consumption taxes in GDP is not above average).*

A low current tax-to-GDP ratio in conjunction with a high fiscal sustainability gap does not necessarily point to a need to change the tax code by increasing tax rates or broadening tax bases. Higher tax revenues might also be achieved by improving tax compliance/administration and fighting tax evasion, with unchanged tax rules. Similarly, tax increases implemented in the recent past may not lead to equivalent increases in tax-to-GDP ratios due to (higher) tax evasion and Laffer-curve effects (negative feedback of higher taxes on output and employment, i.e. tax bases).

***Aggravating factors*** (optional/not necessary but additional evidence):

*There is little room for lowering expenditures (i.e. relatively low primary expenditure-to-GDP ratio and low public investment in growth-enhancing areas).*

### Box 5.3: The fiscal risk indicator

A composite indicator summarising information on fiscal risks and vulnerabilities in EU Member States was presented in European Commission (2010a), together with a composite indicator on macro-financial risks. Fiscal risk indicators reflect risks related to actual and projected sovereign financing needs. The composite fiscal risk indicator includes information on the level of government debt, government debt-to-GDP falling due over a 24-month horizon, the implicit interest rate on sovereign debt (to capture the history of the country as a sovereign debt issuer) and the gap to the primary balance that would lead to debt converging to 60% of GDP by 2020. <sup>(1)</sup> The indicator reflects risks, which, if they were to materialise, would put pressure on the fiscal position and lead to a sudden increase in fiscal financing needs. The indicator is a measure of relative risk — it does not indicate the absolute level of risk that any country displays, but just how it relates to the other Member States.

#### List of indicators of fiscal risk

Fiscal risk indicators	Rationale
Public debt/GDP	Default risk; market saturation; crowding out
Implicit interest rate on government debt	History as a sovereign debt issuer
Maturing debt/GDP, in year t and t+1	Short term borrowing needs
Primary balance gap to 60% debt by 2020	Short term borrowing needs; debt prospects

Source: Commission services.

Composite indicators are very useful to summarise abundant information and help making a first screening of country risks. They also facilitate comparisons across countries: assessing relative positions based on two or at most three dimensions is easier than on an undefined number of possible indicators. The exercise is, however, subject to criticisms. By selecting a set of indicators and excluding others and by aggregating different types of risks in composite indicators, some information is lost. Simplifying assumptions have to be made on the relative importance of the different risk indicators. In the absence of a strong theoretical base regarding the weights of each indicator, each indicator is given equal weight in the composite indicator.

A high score on fiscal risks, especially if combined with high macro-financial risks, would call for strongly frontloaded consolidation. However, a number of factors must be kept in mind when interpreting results and drawing policy conclusions. To a certain extent, the indicators reflect different risks for euro-area versus non-euro- area countries, or for highly developed countries versus catching-up economies. Identification of the policy action to address the underlying source of risk requires a careful analysis of the reason behind a high value of the risk indicator.

<sup>(1)</sup> Contingent liabilities, e.g. related to the financial sector, have not been included since they are better reflected in the macro-financial risk indicator.

#### 5.1.2. Application of screening criteria to euro-area countries

##### Fiscal sustainability

Table 5.1 and Graph 5.1 summarise the new estimates of the S2 indicator and its components, based on the Commission services' spring 2011 forecast until 2012. <sup>(130)</sup> The contribution of the

initial budgetary position to the sustainability gap (in % of GDP) is measured on the horizontal axis, while the contribution of the projected increase in age-related expenditure is measured on the vertical axis. The value of the S2 indicator can be seen from the dotted diagonal 'iso-gap' lines.

Applying the conditions set out in the previous sub-section and summarised in Box 5.2 yields three euro-area Member States where the sustainability gaps are of such an extent and nature

<sup>(130)</sup> Thereafter, the output gap is assumed to close by 2015, after which the potential growth rates converge linearly to the AWG baseline scenario by 2020. Beyond 2020, the AWG baseline scenario as agreed by the Commission and AWG/EPC and published in European Commission (2009c) is applied. Only pension reforms peer-reviewed by the AWG/EPC and endorsed by the EPC have been taken

into account. Consequently, neither the 2010 pension reform in Spain nor the pension reform under way in Italy is reflected in the data.

that raising taxes is suggested to contribute to addressing the severe consolidation needs: these are Ireland and, to a lesser extent, Spain<sup>(131)</sup> and Cyprus.<sup>(132)</sup> These countries are shown in the rectangle in the upper right-hand corner of Graph 5.1. Moreover, Portugal and Greece appear as very close borderline cases, with initial budgetary positions clearly worse but ageing components slightly better than the respective thresholds set out above. In the case of Greece it is important to note that the long-term projections underlying the S2 indicator rest on the assumption that the 2010 pension reform is successfully implemented. While this leads to a relatively benign value of 2.7 % of GDP for the ageing component of S2 in 2011, the ageing-related gap was estimated to be 11.5 % of GDP in 2010. The Netherlands can also be found on the border of the rectangle. With an initial budgetary position just below the set threshold, the country's position is mainly characterised by high long-term projections for ageing-related costs. In all six countries mentioned above, the overall S2 value is above, or in the case of Portugal and Greece, very close to 6. Slovakia also has a markedly unfavourable initial budgetary position component of S2, but the long-term projections for ageing-related costs are below the euro-area average. Therefore, given that the pace of expenditure-based consolidation does not seem to be limited by a need to substantially reduce public expenditure over the medium-to-longer term, Slovakia is not detected as a country with a potential need for revenue-raising measures according to the screening criteria outlined above. Yet, an exclusive focus on the size of the initial budgetary gap (regardless of the comparably benign ageing-related sustainability gap) would place Slovakia as a further euro-area country with a significant fiscal sustainability gap that might call for policy action on the revenue side of the budget.

With overall S2 values of above 12, the sustainability gaps in Luxembourg and Slovenia are of a comparable magnitude to that of Ireland.

<sup>(131)</sup> The projections underlying the ageing-related component of S2 for Spain do not yet include the effects of the 2010 pension reform (see previous footnote).

<sup>(132)</sup> As stated in the introduction to this chapter, the focus of the analysis is exclusively on euro-area countries. However, as regards the UK, the government foresees tax consolidation to contribute around 25 % to its £110bn consolidation package by financial year 2014-15.

However, with rather low initial budgetary components of S2, the composition of the gaps suggests that the focus of the policy response should be placed on structural reforms of social protection systems rather than tax increases (or expenditure control).

Table 5.1: Tax-to-GDP ratio versus overview of ageing and the long-term sustainability of Member States

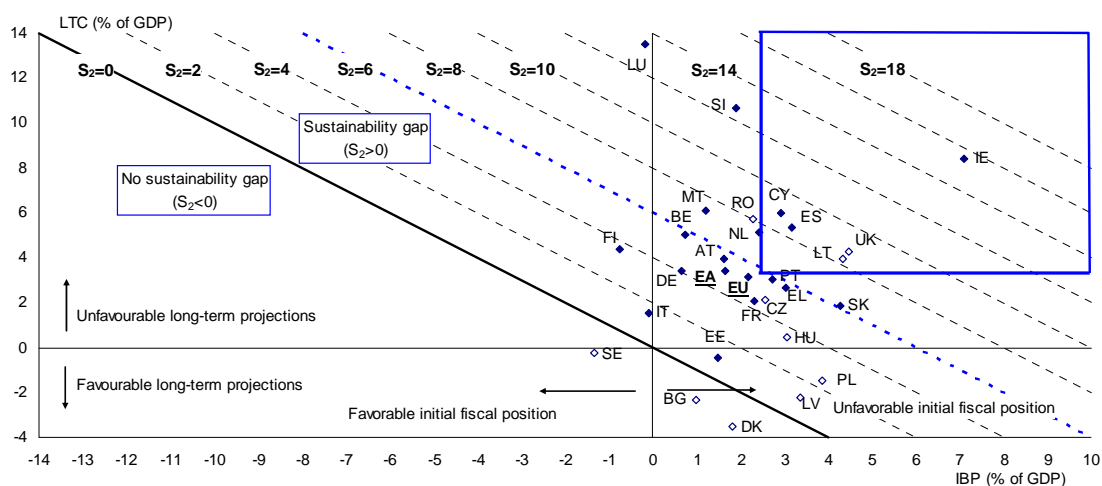
Country	Tax-to-GDP ratio (2011)	S2 sustainability gap indicator (2011)			Primary balance indicators		Fiscal risk indicator (2011)
		Total	Initial Budgetary position	Ageing component	Primary balance structural terms - (2000-2011)	Average primary balance (2000-07)	
BE	44.1	5.8	0.7	5.0	0.6	4.7	0.78
DE	39.1	4.1	0.6	3.4	0.9	0.7	0.40
EE	33.3	1.0	1.5	-0.5	-0.7	1.4	0.06
IE	29.5	15.5	7.1	8.4	-5.7	2.8	0.70
EL	31.6	5.7	3.0	2.7	-0.7	0.5	1.02
ES	32.0	8.5	3.2	5.4	-2.1	2.6	0.54
FR	43.1	4.4	2.3	2.1	-1.3	0.1	0.61
IT	42.4	1.4	-0.1	1.5	2.1	2.4	0.88
CY	36.8	8.9	2.9	6.0	-2.1	0.8	0.48
LU	35.4	13.3	-0.2	13.5	0.8	2.6	-0.05
MT	32.9	7.3	1.2	6.1	0.0	-1.5	0.65
NL	39.2	7.6	2.4	5.1	-0.4	2.1	0.44
AT	42.7	5.6	1.6	3.9	-0.4	1.5	0.42
PT	32.7	5.8	2.7	3.0	-1.2	-0.8	0.73
SI	36.9	12.5	1.9	10.6	-1.1	-0.4	0.37
SK	29.2	6.1	4.3	1.8	-3.3	-2.4	0.35
FI	42.8	3.6	-0.8	4.4	2.0	6.0	0.22
BG	27.4	-1.3	1.0	-2.3	-0.3	2.9	0.08
CZ	35.0	4.7	2.6	2.1	-1.8	-3.0	0.32
DK	46.4	-1.7	1.8	-3.5	-0.3	5.2	0.29
LV	27.7	1.1	3.4	-2.2	-2.1	-0.7	0.53
LT	26.9	8.3	4.3	4.0	-3.3	-0.6	0.53
HU	36.2	3.5	3.1	0.5	-1.4	-2.2	0.82
PL	33.0	2.4	3.9	-1.5	-2.6	-1.5	0.48
RO	27.7	8.0	2.3	5.7	-1.5	-0.4	0.54
SE	45.9	-1.6	-1.3	-0.2	2.0	3.8	0.06
UK	37.7	8.8	4.5	4.3	-3.5	0.5	0.53
EU-27	39.2	5.3	2.2	3.2	-0.6	1.3	0.51
EA-17	39.7	5.1	1.7	3.4	0.0	1.4	---

Notes: The definition of the tax-to-GDP ratio applied is slightly broader than the one in Chapter 2, as it also includes voluntary social security contributions and taxes assessed but unlikely to be collected. The average primary balance for the years 2000-07 serves as a pre-crisis benchmark. The fiscal risk indicator for 2011 is based on a dynamic analysis — i.e. the standardisation is undertaken using the mean and standard deviation of the scores of the 27 EU countries in 2010.

Source: Commission services.

Benchmarking individual countries' structural primary balances and fiscal risk indicators (see Table 5.1) against the respective euro-area averages corroborates the findings of the screening exercise. For two of the three countries within the above-mentioned rectangle, the structural *primary deficit* and the *fiscal risk indicator* also show above-average values, particularly for Ireland but also for Spain. In Cyprus the fiscal risk indicator is somewhat below the euro-area average. As to the borderline cases of Graph 5.1, both the structural primary deficit and particularly the fiscal risk indicator are above the euro-area average for Portugal. Greece displays the highest fiscal risk

Graph 5.1: Decomposition of the S2 indicator



Source: Commission services.

indicator and a structural primary deficit above the euro-area average in 2011. Moreover, the country's position is subject to the above-mentioned implementation risk.<sup>(133)</sup> The fiscal risk indicator is clearly below average for the Netherlands, which is a borderline case — standing just below the threshold — when considering S2-based screening. Altogether, in view also of the relatively small 2011 structural primary deficit,<sup>(134)</sup> the Netherlands is not considered to be among the countries with significant fiscal sustainability challenges that might call for increasing tax revenues. For Slovakia, where the unfavourable initial budgetary position might point to the need to raise revenues, the fiscal risk indicator is clearly below-average, but the structural primary deficit in 2011 is huge.<sup>(135)</sup> Low fiscal risk is also indicated for the two above-mentioned countries with extremely unfavourable long-term projections but a rather low contribution from the initial budgetary position to the S2 indicator (Luxembourg and Slovenia).

Obviously, this indicator-based approach remains a tentative way of classifying the degree of tax raising needs (and potential), and does not take other country-specific factors into account. However, the analysis of the bottlenecks to growth as identified through the joint work of the Economic Policy Committee (EPC) and the Alternates of the Economic and Financial Committee (AEFC)<sup>(136)</sup> is broadly consistent with the list of countries identified above with the S2 indicator, although the latter list is far narrower. Bottlenecks in the area of fiscal policy/long-term sustainability (high debt/deficit and/or ageing-related costs) were identified for the great majority of euro-area Member States (Belgium, Cyprus, Greece, Spain, Finland, France, Ireland, Italy, Luxembourg, Malta, the Netherlands, Portugal, Slovenia and Slovakia). This wider coverage of countries can be explained by the fact that the assessment of bottlenecks was carried out earlier and — in contrast with the screening presented above — did not yet take into account budgetary measures still to be implemented for 2011.

<sup>(133)</sup> As mentioned above, for countries receiving financial assistance, the projections include the measures agreed in the framework of the adjustment programmes.

<sup>(134)</sup> According to the Commission's spring 2011 forecast, the structural primary balance is projected to improve considerably in 2012, turning into a surplus of 0.9% of GDP.

<sup>(135)</sup> According to the Commission's spring 2011 forecast, the structural primary deficit is projected to decrease only marginally in Slovakia and to remain at a significant 3.1% of GDP also in 2012.

#### Availability of tax space

In terms of *tax space*, most of the new Member States (still) have tax-to-GDP ratios clearly below the euro-area average, reflecting their less advanced economies. Only Slovenia and Cyprus display tax burdens relatively close to the euro-

<sup>(136)</sup> European Commission (2010k).

area average. In addition, also Ireland<sup>(137)</sup>, Greece, Spain, Portugal and, to a lesser extent, Luxembourg display tax ratios well below the euro-area average. Borderline cases are Germany and the Netherlands, where the tax burden is only marginally below average. Some 'gross' potential for raising the tax-to-GDP ratio, relative to the euro-area average, thus seems to be available in all of the new Member States and five old Member States (Greece, Spain, Ireland, Portugal, Luxembourg) that are part of the euro area.

As a first qualification of the potential for raising the tax-to-GDP ratio, tax hikes implemented in the recent past need to be taken into account. The assessment of the development of tax burdens over time should remain cautious, given the varying impact of the business cycle on tax revenues. Yet, the estimated tax revenue elasticity with respect to the output gap is very close to unity in almost all Member States in the medium run.<sup>(138)</sup> Therefore, the *ratio* of tax revenues to output is in principle bound to stay broadly unchanged over the cycle (bar the impact of tax shortfalls generated by drops in asset prices).<sup>(139)</sup> Table 5.2 compares the tax-to-GDP ratio in 2011 to that in 2008 (as a pre-crisis benchmark), to that in 2009 (as a (post-) crisis benchmark) and to the ten-year average ratio over 2000-2009. It suggests that among the countries where tax space appears available, tax ratios have not risen significantly recently. While tax ratios are projected to have rebounded

markedly from their 2009 lows in Ireland, Greece, Spain and Portugal, tax ratios in 2011 are still below their pre-crisis levels in general, and, with the exception of Portugal, also below their average values over the past decade.<sup>(140)</sup> The increase in the tax-to-GDP ratio over 2009-2011 also appears fairly modest in the case of Greece, Spain and Portugal compared with both the size of the total consolidation effort over that period, as measured by the change in the primary structural balance, and the consolidation need as captured by the distance of the structural deficit to its medium-term budgetary objective (MTO). Particularly for Greece, but also for Spain (and Portugal), this suggests that the available potential for tax revenue increases has not yet been successfully tapped to contribute to the severe consolidation needs. Given that policy measures such as broadening tax bases and hiking tax rates have been put in place in Greece, this tax space appears to point in particular to remaining severe deficiencies in tax collection and tax administration. Moreover, the tax space might point to a limit for legal tax increases to result in higher actual revenues in times of severe recession, owing to cyclically reduced tax bases and possible adverse feedback loops of tax increases on tax bases.

In Ireland, the tax-to-GDP ratio has contributed around half of the consolidation effort so far as measured by the change in the structural primary balance since 2009. However, given the sizeable distance of the structural budget balance in Ireland to its MTO, the contribution appears far from excessive in absolute terms in order to address the substantial remaining consolidation needs.

In Cyprus, where tax space is comparably limited, tax hikes have already contributed significantly to consolidation efforts over 2010-2011 (Table 5.2). At the same time, the distance to the MTO remains significant. In Slovakia, the country with the lowest tax burden in the euro area in 2011, the tax-

<sup>(137)</sup> The Irish gap with respect to the euro-area average appears less sizeable if the expected effects of very recent reforms are taken into account. It is also markedly reduced if taxes are computed as a percentage of Gross National Product (GNP), instead of GDP. Nonetheless, the ratio remains significantly below the euro-area average. In any case GNP is not an ideal denominator for computing tax ratios, as it excludes important parts of the tax base (e.g. output generated by domestic non-national agents).

<sup>(138)</sup> The overall elasticity of revenues is estimated at 1.04 for the euro area, being an average of the above-unity elasticities for personal and corporate taxes, the unit elasticity for indirect taxes and the below-unity elasticity for social security contributions; see Girouard and André (2005). For individual euro-area countries the estimates vary between 0.88 for Estonia and Slovakia and 1.17 for Italy.

<sup>(139)</sup> The results presented in Table 5.2 and discussed below are indeed qualitatively unchanged when the tax-to-GDP ratios are cyclically adjusted using the official revenue elasticities and output gaps used in the Commission's fiscal surveillance framework. The absolute difference with the actual figures presented in the table is on average 0.1 percentage point and in any case no bigger than 0.4 percentage point.

<sup>(140)</sup> Consolidation measures introduced in Ireland from 2009 to 2011 have resulted in considerable increases in marginal deductions from earnings arising from a combination of income tax, Pay-Related Social Insurance and the new Universal Social Charge, leading to an increase in the ratio of direct taxes to GDP by about one percentage point compared to 2008. However, the ratio is not higher than its average over the ten years preceding the crisis. While the latest Commission forecast projects the Irish tax-to-GDP ratio to rise above its 2008 value in 2012, it will still remain below its ten-year average over 2000-2009.

to-GDP ratio has hardly risen since 2009. However, the distance to the MTO is still sizeable.

Table 5.2: Developments in tax burdens and total consolidation efforts

Country	Change in tax-to-GDP ratio			Change in structural primary balance		Distance to MTO
	10y avg to 2011	2008-11	2009-11	2008-11	2009-11	2011
BE	-0.4	-0.2	0.7	-1.3	0.6	3.3
DE	-0.9	-0.7	-0.9	-1.5	-0.9	0.9
EE	1.8	1.2	-2.5	3.1	-0.8	0.9
IE	-0.6	-0.1	1.3	0.3	2.2	9.0
EL	-0.5	0.1	1.6	3.9	8.2	7.4
ES	-2.2	-1.1	1.6	0.1	4.7	4.3
FR	-0.1	0.2	1.5	-0.6	1.9	3.9
IT	0.6	-0.6	-0.7	0.4	1.3	2.7
CY	3.0	-1.5	1.4	-4.8	1.1	4.6
LU	-2.2	0.0	-1.7	-1.8	-1.1	0.2
MT	0.5	-0.4	-1.2	2.4	0.2	3.1
NL	0.8	0.1	1.0	-2.1	1.0	2.0
AT	-0.5	0.0	-0.1	-0.8	-0.3	3.2
PT	1.1	-0.1	1.8	-0.7	4.8	4.9
SI	-1.0	-0.3	-0.7	2.4	1.1	2.9
SK	-2.0	-0.1	0.4	-0.3	2.8	4.8
FI	-1.5	-0.5	-0.4	-1.9	0.1	-0.3
BG	-3.7	-4.9	-1.6	-1.0	2.3	0.6
CZ	-0.7	-0.5	0.6	1.6	2.4	2.5
DK	-2.5	-1.7	-1.8	-4.8	-3.0	2.2
LV	-1.2	-1.3	1.1	3.6	2.5	3.0
LT	-2.2	-3.3	-2.5	1.4	2.9	5.8
HU	-2.2	-3.8	-3.2	-1.4	-4.1	3.7
PL	0.1	-1.3	1.2	-0.2	2.1	4.3
RO	-0.6	-0.4	0.7	6.0	5.7	2.6
SE	-2.6	-0.9	-1.3	-1.0	-1.6	-0.3
UK	0.9	-0.8	1.7	-1.0	3.4	---
EU-27	-0.3	-0.1	0.5	-0.6	1.4	---
EA-17	-0.3	-0.3	0.6	-0.6	1.5	---

Source: Commission services (AMECO database, Commission's 2011 Spring Forecast).

A second qualification of the potential for raising tax-to-GDP ratios is the structure of the current tax burden. Where tax categories least detrimental to growth still suggest room for increases from a cross-country perspective, raising the overall tax burden is likely to be associated with less economic distortions and meet less implementation risk. In cases where the tax burden is relatively low due to e.g. a low tax burden on labour, while more growth-friendly tax sources are already extensively used, increasing the share of labour taxation is not recommendable.<sup>(141)</sup> However, consumption taxes might still be raised further where country-specific circumstances so allow, depending inter alia on

<sup>(141)</sup> It might be argued that advising against increasing low labour tax ratios should logically also imply advising countries with high labour tax ratios to reduce them. However, the focus in this section is on addressing consolidation needs. Revenue-neutral tax shifts from labour to consumption will be addressed in the next section.

current VAT rates relative to neighbouring countries (leakage effects) and EU maximum rates, the efficiency of current VAT collection, the share of consumption in GDP and tax elasticities. The horizontal screening based on macro-indicators of current tax structures can thus only deliver first indications of the relative feasibility of tapping available overall tax space.

The detailed analysis of the tax structure across Member States in the next section (5.2) identifies the countries with relatively low shares of consumption and/or (other) indirect taxes. For five out of the eight identified euro-area countries the potential for increasing the share of consumption/indirect taxes goes along with a high overall tax burden on labour (Belgium, France, Germany, Italy, and Finland). Not surprisingly, in general these countries do not have overall tax space available (the slight exception being Germany). Moreover, none of these five countries has been identified as having severe consolidation needs that would call for possible tax increases. Three more countries (Spain, Luxembourg, the Netherlands) have a relatively low share of consumption and/or indirect taxes, without imposing above-average overall tax disincentives for labour supply or demand. In line with this, these three countries display some tax space relative to the euro-area average (though very limited in the case of the Netherlands). Higher tax revenues do not seem to be required from a fiscal sustainability or consolidation point of view in Luxembourg or the Netherlands. Thus, given its potential need for higher tax revenues to help consolidation and its low tax-to-GDP ratio, particularly Spain appears to have some room for (further) increasing consumption or other indirect taxes. The analysis of the implicit tax rates on consumption underlines the scope for raising consumption taxes in Spain (and Italy), and yields Greece, Portugal and, to some extent, Slovakia and Cyprus as further countries that could increase consumption taxation relative to other euro-area countries.<sup>(142)</sup> All of these additional four countries appear to have some overall tax space relative to the euro area and have been identified

<sup>(142)</sup> While the share of consumption taxes in total tax revenues is relatively high in these countries, the actual tax burden that falls on consumption is relatively low, reflecting overall low tax-to-GDP ratios.

as countries where higher tax revenues might be called for to meet consolidation needs.

As discussed in more detail in the next section, there is particular scope for increasing taxation on immovable property in several countries. Partly overlapping with the countries mentioned above as having below-average shares of revenues from consumption and/or indirect taxation in general, Slovakia, Austria, Slovenia, Germany, Finland and Greece appear to have room for increasing revenues from recurrent real estate taxation in a cross-country perspective. In these countries, the revenue from recurrent real estate taxes account for less than 0.6% of GDP and there is no tax on imputed rents. Overall indirect taxes already account for an above-average share of total tax revenues in all of the above-mentioned countries but Germany and Finland, where tax space is very limited or absent and consolidation needs as such would not seem to require higher revenues from real estate taxation. While the latter also applies to Austria and Slovenia, Greece and Slovakia emerge as the two countries that could — apart from raising additional tax revenue on consumption — consider increasing recurrent taxes on real estate in order to address their consolidation needs.

### Room for expenditure cuts?

Lastly, an analysis of the expenditure side of the budget can provide some additional evidence for the need for revenue-side consolidation efforts. All of the euro-area countries facing a significant need for fiscal consolidation, driven to a large extent by an unfavourable initial budgetary position (Ireland, Spain, Cyprus and, to some extent, Greece and Portugal), display already relatively low primary expenditure-to-GDP ratios. The same is true for Slovakia. Given that there is a limit to compressing expenditure, this might serve to underline the case for (further) tax-based consolidation measures, to the extent that the other screening criteria do not argue against it.

### Summary of screening results

Overall, Spain, Ireland and Cyprus emerge as countries where the combination of the preliminary screening criteria as outlined above points to both the need and the room for potential tax increases to

support consolidation efforts (Table 5.3). Moreover, while borderline cases in terms of the combined fiscal sustainability criterion, Portugal and Greece (<sup>143</sup>) appear to have some room for tax increases, too, with a view to contributing to their sizeable consolidation needs. As discussed above, a pure focus on the initial budgetary component of the sustainability gap might suggest Slovakia as an additional country displaying both a need and scope for raising tax revenues.

Table 5.3: Overview: fiscal consolidation challenges

Country	Potential need for higher tax revenues to help consolidation (based on S2)	'Tax space' available (compared to EA avg)	No significant increase in tax-to-GDP ratio in recent years	Scope for (further) increasing least distortionary taxes
BE			X	X
DE		(X)	X	X
EE		X	X	
IE	X	X	X	
EL	(X)	X	X	X
ES	X	X	X	X
FR			X	X
IT			X	X
CY	X	X		X
LU		X	X	X
MT		X	X	
NL		(X)	X	X
AT			X	
PT	(X)	X	X	X
SI		X	X	
SK	(X)	X	X	X
FI			X	X

*Note:* (X) depicts borderline cases, i.e. where the applied criteria are either not strictly met (for the S2 criterion), or the assumed values remain very close to the thresholds (as for the tax space in Germany and the Netherlands).

*Source:* Commission services.

Finally, the outcome of the mechanical screening, albeit consistent across countries, is inevitably of an essentially macroeconomic nature. An in-depth assessment of the microeconomic effects of an increase in specific types of tax, including its specific impact on particular groups of taxpayers, would have to be carried out before firm tax policy conclusions can be drawn. However, such detailed country-specific scrutiny of the possible room for increasing specific categories of taxes lies clearly beyond the scope of this section.

<sup>(143)</sup> It has to be recalled that the borderline position for Greece is largely due to the fact that the positive effects of the 2010 pension reform are already reflected in the long-term component of S2. In contrast, the position of Spain would look more favourable if its 2010 pension reform was likewise reflected in the projections.

## 5.2. CHALLENGES RELATING TO GROWTH- ENHANCING TAX STRUCTURES: A FIRST QUANTITATIVE SCREENING

In this section, Member States are subjected to preliminary horizontal quantitative screening — against common criteria and indicators — to identify needs for improving the structure of taxation to enhance economic growth.

A high tax burden on labour, especially on vulnerable groups, combined with low indirect and consumption taxation points to sub-optimal tax structures. As discussed in Chapter 4, various studies have shown that the composition of the tax structure is relevant to growth and that taxes on property and consumption (including environmental taxes falling on consumption) are the least detrimental to growth. Direct taxes, namely personal income taxes and corporate income taxes, appear to be the most detrimental. This ‘tax and growth ranking’, which is in line with theoretical predictions and consistent with earlier empirical results, is also reflected in the AGS, the Commission document launching the European Semester.<sup>(144)</sup>

This section will identify Member States that appear to face particular challenges regarding the tax burden on labour. First, it will identify countries that face challenges either regarding the overall tax burden on labour or the tax burden on specific labour market groups. Second, the scope for tax shifting towards indirect taxation will be investigated, with a particular focus on real estate taxation.

In addition to its positive impact on growth, shifting the tax burden from labour to consumption might also be beneficial in particular for those countries that are still suffering from losses in price competitiveness built up over the past decade (tax devaluation). While VAT is applied in the

same way to foreign and domestic producers, a decrease in labour costs stemming from the tax shift would mainly benefit domestic producers, with their production costs being (temporarily) lowered vis-à-vis foreign competitors. The tax devaluation effect will not be analysed further, as it requires the other factors of competitiveness to be examined in detail, which is beyond the scope of this chapter.<sup>(145)</sup>

### 5.2.1. Reducing the tax burden on labour

As a first step, this section will look at the overall tax burden on labour and the overall labour market situation. As a second step, it will focus on labour market groups that face particular employment problems and are at the same time considered to be rather responsive to labour supply incentives created by a higher after-tax wage: low-skilled workers and second earners.

#### Reducing the overall tax burden on labour

As described in Chapter 2, on average around one half of all tax revenues (including social security contributions) can be classified as taxes on labour. These are considered detrimental to growth as discussed in Chapter 4. A high overall tax burden on labour, in particular in combination with weak labour market performance, is suggestive of a need to reduce disincentives to hire (labour demand) and to supply labour.

The employment rate in most euro-area Member States is below the 75 % target (20 to 64 years) set in the Europe 2020 Strategy (see Table 5.4). At the same time, several euro-area countries face high or even very high unemployment rates. Personal income taxes and social security contributions directly impact on labour costs and/or the net wage. It is therefore important to analyse the tax burden imposed on labour income to identify countries in which a reduction of the tax burden on labour could contribute to improving the overall labour market performance as regards both the employment rate and the average hours worked.

Two types of indicators are available to measure the tax burden on labour. The implicit tax rate on

<sup>(144)</sup> Annex 2 of the AGS reads: ‘Due attention should also be given to the quality of taxation, by collecting revenues in an efficient way and minimising the negative impact on economic growth [...]. Broadening tax bases, for example by removing environmentally harmful tax exemptions or tax credits, is preferable to increasing tax rates. [...]. Tax on immovable property followed by consumption taxes, including environmentally related taxes, are least distortive, while personal income taxes and corporate income taxes could have a more harmful impact on growth.’ See European Commission (2011b).

<sup>(145)</sup> See e.g. Desai and Hines (2002), Keen and Syed (2006), European Commission (2008b) and Lipinska and von Thadden (2009) for a discussion.



labour is a macro indicator, often used to gauge the overall tax burden on labour in the economy.<sup>(146)</sup> In contrast, the different tax wedge indicators<sup>(147)</sup> are micro indicators, based on the legal requirement faced by a series of hypothetical households. They can also be used to analyse the incentive effects at specific income levels and for different family types. The analysis will consider the aggregate labour tax burden as the sum of personal income taxes and social security contributions as well as payroll taxes. It will not analyse the composition and potential changes in the composition of labour taxes. As shown, e.g., in Arpaia and Carone (2004), shifts in the composition of labour taxation only matter in the short term, where a move from employers' to employees' social security contributions may lead to lower labour costs and higher labour demand. In the analysis below, countries are considered to have a high tax burden on labour if the tax burden indicator under consideration is significantly higher than the euro-area average.<sup>(148)</sup>

A note of caution needs to be sounded here. The overall tax burden is not a weakness per se, but only inasmuch as it is accompanied with poor labour market performance (even if the latter could also be attributable to other factors).<sup>(149)</sup> The impact of high labour taxation could be offset by an integrated flexicurity approach, which provides non-financial incentives to work and helps to reduce the moral hazard related to more generous social security systems, themselves financed by a heavy tax burden on labour. Therefore, the latter

could be compatible with low unemployment and high labour supply, provided that it is accompanied by effective activation and active labour market policies, in particular efficient job search support and work incentives. The success of the Nordic countries, despite a fairly high rate of labour taxation, is to a large extent attributable to reforms that underlined the more active approach in labour market policies with a clear job search and employment focus.<sup>(150)</sup>

The mere application of quantitative criteria as regards the tax burden on labour seems to identify challenges in several euro-area Member States. If measured by the tax wedge at the average wage for full-time work, a particularly high tax burden on labour is identified in four Member States, namely Belgium, Germany, France and Austria. In all cases but Germany, the high tax burden signalled by the tax wedge is confirmed by a particularly high implicit tax rate on labour.<sup>(151)</sup> Except for Germany and Austria, which had already reached an employment rate of close to 75% (20-64 years) in 2010, the countries identified have employment rates well below the Europe 2020 75% target. In addition to the four Member States highlighted above, Italy and Finland also have very high implicit tax rates on labour, while at the same time displaying tax wedges above 40%. Whereas Finland's employment rate was rather close to the 75% target in 2010, Italy had one of the lowest employment rates in the euro area. The countries with a high tax burden on labour and an unsatisfactory labour market situation should investigate the potential to reduce overall labour taxation. Note that the average tax burden on labour increases rather automatically in many euro-area countries due to 'fiscal drag', i.e. the non-adjustment of thresholds and ceilings to inflation.<sup>(152)</sup>

<sup>(146)</sup> The implicit tax rate on labour is calculated as the ratio of taxes and social security contributions on employed labour income to total compensation of employees. See Chapter 2 for a discussion.

<sup>(147)</sup> The tax wedge for a specific wage level is defined as the proportional difference between the costs of a worker to their employer (wage and social security contributions, i.e. the total labour cost) and the amount of net earnings that the worker receives (wages minus personal income tax and social security contributions, plus any available family benefits).

<sup>(148)</sup> Technically, significantly higher means that the indicator is at least 0.4 standard deviations above the weighted average. This captures the worst performers, i.e. the bottom third of total distribution under normality assumption. This approach is applied in the Lisbon Assessment Framework — LAF; see European Commission (2008c).

<sup>(149)</sup> Stringent employment protection legislation, inefficient wage-setting mechanisms, an incentives-distortive tax and benefit system and a high skill mismatch may also explain labour market malfunctioning, in addition to high labour taxation.

<sup>(150)</sup> See Andersen and Svarer (2008), Arpaia and Mourre (2009) and Sapir (2006). To explain the difference in labour market outcomes, the latter stresses the importance of the interplay of various institutions (including the level of social protection), which could be classified into four different 'social models', namely Continental, Mediterranean, Anglo-Saxon and Nordic models.

<sup>(151)</sup> The German implicit tax rate on labour, however, is not among the highest in the euro area, but still well above the euro-area average.

<sup>(152)</sup> See OECD (2007) for an overview of OECD countries that adjust the tax system to inflation.

Table 5.4: Tax burden on labour and overall labour market situation

Country	Employment rate (2010)	Unemployment rate (2010)	Implicit tax rate on labour (2009)	Tax wedge (100% AW, 2010)
BE	67.6	8.0	41.6	55.4
DE	74.9	7.1	38.8	49.1
EE	66.7	16.8	35.0	40.0
IE	64.9	13.2	25.5	29.3
EL	64.0	12.5	29.7	36.6
ES	62.5	19.5	31.8	39.6
FR	69.2	8.9	41.1	49.3
IT	61.1	8.1	42.6	46.9
CY	75.4	6.2	26.1	13.9**
LU	70.7	4.2	31.7	34.0
MT	59.9	6.1	20.2	22.3*
NL	76.8	4.0	35.5	39.2
AT	74.9	4.2	40.3	47.9
PT	70.5	11.1	23.1	37.7
SI	70.3	7.3	34.9	42.4
SK	64.6	14.0	31.2	37.8
FI	73.0	7.6	40.4	42.0
BG	65.4	9.9	25.5	33.8*
CZ	70.4	7.1	36.4	42.2
DK	76.1	6.9	35.0	38.3
LV	65.0	18.5	28.7	64.1*
LT	64.4	17.8	33.1	40.7*
HU	60.4	11.1	41.0	46.4
PL	64.6	9.5	30.7	34.3
RO	63.3	7.3	24.3	44.4*
SE	78.7	7.4	39.4	42.7
UK	73.6	6.8	25.1	32.7
EU-27	68.6	9.3	32.9	---
EA-17	68.4	9.8	33.5	---

Notes: (1) Employment rate and unemployment rate (20 to 64 years), tax wedge of single earner without children at 100 % of the average wage for full-time work (AW), implicit tax rate on employed labour; data for the tax wedge refer to 2009 in the case of Bulgaria, Lithuania, Malta and Romania, 2008 in the case of Latvia and 2007 in the case of Cyprus.

Source: Commission services, joint European Commission-OECD project, using OECD Tax-Benefits models.

Recently decided or implemented tax reforms are sometimes not yet reflected in the data, in particular in the case of the implicit tax rate on labour. It is therefore vital to supplement the rough picture painted by the above-mentioned indicators with information on recent reform plans covered in Chapter 3. In particular, Finland recently introduced several measures impacting on the tax burden on labour. Overall, however, these cannot be expected to lead to a significant reduction in the tax burden indicators. To sum up, high overall tax burdens relative to the euro-area average are indicated for Belgium, Germany, France, Italy, Austria and Finland.

#### Alleviating tax pressure on vulnerable groups: the case of the low-skilled

When analysing ways to improve the labour market situation via measures on the tax side, it is

important to note that the overall labour supply elasticity is rather low, or even close to zero, for some labour market groups. Reducing the average tax burden on labour can therefore only be expected to have a rather limited impact on overall labour supply in the long run. It is therefore essential to have a special focus on those segments of the labour market that are sensitive to financial incentives and/or face particular financial disincentives. As highlighted by the 2011 AGS, low-income earners and second earners are facing worryingly low participation rates, partly related to the failure to make work attractive for these groups.<sup>(153)</sup> Moreover, the adverse impact of taxes on labour demand is in particular felt by low-skilled people. In effect, given the regressive pattern of social security contributions, labour costs will be proportionally higher at the lower end of the wage scale, which will particularly harm the labour demand for and the employability of those experiencing low productivity, such as the low-skilled, but also second earners. On the labour supply side, second earners are often also characterised by the high opportunity cost of time worked.

The tax burden on low-wage earners has already been at the centre of the political discussion for many years, as reflected, e.g., in the Lisbon Strategy for ‘Growth and Jobs’<sup>(154)</sup> and Europe 2020<sup>(155)</sup>. This is in particular due to the low employment rates and high unemployment rates of low-skilled employees (see Table 5.5), who are likely to earn low wages. Most Member States with low employment rates of low-skilled workers also have high long-term unemployment levels. Reforms of tax and benefit systems might play a particular role in increasing the employment levels of low-skilled workers given the rather high elasticity of their labour supply to labour earnings. High non-wage labour costs are also particularly important in the case of low-skilled workers due to the rather high labour demand elasticities.

<sup>(153)</sup> Other vulnerable groups, such as young workers and older workers, deserving some attention too, face other complex labour market issues outside the scope of this chapter.

<sup>(154)</sup> The Integrated guidelines for employment policies call for ‘... a significant reduction of high marginal effective tax rates, notably for those with low incomes ...’ and refer to the removal of ‘unemployment, poverty and inactivity traps’ (European Commission, 2007b).

<sup>(155)</sup> See European Commission (2010c).

Table 5.5: Tax burden on low-wage earners and labour market situation of the low-skilled

Country	Labour market performance (1)	Disincentives to work (2)				
	Employment rate (low-skilled) 2010	Tax wedge (67% AW) 2010	Inactivity trap (67% AW)		Unemployment trap (67% AW)	
		2009	of which contribution from labour tax		2009	of which contribution from labour tax
BE	61.3	49.5	66.4	35.3	93.1	35.3
DE	61.0	44.9	67.8	35.5	74.5	35.5
EE	51.8	38.6	42.5	16.9	62.1	12.1
IE	50.2	23.4	73.6	15.5	73.0	14.9
EL	67.1	34.4	4.9	16.0	66.6	16.0
ES	59.2	36.4	42.2	14.8	81.0	11.0
FR	69.0	45.5	62.5	25.8	77.6	18.9
IT	61.0	43.6	24.2	24.1	78.9	21.4
CY	74.1	11.9**	---	---	---	---
LU	75.0	27.5	69.7	16.3	85.5	5.5
MT	59.1	17.7*	58.8	11.4	58.3	11.4
NL	71.8	34.0	82.5	32.3	83.5	8.5
AT	67.8	43.3	62.5	26.8	67.1	26.8
PT	75.5	32.8	36.3	16.8	81.8	16.8
SI	65.2	38.5	62.9	30.0	83.4	13.4
SK	35.0	34.5	40.7	17.2	67.2	17.2
FI	65.8	36.3	68.6	24.9	72.3	13.4
BG	47.9	33.9*	40.2	18.4	79.7	18.4
CZ	55.3	38.9	62.0	17.9	79.5	17.9
DK	71.4	36.7	87.2	27.1	89.2	12.5
LV	55.1	41.5*	55.3	27.5	87.5	27.5
LT	39.4	38.9*	43.6	19.9	86.2	19.9
HU	46.4	43.6	51.6	28.8	80.6	20.6
PL	53.7	33.4	51.2	26.7	75.4	22.8
RO	60.9	43.1*	35.7	24.6	76.3	24.6
SE	68.2	40.6	70.9	28.7	76.5	9.4
UK	61.6	29.6	50.2	22.5	50.2	22.5
EU-27	63.0	39.1	54.7	26.2	74.2	22.0
EA-17	63.6	41.9	54.6	26.9	77.6	22.6

Notes: (1) Employment rate and unemployment rate of low-skilled workers (25-54 years, pre-primary, primary and lower secondary education — levels 0-2, ISCED 1997), long-term unemployment in % of active population. (2) Tax wedge, inactivity trap and unemployment trap for single worker with no children at 67 % of average earnings. Tax wedge data for the indicators measuring the disincentives to work refer to 2009 in the case of Bulgaria, Lithuania, Latvia, Malta, and Romania and 2007 in the case of Cyprus.

Source: Commission services, Joint European Commission-OECD project, using OECD Tax-Benefits models.

The tax wedge on labour costs at low incomes (67 % of average full-time earnings, single without children) is among euro-area countries particularly high in Belgium, Germany and France, which are also characterised by a high tax wedge at average wages (see Table 5.5). Tax wedges are also clearly above the euro-area average in Italy and Austria. Given that the indicator looks at a specific wage level, it does not reflect potential measures aimed at reducing labour supply disincentives at lower wage levels. Such a measure is, e.g., in place in France, which grants a reduction in employer social security contributions at the minimum wage ('SMIC') to increase labour supply incentives.<sup>(156)</sup>

A high tax wedge negatively impacts on labour demand and supply. As pointed out above, the role of tax and benefit systems is of particular importance in the case of low-skilled workers, as their design is likely to affect labour supply

<sup>(156)</sup> The reduction is gradually phased out to zero at 1.6 times the minimum wage.

incentives. Table 5.5 therefore also provides measures for the disincentive to return to employment from inactivity and unemployment, respectively called inactivity and unemployment traps.<sup>(157)</sup> The inactivity trap is also often referred to as the participation tax rate. These indicators take into account the reduction in benefits payments following return to the labour market, as well as higher taxes and social security contributions paid by employees.<sup>(158)</sup>

<sup>(157)</sup> The inactivity trap measures the part of additional gross wage that is taxed away in the case where an inactive person takes up a job. In other words, it measures the financial incentives to move from inactivity and social assistance to employment. On the other hand, the unemployment trap measures the part of the additional gross wage that is taxed away in the form of increased taxes and withdrawn benefits such as unemployment benefits, social assistance, and housing benefits when a person returns to work from unemployment.

<sup>(158)</sup> To consider the impact of labour market changes on people's current net income, the average effective tax rates need to exclude employers' social security contributions. See Carone et al. (2004), p. 13.

Low-wage earners in several euro-area Member States face particularly high financial disincentives to return to employment from inactivity and unemployment as measured by the average effective tax rate indicators, which take into account the interaction of tax and benefit systems. Generally, the unemployment trap is substantially higher than the inactivity trap, as unemployment benefit payments are normally higher than social assistance. Workers in Belgium, Luxembourg, the Netherlands and Slovenia face both particularly high inactivity and unemployment traps. The particular contribution from labour taxes (income taxes and social security contributions) to the unemployment trap is, however, high only in Belgium and not in any of the other three countries. Similarly, the contribution from taxes to the inactivity trap is high only in Belgium, the Netherlands and Slovenia, and not in Luxembourg. Germany, Ireland, France, Austria and Finland are in particular characterised by very high inactivity traps but also have unemployment traps of above 65%. However, the particular contribution from taxes (including social security contributions) is low in Ireland for both traps and low for the unemployment trap in the case of Finland. Also, the indicators sometimes do not take into account special measures targeted at parts of the workforce. For instance, in France the ‘prime pour l’emploi’ and the ‘revenu de solidarité active’, which are in-work benefits supplementing the income of those earning very low wages to encourage them to take up a job or stay employed, are not reflected in the data according to the French authorities.<sup>(159)</sup>

Whereas the employment situation of low-skilled workers can be considered satisfactory or even very satisfactory in the Netherlands and Luxembourg, the low-skilled face serious labour market problems in the other countries. Italy, Spain and Portugal have a very high unemployment trap and a rather low inactivity trap. While the high unemployment trap in Spain and Portugal is due not to a high contribution from taxes but to high benefits paid to the unemployed, the contribution of labour taxes to the unemployment trap is above the euro-area average in Italy. In general, the picture is much more mixed for the inactivity trap than in the case of the

unemployment trap. This is due to the big differences in the level of transfer payments to the inactive population.

Again, it is important to analyse whether countries that are identified as having especially high financial disincentives for low-skilled workers have recently introduced policy measures that are not yet reflected in the indicators. The analysis of recent tax reforms in Chapter 3 shows that in particular Finland, Germany and the Netherlands have lowered personal income taxation at low income levels via a reduction in income tax rates and/or an increase in the income tax allowance.

There are different possible ways of increasing labour supply incentives in the countries faced by high labour supply disincentives at low-wage levels and a poor labour market situation of the low-skilled. As regards the tax system (including social security contributions), positive labour supply incentives at lower income levels can, for instance, be created by lower social security contributions at low wage levels or a higher tax-free allowance, above all where transfer payments are not subject to personal income tax. Special tax schemes such as earned income tax credits (EITCs) that provide special incentives to participate in the labour market could also be taken into consideration.<sup>(160)</sup> Positive labour demand effects in the short run can in particular be achieved by a reduction in employers’ social security contributions.<sup>(161)</sup> Given the rather high labour demand elasticities for low-skilled workers, reductions targeted at this group could have a strong effect on labour demand. However, measures to create better conditions for low-wage earners should avoid ‘low-wage traps’, often called ‘poverty traps’, which deter low-wage earners from earning more (moving from part-time to full-time work, looking for a more qualified job, etc.) and employers from paying more. This occurs when tax and benefit conditions become less favourable for employees, while the non-wage labour costs significantly rise for employers (e.g. because of the loss of social security rebates).

---

<sup>(160)</sup> See Saez (2002) and Immervoll et al. (2007).

<sup>(161)</sup> Micro-economic studies for the Nordic countries indicate, however, that the employment effect could be limited; see e.g. Korkemäki and Uusitalo (2009).

---

<sup>(159)</sup> These measures are particularly targeted at reducing disincentives at low wage levels.

### Alleviating tax pressure on vulnerable groups: the case of second earners

The second group that is of particular importance is second earners in couples, who are very often female. In 2010, female employment rates were below male employment rates in all euro-area Member States (see Table 5.6).<sup>(162)</sup> Against the euro-area average, the gap amounted to more than 13 percentage points (age group 25-54 years). Female workers are more responsive to financial incentives than male workers as regards their labour supply at the extensive, i.e. the question whether to participate in the labour market, and above all the intensive margin, i.e. the question whether to supply an additional hour of work or whether to move from part-time to full-time work.<sup>(163)</sup> The comparatively low labour force participation of women is at least partly due to often very high negative incentive effects embedded in the tax and benefit system for second earners, as measured by average and marginal effective tax rates. Other major reasons for the low employment rates of females are certainly the cost or unavailability of child care, the insufficient development of flexible work arrangements to reconcile personal and family life, such as part-time work, and cultural attitudes and social norms regarding gender roles, especially for older cohorts.<sup>(164)</sup> Although not analysed here, single mothers with (two) children face particularly high disincentive effects, which also negatively impacts on female labour market participation.

As analysed in detail in Carone et al. (2009), high marginal and average effective tax rates for second earners are primarily influenced by taxes and social security contributions rather than benefits. This is due to the fact that the earnings of the primary earner are in most cases sufficiently high to rule out eligibility to benefits such as social assistance or housing.<sup>(165)</sup> As a consequence

second earners in couples with children in general face a lower inactivity trap than single parents with two children.

Table 5.6 provides two measures for labour supply disincentives. Whereas the inactivity trap or participation tax measures labour supply incentives at the extensive margin, the low-wage trap — as a marginal effective tax rate indicator — can be used to assess the incentive effects at the intensive margin.<sup>(166)</sup>

Second earners in Slovenia, Germany, the Netherlands, Belgium and — somewhat less so — in Italy face especially high disincentives to return to work from inactivity. In contrast to the inactivity trap faced by low-skilled workers, the particular contribution from taxes (including social security contributions) to the inactivity trap for second earners is rather high in all countries. This applies particularly in Belgium, Germany and the Netherlands and, to a somewhat lesser extent, also in the two other Member States with a high inactivity trap, Slovenia and Italy. Disincentives at the intensive margin as measured by the low-wage trap are considerable in Belgium, Germany and Italy and, to a somewhat lesser extent, in Slovenia and the Netherlands.<sup>(167)</sup> Overall, disincentive effects to labour supply of second earners as measured by the two indicators are considerable in five euro-area Member States.

In all those countries, to a somewhat lesser extent in Slovenia, the female employment rate is well below the male employment rate. Belgium, Germany and the Netherlands are also

---

[http://ec.europa.eu/economy\\_finance/db\\_indicators/tax\\_benefits\\_indicators/index\\_en.htm](http://ec.europa.eu/economy_finance/db_indicators/tax_benefits_indicators/index_en.htm).

<sup>(162)</sup> The Lisbon Strategy had an employment target for women (15-64 years) of at least 60% as the EU average.

<sup>(163)</sup> See Meghir and Phillips (2010) for a literature review of labour supply elasticities for different labour market groups. See also Bertola et al. (2002).

<sup>(164)</sup> See e.g. Bettio and Verashchagina (2009), Jaumotte (2003), and Buddelmeyer, Mourre and Ward (2008).

<sup>(165)</sup> According to Carone et al. (2009) benefit withdrawals tend to only play a role at income levels below 67% of the average wage. For a detailed breakdown of the different components of the inactivity, unemployment and low-wage traps see:

<sup>(166)</sup> The low-wage trap as an effective marginal tax rate is defined as the rate at which taxes are increased and benefits withdrawn as earnings rise due to an increase in work productivity. This kind of trap is most likely to occur at relatively low wage levels due to the fact that the withdrawal of social transfers (mainly social assistance, in-work benefits and housing benefits), which are usually available only to persons with a low income, adds to the marginal rate of income taxes and social security contributions.

<sup>(167)</sup> No breakdown for the share of labour taxes is available. Data are, however, available for the breakdown of a wage increase of 1% of the average wage, i.e. from 33% to 34%. In this case, the contribution from labour taxes to the trap is 100% in Belgium, Germany, and Slovenia, more than 90% in the Netherlands and more than 80% in Italy.

characterised by a high share of part-time employment in overall female employment.

Table 5.6: Tax burden on second earners and female employment rates

Country	Labour market performance (1)		Disincentives to work (2)		
	Employment rate - female (2010)	Employment rate - male (2010)	Inactivity trap (67% AW)		Low-wage trap (33% to 67% AW, 2009)
			2009	of which contribution from labour tax	
BE	74.4	85.5	46.3	46.3	58.0
DE	76.3	86.5	51.0	46.0	49.0
EE	73.9	75.7	22.6	22.6	23.0
IE	65.7	75.0	35.4	22.0	32.0
EL	61.1	85.3	31.9	16.0	19.0
ES	63.2	75.7	17.5	17.5	18.0
FR	76.7	87.1	38.1	25.0	23.0
IT	58.7	83.5	42.5	30.6	48.0
CY	76.6	88.4	---	---	---
LU	72.6	92.0	32.8	22.0	29.0
MT	47.8	88.7	33.3	15.3	23.0
NL	79.3	90.0	46.8	38.3	41.0
AT	79.7	88.7	29.2	29.2	39.0
PT	74.6	83.9	21.5	19.4	28.0
SI	82.1	85.2	55.8	31.0	42.0
SK	70.1	81.4	21.1	21.1	34.0
FI	79.2	83.9	29.2	24.9	32.0
BG	73.6	77.9	20.1	20.1	22.0
CZ	73.4	90.5	33.9	24.9	28.0
DK	80.6	85.9	78.8	28.6	63.0
LV	73.8	72.9	31.9	31.9	30.0
LT	76.1	71.4	39.5	19.9	26.0
HU	67.1	77.9	32.0	28.8	42.0
PL	71.7	82.6	39.2	22.6	31.0
RO	67.2	81.5	26.3	26.3	31.0
SE	82.0	88.0	23.9	28.7	29.0
UK	74.3	85.4	43.7	22.5	31.0
EU-27	72.2	84.8	40.2	30.1	36.1
EA-17	71.5	84.8	39.7	32.1	37.1

Notes: (1) Employment rate for age group 25-54. (2) Inactivity trap for second earner in two-earner couple with two children, principal earner with 67 % of average wage, second earner with 67 %, low-wage trap for second earner in two-earner couple with two children, principal earner with 67 % of average wage, second earner moving from 33 % to 67 % of average wage. Data for the traps refer to 2009 in the case of Bulgaria, Lithuania, Latvia, Malta, and Romania. No detailed breakdown of the contribution from labour taxes to the low-wage trap is available.

Source: Commission services, Joint European Commission-OECD project, using OECD Tax-Benefits models.

One main driver for particularly high effective tax rates on second earners — in addition to a generally high tax burden on labour in a specific country — is the consideration of the total income of a couple — rather than individual incomes — in the calculation of taxes and benefit payments in some Member States. This ‘joint taxation’<sup>(168)</sup> can discourage labour supply at the extensive and intensive margin by increasing average and

<sup>(168)</sup> Joint taxation in income taxation can be introduced via different aspects of the tax system, either via full joint taxation or through the transferability of parts of taxable income to the spouse or of tax allowances and tax credits in countries with otherwise separate income taxation.

marginal effective tax rates. In Member States with individual taxation female employment rates seem to be closer to male rates. Currently, Germany, France, Ireland, Luxembourg and Portugal apply a mandatory or default system of joint taxation of couples, whereas in Spain separate taxation is the default system but an option for joint taxation is available. Personal income taxation in a few other euro-area Member States includes at least some elements of joint taxation (e.g. Greece and Belgium) while several other Member States apply pure systems of individual taxation.

The mechanism whereby the marginal tax rate is pushed up by the earnings of the principal earner is relevant in particular in the case of low-wage work.<sup>(169)</sup> Bettio and Verashchagina (2009) calculate marginal effective tax rates for female secondary earners with children and show that countries with joint taxation on average have a higher tax burden on second earners than countries with separate taxation. Using micro data, they calculate that the marginal effective tax rate is on the arithmetic average 13 percentage points higher in the five euro-area countries applying joint taxation than in those EU countries not applying joint taxation.<sup>(170)</sup> They also provide data that indicate a link between a high marginal effective tax rate when moving from part-time to full-time work and a high share of part-time workers among secondary earners.

In order to increase work incentives for second earners it would be important to move away from joint taxation and in the direction of individual taxation.<sup>(171)</sup> Simulations carried out for countries currently applying systems of joint taxation indicate that a move to separate taxation would increase female labour market participation as well as the hours worked.<sup>(172)</sup> No significant reforms have taken place in the Member States in the recent past that are not yet reflected in the data.

To sum up, high overall tax burdens seem to prevail in Belgium, Germany, France, Italy,

<sup>(169)</sup> See Carone et al. (2009).

<sup>(170)</sup> See Bettio and Verashchagina (2009, page 82) for the definition of family types and detailed calculation results.

<sup>(171)</sup> In this respect, the Commission recommendation/opinion on the German NRP and SCP for 2011 suggests moving away from joint taxation of couples towards separate taxation (see European Commission, 2011).

<sup>(172)</sup> See Bettio and Verashchagina (2009) for references to respective studies.

Austria and Finland. For all of the first five countries, and to a lesser extent for Finland, the effects of a high overall tax burden are aggravated by a high labour tax burden on specific vulnerable groups. Without imposing an overall high tax burden on labour, the Netherlands and Slovenia are characterised by a high tax burden on specific labour market groups. Member States with a particularly high tax burden on labour and a rather low employment level should try to reduce the tax burden on labour with a special focus on specific labour market groups, in particular low-skilled workers and second earners. Given the tight budgetary situation in most Member States this needs to be compensated for by increases in revenues from other taxes. It is therefore important to analyse how much scope there is in Member States for shifting the tax burden to other economic activities and tax bases.

### 5.2.2. Scope for tax shifting towards indirect taxation

As evidenced by the above results, the tax burden on labour is very high in a number of countries. Rebalancing the tax system towards less distortive tax sources (immovable property, consumption and environmental taxes) would allow a reduction in relatively highly distortive labour (and corporate) taxes.<sup>(173)</sup> Moreover, shifting the tax burden away from labour towards consumption could also contribute to (further) improving impaired price competitiveness in a number of Member States. However, the rise in consumption taxes might lead to a rise in price level, translating into higher inflation in the short run. This may (partly) counteract the cut in nominal labour costs, in real terms. Moreover, risks of second-round effects, especially in cases where wages are linked to inflation, would have to be monitored carefully, since wage earners may ask to be compensated for the relative loss in purchasing power. In redistributive terms, this purchasing power loss should be gauged against the employment gain brought about by lower labour taxes. This employment increase, expected mainly for the most vulnerable groups, will induce positive purchasing power effects for these groups. However, any shift from labour to consumption

taxes would need to be carefully analysed in terms of its redistributive effects.<sup>(174)</sup>

### Overall level of indirect taxes and consumption taxes

The broadest category to be opposed to direct (personal and corporate) taxes and social security contributions is indirect taxes. As to the difference between the latter and consumption taxes, indirect taxes are wider in that they include, apart from VAT, excise duties and other consumption taxes, large parts of property tax revenues and some additional — smaller — environmental taxes. However, they also include some — from a growth-perspective ‘undesirable’ — taxes on capital and labour, most importantly stamp taxes and payroll taxes. Given the imperfections of both concepts in measuring the share of ‘growth-friendly’ tax categories — the first one being too narrow, the second one too broad, Table 5.7 provides an overview of both the share of consumption (2009) and indirect taxes (2011) in total tax revenues across Member States.

To assess which euro-area Member States could benefit from shifting taxes towards consumption/indirect taxes, countries are again benchmarked against the weighted euro-area averages for the two shares. In Belgium, Germany, Spain, Luxembourg, Netherlands and Finland, the share of indirect taxes in total tax revenues is below the euro-area average, while it is marginally above the euro-area average but below the EU average in France and Italy. Although still being below the euro-area average, the share of indirect taxes in total tax revenues has increased markedly (by around 2½ percentage points) compared to 2008 in Spain and Finland, partly reflecting the VAT rate increases implemented in these countries. Further euro-area countries showing even more significant increases in the share of indirect taxes (3 to 3½ percentage points) are Estonia and Greece, which hiked their VAT rates after the economic and financial crisis but already had clearly above-average shares of indirect taxes

<sup>(173)</sup>For a general discussion and empirical results on the macroeconomic effects of a tax shift from labour to consumption, see section 4.1.

<sup>(174)</sup>One common objection to replacing income tax with a consumption tax is that the latter tends to be regressive, since people with low incomes spend a higher percentage of their incomes than do people with higher incomes. For a critical discussion and ways to construct a non-regressive consumption tax, see e.g. Caspersen and Metcalf (1994).

before the crisis.<sup>(175)</sup> For four of the above-mentioned countries with relatively low shares of indirect taxes (Belgium, Spain, France, Italy), the share of consumption taxes was also below the euro-area average in 2009.<sup>(176)</sup>

Table 5.7: Indirect and consumption taxes

Country	Share of indirect taxes in total taxation		Share of consumption taxes in total taxation	Consumption taxes as % of GDP	ITR on consumption
	2011	change 2008-11			
BE	30.5	0.9	24.4	10.6	20.9
DE	33.1	0.5	27.8	11.1	19.8
EE	42.3	3.6	40.6	14.6	27.6
IE	40.8	-1.8	35.4	10.0	21.6
EL	42.4	3.0	35.5	10.8	14.0
ES	33.4	2.5	23.6	7.2	12.3
FR	34.3	-0.8	25.6	10.6	18.5
IT	34.0	1.2	22.8	9.8	16.3
CY	44.0	-2.2	38.1	13.4	17.9
LU	32.5	-1.1	27.4	10.2	27.3
MT	42.4	-1.2	39.3	13.5	19.5
NL	31.5	-0.9	30.8	11.8	26.2
AT	35.0	1.2	28.2	12.0	21.7
PT	43.1	-0.5	35.2	10.9	16.2
SI	38.5	-0.1	37.3	14.0	24.2
SK	38.6	1.7	35.9	10.3	17.3
FI	32.9	2.4	31.1	13.4	25.7
BG	54.5	-0.7	50.8	14.7	21.4
CZ	33.8	1.9	32.5	11.2	21.6
DK	37.0	0.9	31.6	15.2	31.5
LV	44.1	5.9	38.4	10.2	16.9
LT	44.5	5.0	38.2	11.2	16.5
HU	47.2	7.6	38.1	15.0	28.2
PL	42.8	0.7	36.2	11.5	19.0
RO	45.0	2.3	38.4	10.3	16.9
SE	39.6	0.8	28.5	13.3	27.6
UK	37.5	4.7	29.8	10.4	16.8
EU-27	34.9	1.1	27.7	10.6	18.9
EA-17	33.8	0.5	26.6	10.4	18.5

Source: Commission services.

In gauging the tax composition and the potential for shifting the tax burden to consumption taxes, it is important to take the overall tax burden on consumption into account. The below-average ratio of consumption tax revenues to GDP in Italy and, particularly, in Spain underlines the potential for raising consumption taxes.

To abstract from differences in the size of tax bases across countries and to measure the 'true' tax burden on consumption, it is also important to look at the implicit tax rate (ITR) on consumption.<sup>(177)</sup>

<sup>(175)</sup> Section 3.2 in Chapter 3 provides an overview of recent tax reforms in the area of VAT.

<sup>(176)</sup> The 2009 figures do not yet reflect VAT hikes implemented in 2010 and 2011.

<sup>(177)</sup> See the discussion of implicit tax rates in Chapter 2.

A comparison of the ITR across euro-area Member States provides further evidence of potential for shifting the tax burden towards consumption in Spain and Italy. The ITRs on consumption in 2009 are low particularly also in Greece and Portugal and, to a lesser extent, in Slovakia and Cyprus. While the shares of consumption taxes in total tax revenues are already relatively high in the latter four countries, the low tax burden on consumption would still suggest some room for manoeuvre for increasing consumption tax revenues in a euro-area wide comparison. Against the background of the analysis in sub-section 5.3.3, this might in several cases be addressed by reducing high VAT gaps related to fraud and deficiencies in tax collection and/or increasing overall VAT efficiency through base-broadening.

#### A closer look at consumption taxes

Table 5.8 provides a more detailed breakdown of consumption taxes into VAT, excise duties on tobacco and alcohol and energy taxes.<sup>(178)</sup> Revenues from real estate taxation will be dealt with separately in the subsequent section. The above-reported low share of consumption taxes in total tax revenues in Belgium, Spain, France, Italy (and Luxembourg) is essentially driven by low VAT receipts,<sup>(179)</sup> which account for around two thirds of total consumption taxes on average. In three of these countries (Belgium, France, Italy) revenues from excise duties on alcohol and tobacco in 2009 were below the euro-area average too. The same applies to Germany, the Netherlands and Austria.<sup>(180)</sup> Belgium, France and Austria also feature among the euro-area countries with relatively low receipts from energy taxation, the largest share of which is usually accounted for by transport fuel taxes. Further countries with below-average shares of energy taxation (in 2009) are Greece, Malta and Finland.<sup>(181)</sup>

<sup>(178)</sup> For a definition of energy taxes see Chapter 2. The residual category comprises taxes on transport excluding fuel, and on pollution/resources, as well as other non-environmental consumption taxes. It varies considerably among countries in size and composition.

<sup>(179)</sup> The VAT rate hike (by 2 percentage points) in Spain in 2010 is not yet reflected in the data.

<sup>(180)</sup> In Austria, excise duties on tobacco were increased as from January 2011 and are to be increased further as from July 2011.

<sup>(181)</sup> Fuel taxes were increased in Austria in 2011 and, following the 2009 increase, in Greece again in 2010.



Table 5.8: Consumption taxes: share of VAT and excise duties in total taxation (2009)

Country	VAT	Alcohol/ tobacco	Energy	Residual
BE	16.0	1.6	2.9	3.8
DE	18.7	1.8	4.8	2.6
EE	25.2	6.9	7.1	1.4
IE	22.7	4.8	5.2	2.6
EL	21.1	4.5	3.9	6.0
ES	13.5	2.7	4.4	3.0
FR	16.3	1.4	3.5	4.4
IT	13.2	1.8	4.8	2.9
CY	26.0	3.6	4.6	3.9
LU	16.7	3.7	6.1	0.9
MT	22.9	3.7	4.3	8.4
NL	18.4	1.2	5.3	5.9
AT	18.9	1.5	3.8	4.0
PT	23.0	2.7	6.1	3.3
SI	22.4	3.4	8.0	3.5
SK	23.3	3.8	5.9	2.9
FI	20.3	2.6	4.2	4.0
BG	31.2	9.5	9.2	0.9
CZ	20.7	4.3	6.7	0.8
DK	21.0	1.3	4.6	4.7
LV	22.5	5.9	7.6	2.4
LT	25.2	5.3	6.6	1.1
HU	21.3	3.9	5.0	7.8
PL	23.4	5.1	6.6	1.2
RO	24.8	5.6	6.0	1.9
SE	20.7	1.6	4.9	1.3
UK	16.6	3.6	5.6	4.1
EU-27	17.3	2.2	4.7	3.5
EA-17	16.8	1.9	4.4	3.5

Source: Commission services.

However, the relatively low shares in total revenues of excise duties on alcohol and tobacco in Germany, the Netherlands and Austria and of energy taxes in Malta, Austria and Finland have to be seen in conjunction with already above-average overall tax burdens on consumption (see Table 5.8).

As discussed in Chapter 4, higher revenues from VAT should be achieved mainly by narrowing the applicability of reduced rates or by increasing their level. In most euro-area Member States there seems to be potential for such changes as discussed in sub-section 5.2.1 below. However, in some countries there seems to be some margin left also for (further) raising the standard VAT rate in order to generate additional revenues (see Table A1.4 in Annex 1). In fact, VAT standard rates have often been changed from 2009 onwards, in the vast majority of cases upwards. The euro-area average has risen strongly, by around 2½ percentage points in three years.

Similarly, also excise duties (both on alcohol and tobacco and on energy) have already been increased in several Member States as a means to

raise revenues in the aftermath of the crisis. However, several countries still seem to have room for raising excise duties in a cross-country perspective. This is all the more true as excise duties are usually levied as fixed amounts per quantity of a given product. Thus, while the average tax burden on labour tends to automatically increase over time as mentioned above,<sup>(182)</sup> revenues from excise duties tend to diminish in relative terms in line with inflation.

Environmental tax revenues, which can be one component in a tax shift towards indirect taxation, on average accounted for 2.4% of GDP and for 6.3% of total tax revenues in 2009. In some Member States the share of environmental tax revenues in total taxes has reached more than ten percent due to various environmental tax reforms.<sup>(183)</sup> There seems to be some scope to increase environmental taxation, in particular energy taxation, in some countries. However, some countries have increased fuel taxes recently.

#### Special focus on potential for increasing revenues from real estate taxation

Another (potentially) important lever for raising indirect taxes is increasing revenues from property taxation. Various studies have shown that property taxes, and in particular recurrent taxes on immovable property<sup>(184)</sup>, are among the taxes least detrimental to growth.<sup>(185)</sup> Taxation of real estate takes several different forms. Following the classification in OECD (2010b), the following categories are distinguished: (i) recurrent taxes on land and buildings, (ii) taxes on transactions involving immovable property, (iii) wealth taxes, and (iv) taxes on gifts and inheritances. Note that in cases (ii) to (iv), it is often difficult to separate tax revenues relating to immovable property from other property taxes, as the published tax revenue data normally cover a broader set of transactions or assets.<sup>(186)</sup>

<sup>(182)</sup> Many countries address this issue by indexing or regularly reviewing tax brackets.

<sup>(183)</sup> See Chapter 2, Graph 2.11 for detailed country data.

<sup>(184)</sup> European Commission (2010e) provides an overview of the literature on this topic.

<sup>(185)</sup> Taxation of capital gains coming from immovable property sales falls under personal income taxation and will not be examined in this report given the scarcity of data available.

<sup>(186)</sup> European Commission (2011a) and OECD (2010b) do not provide a breakdown of transaction taxes.

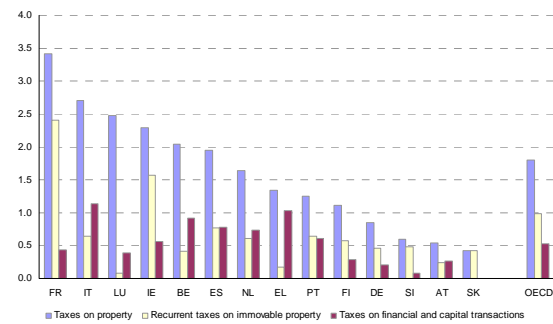
Recurrent taxes on real estate and land are found to have a relatively smaller adverse impact on the allocation of resources in the economy than other taxes. The tax base is also more stable and thus more predictable than tax revenue obtained from labour or, in particular, corporate taxes. One explanation for this is that cyclical fluctuation of property values is comparatively small. The stability is also reinforced by the fact that many tax systems do not update property values (the tax base) regularly. This could, on the other hand, risk leading to erosion of the tax base over time due to inflation if no adjustments are made. Another advantage of the recurrent property tax is that its base is immobile and visible, and hence more difficult to evade.<sup>(187)</sup>

Transaction taxes, however, discourage transactions that would allocate these properties more efficiently.<sup>(188)</sup> The market will be thinner and the price discovery process, which is already slow in the housing market, could be hampered. The tax would also negatively impact labour mobility. Moreover, revenues from transaction taxes are often highly volatile as the revenue development in the crisis has shown recently, with tax windfall in housing market booms and tax shortfall in busts. On the positive side, a tax on real property transactions could deter speculation and thus possibly help to reduce the risk of housing market bubbles. However, this relationship remains empirically ambiguous.<sup>(189)</sup> It could also prove politically difficult to use the transaction tax as a timely policy response to mitigate price increases in the housing market. Moreover, other policies are available to more effectively mitigate the creation of housing market bubbles.

The current systems for taxing immovable property provide scope for two types of reforms. First, there appears to be room to shift the overall tax burden towards recurrent taxes on real estate. Second, a shift from taxes on transactions to recurrent taxes on real estate would reduce the distortions introduced by taxation and improve economic efficiency. The latter is warranted by the fact that this type of tax has a less negative impact on the overall allocation of resources in the

economy compared to other sources of revenue (with the exception of taxes on negative externalities).

Graph 5.2: Revenues from property taxes, 2009 (in % of GDP)



Note: No OECD data is available for Cyprus, Estonia and Malta.  
Source: OECD (2010b).

The reliance on property taxation varies considerably between euro-area Member States, as available data indicate. Revenues ranged from close to 3.5% of GDP in France to less than 0.5% in Austria and Slovakia in 2009 (see Graph 5.2). Recurrent taxes on immovable property are responsible for a large share of these revenues in many Member States (ranging from nearly 2.5% to less than 0.5% of GDP). Very low shares can in some cases partly be explained by taxation of imputed rents, from which the proceeds will fall under personal income tax and are therefore not included in the data (e.g. Luxembourg, Belgium and the Netherlands). In particular Slovakia, Austria, Slovenia, Germany, Finland and Greece appear to have room to increase revenue from recurrent real estate taxation (see Graph 5.2). In these countries, the revenue from recurrent real estate taxes accounts for less than 0.6% of GDP and there is no tax on imputed rents. Increasing revenues from recurrent real estate taxes should in general first be done by bringing the tax base into line with the rental value (i.e. the market value) of the property. As a second step, rates could also be increased. Temporary measures to address the situation of house-owners with low income and illiquid assets might need to accompany such reforms. In addition, as property taxes often accrue to the local level of government, the division of revenue and/or the transfer systems between local and central government might need to be adjusted. It is important to note that a few Member States (e.g. Greece and Portugal) currently reassess real

<sup>(187)</sup> See OECD (2010f) and Johansson et al. (2008) for a discussion on property taxes.

<sup>(188)</sup> See Johansson et al. (2008).

<sup>(189)</sup> See Crowe et al. (2011).

estate values with a view to bringing them into line with the rental value and some others (e.g. Germany) consider doing so.<sup>(190)</sup>

Transaction taxes play a smaller role in the OECD average, but are estimated to be close to 1% of GDP in Italy, Greece and Belgium. These data also include, as mentioned above, revenue from other capital and financial transactions. In order to assess the distortionary effect of transaction taxes it is important to look not only at tax revenues from these taxes but also at the tax rates applied. Belgium, Italy and Greece apply a tax on real estate transactions at a rate above 10%, even if various reductions and exemptions apply in some cases, e.g. for first-time buyers. A second set of countries (Portugal, Spain, Luxembourg, the Netherlands, France and Cyprus<sup>(191)</sup>) apply rates in the 6-8% range, while a third group applies tax rates below or at 5% on real estate transactions. Finland, Slovenia, Germany and Austria belong to this group. Ireland had a stamp duty which amounted to 7-9%, depending on the price of the property, but the 2011 budget reduces this duty to 1-2%. Note that no taxes on real estate transactions are levied in Malta, Estonia and Slovakia. As a result, Belgium, Italy, Greece<sup>(192)</sup>, but also Portugal, Spain, Luxembourg, the Netherlands, France and Cyprus could review whether a shift from a tax on real estate transactions to a recurrent tax on real estate could improve the functioning of the housing market.

#### Summarising the findings on the potential for tax shifting

Overall, the following conclusions emerge as to enhancing the quality of taxation through tax shifting. In five euro-area countries (Belgium, Germany, Finland, France, Italy) a high overall tax burden on labour is matched by relatively low taxation of consumption and other indirect taxes, which suggests some scope for tax shifting. In

Germany and Finland, the labour tax burden might also be alleviated through shifting taxes towards recurrent taxes on real estate and in particular housing. Similarly, while the level of consumption and overall indirect taxes is already somewhat above the euro-area average, increasing housing taxation could be a way to alleviate the high tax burden on labour in Austria. Any reduction in the tax burden on labour should in particular focus on those groups facing strong disincentives to work, i.e. low-skilled workers and second earners.

High tax burdens on vulnerable groups in the Netherlands and Slovenia might call for a re-profiling of labour taxation away from low-skilled workers and second earners towards other categories of taxpayers. Given the room for increasing the level of indirect taxation in the Netherlands and of recurrent real estate taxation in Slovenia, shifting the tax structure away from labour taxes falling on vulnerable groups towards indirect/real estate taxes might also be an option.

Apart from the countries mentioned so far, six others (Spain, Greece, Cyprus, Luxembourg, Portugal, Slovakia) either have low revenue shares from consumption/indirect taxes or display below-average ITRs on consumption (or both). Optimising tax structures through revenue-neutral tax shifts might be advisable in these cases, even if the tax burden on labour is not excessive in a euro-area perspective, particularly where room for higher consumption taxes is accompanied by unsatisfactory labour market performance.<sup>(193)</sup> Of the above-mentioned countries, Greece and Slovakia appear in particular to have some room for shifting taxation towards real estate. Finally, Belgium, Italy and Greece may in particular benefit from a shift within real estate taxation, from a tax on real estate transactions to a recurrent tax on real estate. The results are summarised in Table 5.9.

Taxes could also be shifted towards environmental taxation to the extent that it is economically and environmentally efficient. The primary goal of green taxation is to address the failure of markets to take negative externalities into account by

<sup>(190)</sup> See Chapter 3 for countries that are currently carrying out reassessments.

<sup>(191)</sup> The rate in Cyprus varies between 4 and 8%, with lower rates and reduced valuations for transactions between the extended family.

<sup>(192)</sup> Note that in reform programmes, Greece is asked to update the values of property and thus raise more revenue. Portugal is asked to shift from transaction to recurrent property tax while protecting vulnerable households. Incentives to rent and own should be equalised by removing mortgage interest deductibility.

<sup>(193)</sup> The analysis in sub-section 5.3.3 suggests that in many cases higher VAT revenues could be generated by improving overall VAT efficiency (through base broadening, fighting fraud and enhancing VAT collection).

incorporating them into market prices and thereby to improve resource allocation. However, the scope for using environmental taxation to raise revenues and shift taxes away from labour is limited by the primary goal of avoiding distortions and the relatively small base vis-à-vis labour taxation. It is also limited by the potential tax base erosion implied by the elasticity of the environmental tax base to tax rate changes.

In all cases where a tax shift from labour to consumption seems feasible, the impact on inflation should be considered, especially the risk of second-round effects. In particular, in countries where wage increases are linked to inflation, a shift from direct to indirect taxes may not lead to the desired reduction in labour costs in real terms.

Table 5.9: Overview: tax structure indicators

Country	High tax burden on labour		Potential to shift		Need and room for tax shift
	Overall	Specific groups	Low consumption/ indirect taxes	Low recurrent taxes on housing	
BE	X	X	X		X
DE	X	X	X	X	X
EE					
IE					
EL			X	X	
ES			X		
FR	X	X	X		X
IT	X	X	X		X
CY			X		
LU			X		
MT					
NL		(X)	X		(X)
AT	X	X		X	(X)
PT			X		
SI		(X)		X	(X)
SK			X	X	
FI	X	(X)	X	X	X

*Note:* High tax burden on specific labour market groups in a Member State either refers to low-skilled workers or second earners in couples or both. (X) depicts borderline cases, i.e. cases where only one sub-indicator indicated a high tax burden on a specific group whereas other indicator values were rather low.

*Source:* Commission services.

Taxes could also be shifted towards environmental taxation, but only to the extent that it is economically and environmentally efficient. The primary goal of green taxation is to meet the objectives of environmental policies, such as reducing CO<sub>2</sub> emissions and pollution, which will also enhance growth by correcting for environmental externalities and thus improving resource allocation. It also has the advantage that it reduces the cost of environmental policy in relation to other non-market based policy instruments. However, the scope for using environmental taxation to raise revenues and shift taxes is limited due to its relatively small base vis-

à-vis labour taxation. It is also limited by the potential tax base erosion implied by the elasticity of the environmental tax base to tax rate changes.

Energy taxation, which accounts for around three quarters of overall environmental tax receipts, appears to be particularly low in Belgium and France (Table 5.8). The share of energy taxes in total tax revenues in 2009 was also clearly below the euro-area average in Greece and Austria. However, both countries have increased fuel taxes more recently.

As argued in European Commission (2010e), environmental tax revenues have not been growing in recent years in the EU on average, despite their increasing importance in the policy debate. Apart from the above-mentioned tax base erosion due to higher environmental taxes and energy prices, this could be explained by the fact that environmental taxes are usually levied per unit of physical consumption and fixed in nominal terms, such that their real value tends to fall in the absence of inflation adjustment. Finally, given the heightened importance of energy efficiency, energy demand has a tendency to grow more slowly than income.

### 5.3. OTHER HORIZONTAL CHALLENGES INHERENT TO THE DESIGN OF INDIVIDUAL TAXES

The section below analyses challenges concerning the design of specific types of taxes from a horizontal perspective. As discussed in detail in the economic literature (e.g. OECD, 2010c, for a review), taxes should in general be levied on a broad base at low rates in order to reduce the distortionary effects of taxation. The section first looks at tax expenditure in the area of direct taxation (personal and corporate income tax). It then analyses issues related to specific indirect taxes, namely VAT and environmental taxation. It will then look into the debt bias created by the tax system. Lastly, it covers tax governance issues.

#### 5.3.1. Reducing tax expenditure in direct taxation

##### Measuring the size of tax expenditure

While bearing in mind the methodological constraints related to the difficulty of clearly

determining what constitutes tax expenditures (see discussion in Chapter 4), this sub-section very tentatively compares the size of tax expenditures in direct taxation across countries, using a set of ‘macro’ indicators. While the latter remain very crude and fragile measures of the size of tax expenditures, especially in the area of personal income tax, they usefully provide a first order of magnitude and allow a first cross-country comparison. More precise estimates from Member States, based on microeconomic studies, would be welcome in this respect, albeit not available for all countries and not consistent across countries.

Two different approaches are followed. First, OECD estimates of tax expenditures (as a % of GDP) are presented.<sup>(194)</sup> These figures are based on national authorities’ information, augmented by OECD estimates where deemed necessary for a comparison across countries. Unfortunately, such information on tax expenditure collected by the OECD is available for only eight out of 17 euro-area Member States. Furthermore, it remains subject to limited comparability between countries, given the above-mentioned difficulties in defining tax expenditure.

The results of a second approach are therefore presented. The method provides a simple, intuitive and robust indication of tax expenditures and is available for all Member States. It consists in comparing countries’ major statutory rates with estimates of ‘actual’ (effective or implicit) tax rates. Alternatively, statutory rates can be compared to the share of personal or corporate income tax revenues in GDP via an approach whereby each country is ranked with respect to the two indicators of the tax burden. In principle, this serves to make the magnitudes of the two indicators comparable. However, given that due to its generally progressive nature it is difficult to derive a universal statutory rate for personal income tax, the comparison of statutory and implicit personal income tax rates will be performed using the more robust ranking approach only, rather than comparing them numerically. Any strong discrepancy in a country’s ranking with respect to the statutory rate on the one hand and the empirical indicators of the tax burden on the other will signal a large tax gap, which could

be explained either by the number of tax expenditures or the size of the shadow economy (or both). However, the indicated tax gap may also partly capture tax rules that lead to lower revenues but belong to the benchmark tax system and cannot, thus, be considered as tax expenditures. This is the case of the general tax exemption of income up to a certain threshold. At the same time, this overestimated approximation should not systematically affect the position of countries using the ranking approach. Where the shadow economy in a given country is small, as signalled by a set of evidence (see also section 5.3.4), the existence of sizeable tax expenditures (in a broad sense) would be suggested. For corporate income tax, the numerical gap between the properly defined top statutory rates and the effective/implicit rates will also be presented as such.<sup>(195)</sup> Again, the difficulties in distinguishing tax expenditures from tax rules within the benchmark system remain unsolved.

The two different approaches seem to provide a fairly consistent picture. Looking at tax expenditure concerning personal income taxation first, the OECD figures presented in the left-hand columns of Table 5.10 point to high foregone tax revenues in Greece, Spain, Italy, Austria and, to some extent, also in Belgium. In addition, country-specific studies by the OECD point to significant levels of tax expenditure also for France and Portugal.<sup>(196)</sup>

The columns in the middle of Table 5.10 compare a rough (mechanical) estimation of average statutory tax rates on personal income with indicators of the ‘actual’ tax burden, i.e. implicit tax rates on (employed) labour and shares of

<sup>(195)</sup> In the case of corporate income taxes, the gap indicator is also subject to influences by the business cycle and by the different treatment of losses in national accounts (used for the calculation of implicit tax rates) and tax rules (loss carry forward and back).

<sup>(196)</sup> As argued in OECD (2011a), tax expenditures play an important role in the French tax system, with around 500 tax expenditures in 2010. In terms of magnitude, French government estimates suggest foregone revenue of 4% of GDP in 2008. However, according to a report by the Court of Auditors (Cour des Comptes, 2010), the revenue loss could be twice as large. The OECD country survey for Portugal refers to expense-related tax credits in personal income taxation amounting to around 1% of GDP or 17% of personal income tax revenue in 2007 (see OECD, 2010e).

<sup>(194)</sup> See OECD (2010c).

Table 5.10: Estimates of tax expenditures, personal income tax

Country	Tax expenditures (1)		Ranking gaps (2009)		Shadow economy	
	in % personal income tax revenues	in % GDP	between statutory and implicit rates	between statutory rate and revenues as % GDP	Size in % of GDP (2010)	Undeclared work (share of GDP or employment, 2002-2006)
BE	12.4	1.7	1	0	17.9	21.5
DE	5.7	0.6	0	-1	14.7	6.0
EE			-6	-8	29.9	8.0-9.0
IE			-4	-3	13.2	28.6
EL	21.4	1.0	7	9	25.2	
ES	34.6	2.4	5	5	19.8	20.9
FR	6.7	0.8	6	10	11.7	
IT	40.4	4.7	1	-1	22.2	14.8-16.7
CY			4	-1	26.8	
LU			-4	-5	8.8	
MT			0	-1	26.0	
NL			1	6	10.3	
AT	30.0	2.8	6	2	8.7	11.0
PT	4.3	0.3	11	11	19.7	22.5
SI			5	4	25.0	17.0
SK			2	2	17.3	13-15
FI			-3	-2	14.3	4.2
BG			0	1	32.9	22-30
CZ			-6		17.2	
DK	1.7	0.5	0	0	14.4	5.5
LV			-9	-8	27.3	11.7
LT			-7	-6	30.0	15-19
HU			-8	-3	23.8	15-20
PL	10.8	0.6	6	8	26.1	
RO			2	0	30.2	30.0
SE			0	0	15.6	4.5
UK	20.1	2.2	-5	-9	11.1	1.7
EU-27	15.1	1.5			15.9	7.9
EA-17	15.9	1.6			16.0	9.1

*Note:* (1) Tax expenditure estimates taken from the OECD refer to 2009 (Italy and Spain), 2008 (Germany, France and the Netherlands), financial year 2007-08 (UK), 2007 (Portugal), 2006 (Denmark, Austria and Greece) and 2005 (Belgium). The ranking gap is the difference in the descending ranking of countries with respect to the statutory rate and the other indicators of the actual tax burden (implicit tax rate, personal income tax revenues on employed labour as a share of GDP). A high ranking gap thus corresponds to cases where a high statutory rate contrasts with a lower level of an indicator measuring the 'actual' tax burden, thus pointing to large revenues being foregone through tax expenditures. The statutory rates correspond to a crude — albeit simple and transparent — estimation of the average statutory rates, assuming a linear distribution of marginal rates between a basic tax allowance (0 % rate) and the top marginal rate. 20 % of total taxable incomes is assumed to be subject to the top marginal rate, 20 % of total incomes is assumed to benefit from the basic tax allowance. The exception is Bulgaria, which has a flat tax with no allowance. It should be noted that calculations do not take into account special personal income tax rates on specific labour income such as the lower tax rate on the 13th and 14th salary in Austria. The true weighted average statutory rate depends on the progressivity of the tax schedule and the income distribution (the amount of income in each income bracket). A sensitivity analysis, randomising the country-specific weights of the two extreme statutory rates, shows that the main result, i.e. the list of countries experiencing a high ranking gap, is fairly robust to the way the average statutory rate is estimated.

*Source:* Commission services, OECD (2010c), Schneider (2010), Employment Committee (EMCO) and Eurostat.

personal income tax revenues in GDP across countries. <sup>(197)</sup>

As explained above, to make the magnitudes of the figures comparable and the analysis robust to the assumptions underlying the computation of the average statutory rates, the comparison is only

made on the basis of a country ranking. <sup>(198)</sup> Among euro-area countries, large positive ranking gaps emerge for Greece, Spain, France, Cyprus, the Netherlands, Austria, Portugal and Slovenia. These results are robust to the assumptions underlying the computation of the average statutory rates.

Large foregone revenue as implied by large positive gaps between the ranking in terms of

<sup>(197)</sup> To make the analysis consistent, only the share of personal income tax paid on labour employed is used. The revenue from personal income taxes on self-employed income or transfer income is also not taken into account in the calculation of the implicit tax rate on labour (computed only on employed labour). The share of revenues from self-employed and the taxation of transfer and pension payments in total personal income tax revenues varies a lot between countries. It can be very high, e.g. in the case of Italy, and such a high share would lead to an underestimation of the ranking gap.

<sup>(198)</sup> The true weighted average statutory rate depends on the progressivity of the tax schedule and the income distribution (the amount of income in each income bracket). Nonetheless, sensitivity analysis shows that the main result in terms of ranking gaps, especially for countries experiencing a high ranking gap, is fairly robust to the way the average statutory rate is estimated.

Table 5.11: Estimates of tax expenditures, corporate income tax

Country	Tax expenditures (I)		Measures of the tax burden			Corporate income taxes as % of GDP (2009)	Gap		Ranking gap		
	in % corporate income tax revenues	in % GDP	Statutory corporate tax rates (2009)	Implicit tax rate (2004-2008 average)	Effective tax rate (2009)		between statutory and implicit rates	between statutory and effective rates	between statutory and implicit rates	between statutory and effective rates	between statutory rate and revenue as a % GDP
BE	22.2	0.8	34.0	21.8	24.7	2.5	12.2	9.3	5	4	8
DE	0.6	0.0	31.0		28.1	2.0		2.9		-1	15
EE			21.0	6.7	17.6	1.8	14.3	3.4	5	3	6
IE			12.5	9.5	14.5	2.5	3.0	-2.0	-5	-1	-12
EL	4.5	0.1	25.0	18.4	22.0	2.4	6.6	3.0	3	2	2
ES	22.6	0.6	35.7	45.7	33.0	2.3	-10.0	2.7	0	1	15
FR	9.5	0.5	34.4	27.9	34.9	1.3	6.5	-0.5	0	-2	24
IT	18.4	0.7	31.1	26.4	27.5	3.4	4.7	3.6	0	1	0
CY			10.0		10.6	6.5		-0.6		0	-24
LU			28.6		25.2	5.5		3.4		0	-4
MT			35.0		32.4	6.7		2.6		1	-1
NL			25.5	12.0	23.8	2.1	13.5	1.7	6	-3	7
AT	4.5	0.1	25.0	24.5	22.9	1.9	0.5	2.1	-6	0	9
PT	3.9	0.1	26.5	20.7	23.8	2.9	5.8	2.7	2	0	-2
SI			21.0	29.2	19.3	1.8	-8.2	1.7	-15	0	8
SK			19.0	21.6	16.9	2.7	-2.6	2.1	-11	0	-12
FI			26.0	18.5	23.7	2.0	7.5	2.3	4	0	9
BG			10.0	18.9	8.8	2.7	-8.9	1.2	-12	1	-16
CZ			20.0	26.0	17.7	3.6	-6.0	2.3	-13	-1	-15
DK	18.3	0.8	25.0	26.7	22.7	2.5	-1.7	2.3	-9	1	1
LV			15.0	11.9	13.9	1.6	3.1	1.1	-5	1	2
LT			20.0	9.4	16.9	1.8	10.6	3.1	2	2	5
HU			21.4	17.7	19.6	2.3	3.7	1.8	1	0	1
PL	19.6	0.5	19.0	19.9	17.6	2.3	-0.9	1.4	-8	-2	-3
RO			16.0		14.9	2.6		1.1		0	-12
SE			26.3	20.1	23.3	3.0	6.2	3.0	2	2	-4
UK	11.9	0.4	28.0	23.0	28.5	2.8	5.0	-0.5	0	-4	0
EU-27	9.4	0.3	29.6	20.2	27.7	2.3	2.8	1.9			
EA-17	9.1	0.3	31.0	19.8	28.7	2.2	2.8	2.3			

*Note:* see Table 5.10. The ranking gap is the difference in the descending ranking of countries with respect to the statutory rate and the other indicators of the tax burden. A high ranking gap thus corresponds to cases where a high statutory rate contrasts with a lower level of an indicator measuring the 'actual' tax burden, thus pointing to large tax expenditures.

*Source:* Commission services, OECD (2010c).

statutory rates and the ranking in terms of implicit rates or personal income tax revenue shares can point to either special tax provisions or the existence of large shadow economies (or both).

The indicators presented to the right of the table point to relatively large shadow economies for Cyprus, Greece, Spain, Portugal and Slovenia, thus partly explaining the gap between (high) statutory tax rates and (low) tax receipts. However, the OECD estimates discussed earlier confirm the existence of substantial tax expenditures in Greece, Spain and Portugal.<sup>(199)</sup>

Altogether, according to both OECD estimates and the proposed ranking approach, personal income taxation appears to be subject to high tax expenditure in Greece, Spain, France, Austria and Portugal. However, more euro-area countries might be concerned, given that the estimates of tax expenditure compiled by the OECD cover only less than half of the euro-area Member States.

Regarding corporate tax revenues, the left-hand columns of Table 5.11 point to high (above euro-area) tax expenditures as a percentage of GDP for Belgium, Spain, France and Italy. The subsequent columns of the table present a comparison of (the ranking of) adjusted top statutory corporate income tax rates with implicit<sup>(200)</sup> and effective<sup>(201)</sup> tax rate estimates and corporate income tax revenue shares in GDP.<sup>(202)</sup>

Both the direct comparison of statutory and implicit/effective rates and the comparison on the

<sup>(200)</sup> Implicit tax rates are based on national accounts data and are computed as an average over 2004-2008 to account for substantial (cyclical) year-on-year variation in these estimates.

<sup>(201)</sup> The comparison on the basis of effective tax rates suffers from the fact that the latter are computed for 'representative' firms, i.e. typically larger enterprises, such that tax rules targeted at SMEs are typically not reflected in the estimated effective rates. It is partly due to this that, in most cases, estimated effective tax rates are higher than the corresponding implicit tax rates, leading to smaller gaps with respect to statutory rates for effective as compared to implicit rates.

<sup>(202)</sup> Unlike for personal income tax, all taxation at rates below the top statutory rate could be considered as tax expenditure.

<sup>(199)</sup> For Portugal according to OECD (2010e).

basis of countries' rankings points to large foregone corporate income tax revenue in Belgium,<sup>(203)</sup> Estonia,<sup>(204)</sup> Greece and the Netherlands. Other euro-area countries with indications of large corporate income tax expenditures are France,<sup>(205)</sup> Spain, Italy, Portugal and Finland, with at least two of the indicators displaying above euro-area values.

Overall, again subject to the limited availability of OECD estimates, high tax expenditure in corporate income taxation is suggested according to both approaches in Belgium, Spain, France and Italy.

#### Reduced tax rates for incorporated SMEs: the need for a cautious economic approach

Throughout the past decades, European incorporated SMEs<sup>(206)</sup> have been strongly associated with entrepreneurship, economic growth and job creation. This has led Member States to search for ways of encouraging growth, investment and innovation, as well as fostering the competitiveness of small businesses. As a result, among other measures, special tax rules favourable to SMEs have been introduced by several euro-area Member States (in particular Belgium, France, Luxembourg, Spain, the Netherlands and Portugal).<sup>(207)</sup>

Compared to the United States, the number of small firms is higher in the EU and, in particular, micro enterprises (1-9 employees) account for a substantially larger share of firms and employment in the EU. Also, in the US the more productive SMEs have a stronger tendency to increase their market shares and grow than in the EU. Against this background, the European Competitiveness Report 2008 finds that barriers to growth pose the biggest problem for businesses in the EU.<sup>(208)</sup> Encouraging the growth potential of SMEs is one of the primary objectives of the Small Business Act (SBA), which is a key component of the EU's Growth and Jobs Strategy.<sup>(209)</sup>

Only a rather limited number of euro-area Member States provide tax incentives for small business in the form of reduced corporate income tax rates. Table 5.12 shows the various approaches used by governments to preferentially tax SMEs. In particular, it provides an overview of reduced rates targeted at small businesses in comparison with the standard corporate income tax rates and the eligibility criteria applied in the respective countries, which are in general not the criteria used to define SMEs. The most common approach is to make use of policy adjustments at the corporate level by means of a reduced income tax rate. While some Member States (Belgium, Luxembourg) apply reduced corporate tax rates to SMEs with taxable income or profits below a specific threshold, others rely on a turnover criterion to determine the eligibility for reduced rates (France, Spain). Yet other countries (the Netherlands, Portugal) make use of a progressive corporate income tax system, in which lower rates apply to profits below a specific tax bracket, with all companies benefiting from the lower rate.

Allowing all companies to benefit from a lower income rate on profits below a certain threshold avoids 'the barrier to grow' problem. The latter is particularly important in Europe as compared to the US, given the difficulties faced by small

---

<sup>(203)</sup> In Belgium, the results partly reflect the application of the 'Allowance for Corporate Equity' approach to address the discrimination between debt and equity financing due to the tax system.

<sup>(204)</sup> In Estonia, the results partly reflect the fact that only distributed profits are taxed. The indicated revenue foregone thus largely reflects features of the benchmark system rather than tax expenditure.

<sup>(205)</sup> In France it is particularly the large ranking gap between the (high) statutory corporate income tax rate and the (very low) share of corporate income tax revenues in GDP that is suggestive of substantial special tax rules reducing the 'real' tax burden for corporations.

<sup>(206)</sup> On 6 May 2003 the Commission adopted Recommendation 2003/361/EC on the definition of SMEs. In addition to the staff headcount ceiling (less than 250 employees), an enterprise qualifies as an SME if it meets either the turnover ceiling (less than € 50 million) or the balance sheet ceiling (less than € 43 million), but not necessarily both.

<sup>(207)</sup> Under state aid rules, specific rules on the taxation of SMEs are comparable to the underlying progressiveness of a tax scale and, therefore, may be justified by the 'logic of the system' and thus do not constitute state aid. Where such a justification does not apply, the introduction of favourable tax measures for SMEs raises the question of their compatibility with the EU state aid rules. This may require prior notification of the proposed tax measures to the Commission, which will assess their compatibility with

---

the internal market with a view to avoiding both distortions of competition and negative effects on trade. See European Commission (1998), C 384/3, paragraph 24.

<sup>(208)</sup> See European Commission (2008a), Chapter 3.

<sup>(209)</sup> Commission Communication 'Think Small First — A Small Business Act for Europe' — COM(2008) 394.



European firms in trying to expand and grow.<sup>(210)</sup> On the other hand, however, this approach leads to substantial revenue losses as all companies, including large companies, benefit from it without the lower band rate having positive incentive effects for many of them. In order to overcome these challenges, the definitions used to target special tax rules for SMEs are often based on a variety of factors.

For example, in Belgium, the lower corporate income tax rate(s) apply not only to profits below a special threshold (as in the case of Luxembourg or Portugal), but companies also need to fulfil requirements regarding their activities, the shareholding, the dividend yield, and the remuneration of their managers. However, companies with profits above €322 500 do not benefit from the lower tax rates because the specific tax rate structure leads to the tax advantage being phased out in the profit range between €90 000 and €322 500.

As regards Portugal, the recent Memorandum of Understanding between Portugal and the EC, the ECB and the IMF on Specific Economic Policy Conditionality provides for all reduced corporate income tax rates to be abolished in the fiscal year 2012.<sup>(211)</sup>

The main question is whether these particular reliefs targeted at small businesses actually achieve their objective in terms of equity and efficiency, or in fact mainly result in distortions and additional complexity of the tax system. On the one hand, reduced rates for SMEs encourage them to become incorporated and, thus, participate in the formal economy<sup>(212)</sup>, as well as to report the amounts required to determine the true tax base. On the other hand, a complex tax system is seen as a major disadvantage in particular for small businesses, given the regressivity of compliance costs.<sup>(213)</sup> By reducing these costs and thereby lowering the overall tax burden on SMEs, simplification provisions can help achieve additional efficiency gains, while generating more

tax revenues. Overall, this implies the existence of a trade-off between simplicity and revenue loss/distortions.

On the negative side, tax relief measures for small businesses in the form of reduced corporate income tax rates are also associated with several disadvantages.<sup>(214)</sup> In particular: (i) they may involve revenue loss; (ii) they may alter the choice of business organisation, due to strategic behaviour in the start-up phase<sup>(215)</sup>; (iii) they may give rise to tax avoidance, by reorganising the business activity in order to grasp certain tax incentives (e.g. by breaking up a business into small entities in order to benefit from the special tax treatment of SMEs); (iv) they may act as a barrier to growth, as business developments imply high marginal tax rates when growing above the threshold; (v) they may result in overall economic inefficiency due to misallocation of resources to less efficient firms; and, last but not least, (vi) they may create distortions of competition, as a result of an uneven tax playing field, and constitute state aid, the compatibility of which would need to be assessed by the Commission on the basis of Member States' prior notification.

Therefore, the different objectives of special tax rules for SMEs may conflict with each other (e.g. tax equity vs. system simplicity; improving revenue collection vs. providing incentives for SME growth). Given national circumstances<sup>(216)</sup>, specific policy objectives and the overall heterogeneity of the SME sector, the possible outcomes of providing special tax incentives to SMEs can be very different from one country to another, precluding any 'one size fits all' approach.

This conflict of objectives makes a strong case for a careful and economically-minded approach. This could be summed up in three operational policy conclusions, against which existing schemes should be reviewed.

<sup>(210)</sup> Equally important are the measures to ensure more competition and easier exits of unsuccessful SMEs.

<sup>(211)</sup> See European Commission (2011g).

<sup>(212)</sup> See Schneider and Klinglmair (2004).

<sup>(213)</sup> For more details on compliance cost analysis studies, see Sandford et al. (1989).

<sup>(214)</sup> For a more detailed discussion of these challenges, see e.g. OECD (2008b).

<sup>(215)</sup> Da Rin et al. (2010) find strong evidence that lower corporate income taxation decreases the capital size of entrants and their capital intensity ('extensive margin'). At the same time, it induces the entry of smaller and weaker firms ('intensive margin').

<sup>(216)</sup> In many countries, there is also a strong sub-national dimension, with local governments levying taxes on SMEs.

Table 5.12: **Reduced corporate income tax rates for small businesses (2011)**

Country	Corporate income tax		Eligibility criteria for reduced rates / thresholds for lower rates
	Standard rate	Reduced rates for small businesses or second lower rate	
BE	33%		Companies that fulfil a number of conditions relating to the activities of the company, the shareholding of the company, the rate of return of distributed profits and the remuneration of their managers benefit from the following rates:
		24.25%	profits of up to €25,000
		31%	profits between €25,000 and €90,000
		34.5%	profits between €90,000 and €322,500
	+ 3% crisis tax on income tax rate		
FR	33.33%	15%	Businesses with an annual turnover no greater than €7.63 million. Only the first €38,120 profit per annum can benefit; for higher profits the standard rate applies
LU	21%	20%	Taxable base up to €15,000 per annum
	a solidarity tax of 5% and municipal business tax may apply		
ES	30%	25%	Companies with a turnover below €10 million, up to a taxable base of €300,000; for profits exceeding €300,000 the 30% rate applies (1)
		20%	In 2009-2011: micro-enterprises with a turnover less than €5 million, employing fewer than 25 employees and maintaining or increasing employment, applicable to the tax base of €300,000
NL	25%	20%	On the first €200,000 of profits per annum
PT (2)	25%	12.5%	Taxable income of up to €12,500
		a municipal surcharge of up to 1.5% on the taxable profit may apply	

**Notes:** (1) As of 2011, companies in Spain that grow above the limits applicable for small companies can benefit from the lower rate for three years after losing their small-business status. (2) Prior to the application of two corporate income tax rates as of 1 January 2009, a simplified scheme for small companies with a reduced rate of 20% was in place, which is being progressively abolished. The Memorandum of Understanding on Specific Economic Policy Conditionality provides for all reduced corporate income tax rates to be abolished as of 2012.

**Source:** Commission services, national authorities.

First, creating new tax expenditures should be conditional upon an ex ante assessment measuring costs and benefits. Likewise, maintaining existing tax expenditures on SMEs, after the first few years of implementation, would need to rest on the conclusion of a regular and sound ex post evaluation, rather than on the mechanical carry-over of past practices. Generally, due to difficulties in identifying ex ante and targeting instances of

market failure, there is a strong case for preserving the relative merits of a neutral tax system, and for making use of special tax rules for small businesses only when the nature of a market failure is undoubtedly clear and taxation is found to be the best way to correct the specific market failure.

Second, the tax measures should be as direct as possible, precisely targeting the assumed market distortion. Given the high fixed cost component for small businesses (e.g. simplified accounting and return filing requirements), there is scope for addressing the aspects of the tax system that have a direct effect on SMEs' start-up and growth. In this respect, consideration should be given to introducing more targeted measures, also applying to small businesses (e.g. simplified and attractive depreciation rules, additional incentives to promote investment in R&D, and tax exemptions for re-invested profits). In particular, the incentive scheme would promote efforts to consolidate the equity base of the business and help the implementation of business expansion strategies. Targeted measures aimed at directly reducing actual compliance costs for SMEs — using the tax instrument or not — are also preferable to a general tax rate reduction, as they reduce revenue shortfall.

Third, frequent major changes to tax laws and regulations create unnecessary complexity, opacity and instability and should be minimised as much as possible, making sure that small businesses operate in a transparent and growth-friendly environment. <sup>(217)</sup>

### 5.3.2. Debt bias in direct taxation

Corporate income tax systems in euro-area Member States lead to a debt bias in the financing of investment. Moreover, in several Member States such a bias is also inherent in the personal income tax system via the possibility to deduct interest payments for debt used to finance owner-occupied housing.

#### Debt-equity bias in corporate income taxation

Most corporate tax systems in the EU favour debt financing over equity financing. This happens chiefly because interest payments on corporate

<sup>(217)</sup> For more information, see World Bank and IFC (2011).

debt are deductible from taxable profit, while the return on equity — whether dividends paid to shareholders or capital gains on shares — is not. This leads to a tax-induced bias toward debt finance. The welfare costs of the bias might not be negligible. The marginal deadweight loss of the tax distortion is estimated at between 0.1 and 0.2 % of GDP. <sup>(218)</sup> In addition, excessive debt levels increase the probability of default and the recent financial crisis proved that the costs of adjustment can be substantial.

The current sub-section reviews some evidence of the debt bias in euro-area Member States and discusses policy options. For a comprehensive analysis of the theoretical underpinning of the debt bias in corporate finance, see Chapter 4, sub-section 2.2.

Graph 5.3 illustrates the favourable treatment of debt over equity in the euro-area Member States. It presents the effective marginal tax rate (EMTR) for debt- and equity-financed investment as calculated in ZEW (2010). Effective tax rates are calculated for artificial average firms operating in different sectors. Therefore, they may not be representative of the typical or average firm operating in a Member State.

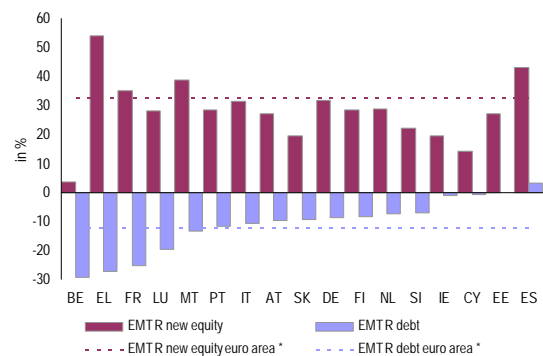
The key message is that fully debt-financed investment is subsidised at the margin in most euro-area countries. Indeed the subsidy on debt-financed new corporate investment is calculated at 11% on the GDP-weighted euro-area average. It was well above this average in Belgium, Greece and France (at around 25-30%), and ranged between 5 and 15% in most euro-area economies, including Italy, Germany and the Netherlands. The subsidy for debt-financed marginal investment was negligible in Ireland, Cyprus and Estonia. Spain was the sole country where debt-financed investment was not subsidised at the margin. Interest deductibility is an important reason <sup>(219)</sup> for making the required marginal return on debt-financed investment lower than a ‘normal’ post-tax return (i.e. on long-term bonds).

<sup>(218)</sup> Weichenrieder and Klautke (2008).

<sup>(219)</sup> Other reasons for this marginal subsidy are accelerated depreciation for tax purposes and the deductibility of nominal, rather than real, interest rates.

In contrast, for new equity-financed investment the effective marginal rate is positive in all euro-area Member States. Most countries display an effective marginal tax rate for equity financing relatively close to the euro-area (weighted) average (32%). Greece, Spain, Malta and, to some extent, France are exceptions on the upside; Belgium and, to a lesser extent, Slovakia, Ireland and Cyprus, on the downside.

Graph 5.3: Effective marginal tax rates (EMTRs) on debt- and equity-financed new corporate investment, euro area, 2010



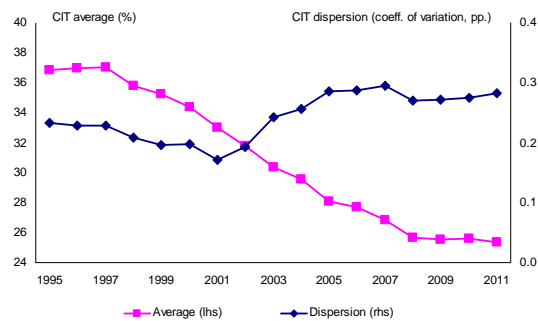
Note: \* Weighted average. The EMTR for Greece provided by the ZEW includes a surcharge on taxable profits, which was retroactively revoked. Source: ZEW (2010).

The graph also highlights the fact that the gap between equity and debt financing is the result of both the bias towards debt and the level of EMTRs for equity financing. In this respect, also France, Malta and Luxembourg exhibit a gap larger than the weighted euro-area average, although not as wide as in the case of Greece. Cyprus and Ireland stand out as the countries with the smallest gap in both absolute and relative terms (i.e. with respect to the euro-area average). A gap at least 10% lower than the euro-area average can be seen also in Estonia, Slovakia, Slovenia and Belgium.

The individual country trends and the average trend for the euro area may not fully explain the corporate debt-finance bias, given the existence of financing optimisation across countries. The bias towards debt increases with the statutory corporate income tax rate because more tax is saved at higher rates. It also increases with the cross-country dispersion of statutory corporate income rates, because multinationals have an incentive to shift debt to high-tax countries. As Graph 5.4 shows, the statutory euro-area corporate income

rate (un-weighted average) fell over the last decade. Hence, *ceteris paribus*, the cost of equity declined relative to debt. At the same time, however, the relative dispersion of statutory corporate income rates has increased in the euro area. This, combined with the growth of capital flows during the last decade, may then have increased the incentives towards debt financing through cross-country tax shifting.

Graph 5.4: Adjusted top statutory corporate income tax, euro-area average and dispersion (1995-2011)



Note: Averages are un-weighted.  
Source: Commission services.

There are two possible approaches to remove the difference in the tax treatment of debt and equity at corporate level: (a) remove the deductibility of interest payments. This is the approach of the comprehensive business income tax (CBIT); (b) allow a deduction for the return on equity similar to the deduction on interest payments. This is the approach of the allowance for corporate equity (ACE). Under CBIT all capital returns are taxed. ACE exempts from tax the normal return to capital.

CBIT eliminates distortions in corporate finance structures, but raises the cost of investment financed by debt. At the same time, it broadens the tax base, allowing a reduction of corporate income tax rates, which spurs investment. However, model simulations by de Mooij and Devereux (2011) for Europe suggest that CBIT can yield a positive macroeconomic effect for a specific country only if other countries do not pursue the same policy. When all countries apply the same policy, the marginal benefit (for a specific country) also disappears. Overall, CBIT calls for enhanced tax coordination, which may be difficult to achieve given strong national preferences in this field.

ACE transforms the corporate income tax rate into a tax on economic rents as it charges corporate taxes only on investment projects with a return above a 'normal' level. Another positive aspect of ACE is its neutrality with respect to depreciation practices/rules. Indeed, faster depreciation rates today for tax-saving purposes would reduce the book value of firms' assets tomorrow, thereby also reducing the ACE in the future. The ACE can, however, lead to a significant reduction in corporate income tax revenues.

Only a few euro-area countries have experimented systems close to an ACE. Between 2000 and 2004, Austria experienced a variant of ACE, whereby the notional return on investment projects was taxed at a reduced rate of 24% instead of 34%. In Italy, the Dual Income Tax (a variant of ACE), which was in place between 1997 and 2003, allowed the notional return on investment projects to be taxed at a reduced rate of 19%, while other profits were taxed at 37%. Bordignon et al. (1999) report that the Italian reform did achieve a reduction in the tax preference for debt finance. Bordignon et al. (2001) present effective tax rates, confirming the reduction in equity discrimination. These ACE reforms were subsequently terminated, mainly with the purpose of introducing tax reforms aimed at reducing statutory corporate income tax rates.

Today, in the euro area, only Belgium has a variant of ACE in place. With effect from the 2007 tax year, it applies a system of notional interest/allowance for corporate equity which reduces the 'effective tax rate' by several percentage points.<sup>(220)</sup> While the corporate income tax rate is rather high in Belgium (about 8 percentage points above the EU average in 2010), taxable profits are considerably lower than accounting profits.<sup>(221)</sup>

<sup>(220)</sup> The exact amount depends on the difference between the rate of return and the rate of the notional interest deduction (based on the rate on 10-year government bonds).

<sup>(221)</sup> This is shown by relatively wide differences between the statutory and effective corporate tax rates in the country (see e.g. OECD, 2008b; IMF, 2008) and a relatively low implicit corporate tax base (IMF, 2008). The importance of tax allowances and reductions in Belgium is also evidenced by the Paying Taxes 2011 report (PwC et al, 2010), which calculates the actual tax rate on corporate income of a typical medium-sized company at around 5%, thus much lower than the statutory rate of 34% (for the EU an actual tax rate of below 12% compares to an average statutory rate of above 23%).

Recent empirical evidence indicates that the economic benefits of an ACE system are likely to accrue primarily to employees. <sup>(222)</sup> This happens because the removal (or reduction) of the tax on notional profits is likely to attract more capital (inflows), enhancing labour productivity and therefore real wages.

Overall, most tax systems in the euro area offer tax advantages chiefly for financing investment via debt. The economic crisis has shown that this can make corporations more vulnerable to adverse financial developments. It also made it clear that government adjustment costs may be staggering. Theoretical arguments and empirical evidence also call for more tax neutrality, or at least less preference for debt financing. Viable policy options are to reduce or eliminate interest rate deductions from taxes (CBIT) or introduce an ACE. Euro-area Member States which exhibit a significant bias towards debt-financing investment should take appropriate measures to address the debt bias in their tax system.

#### Debt bias in the taxation of housing

The tax treatment of housing investments also tends to be debt-biased in several Member States. It is particularly the tax deductibility of mortgage interest payments (or even capital payments) that favour debt. This type of tax relief is considered to have contributed to the increase in housing prices and debt leverage, and thereby to the housing market bubble. There is evidence that countries that favour homeownership through favourable tax treatment of mortgage debt financing also have higher ratios of mortgage debt to GDP. Conversely, analyses of past tax reforms show that reducing mortgage interest relief has resulted in lower mortgages in relation to the house value. <sup>(223)</sup>

At present, 10 out of 17 euro-area Member States subsidise interest payments for owner-occupied housing. The rules vary considerably between them. Only three of these Member States (the Netherlands, Luxembourg and Belgium) explicitly tax imputed rental income, but in all cases considerably below a level corresponding to the current market value of the house. Spain also taxes

imputed rents but has an exemption for the main residence. An overview of the situation in the euro-area Member States is provided in Table 5.13.

Table 5.13: Tax treatment of owner-occupied housing

Country	Mortgage interest deductibility	Tax on imputed rents
BE	Yes. All of the payment (interest, insurance, and capital repayment) can be deducted up to a ceiling of €2,770 for the first 10 years, and €2,080 thereafter.	Yes. For the main dwelling, the imputed rental income is subject to an immovable withholding tax, while the income tax is levied on the income from other properties. The assessed value of the property is based on 1975 values, which has been indexed to the development of the CPI since 1991. Thus, the assessed value is on average below half of the market value.
DE	No.	No.
EE	Yes.	No.
IE	Yes, but to be phased out by 2017. Relief of 20% on the interest on qualifying loans for 7 tax years, (higher rates for first homebuyers). Mortgage interest relief is restricted to €3,000 for singles and €6,000 for married/widowed taxpayers.	No.
EL	Yes. For mortgage loans taken after 2002, a credit of 20% of the annual mortgage interest on the principal home is granted (on the first €200 000 of the loan).	No.
ES	Yes. 7.5% of amounts paid for the house (repair, mortgage etc.) up to a max €9 015. As of 2011, removed for incomes above €24170.	Not on the principal dwelling, but on other than the habitual residence.
FR	No (2007-2009 Tax credit for interest on loan for principal residence for 5 years. The credit was equal to 20% of the interest payment up to €3,750 per year, increased by €500 per year for each dependent person. The limits are doubled for couples).	No
IT	Yes. Interest on mortgage loans for building or buying the principal residence is subject to a tax credit equal to 19% of interest payments up to a maximum of €4,000 (i.e. maximum annual tax credit of €760).	No. (Not on owner-occupied dwellings.)
CY	No.	No.
LU	Yes, with a ceiling of the tax deduction at €1500 per person in the household. Reduced to €750 after 12 years of occupancy. No tax deductibility on secondary homes.	Yes, at marginal tax rate but valued below market value.
MT	No.	No.
NL	Yes, fully.	Yes. Imputed rent is below 1% of the property value (i.e. 0.55% of a €1million detached house, higher for more expensive properties).
AT	No.	No.
PT	Yes, tax credit of 30% of interest and principal repayments on loans for permanent residence.	No.
SI	No.	No.
SK	No.	No.
FI	Yes. Deductible from capital income. Beyond that, 28% of the deficit due to interest on owner occupied dwellings up to €1,400 can be credited against taxes paid on earned income.	No.

Source: Commission services, OECD, and IBFD (2010).

<sup>(222)</sup> See e.g. Arulampalam et al. (2010).

<sup>(223)</sup> See Keen et al. (2010).

An indicator that measures the wedge introduced by the tax relief (reflecting tax systems in 2010) is presented in Andrews et al. (2011). It is based on calculating the gap between the market interest rate and the after-tax debt financing cost, following Van den Noord (2005). The indicator takes into account the deductibility of mortgage interest payments (including potential time limits or ceilings) and tax credits for loans, but does not include taxation of imputed rents or recurrent property taxes. The indicator takes the value of zero for those countries that do not subsidise mortgage interest payments via a tax deduction and thus debt-financed homeownership (i.e. Germany, Cyprus, Austria, Slovakia and Slovenia). The results indicate that the Dutch tax rules are the most generous and favour debt-financed housing investments most, within the 16 euro-area Member States for which information is available. The Greek and the Finnish systems also appear rather generous, rated at about 2/3 of the high subsidy level in the Netherlands. The tax systems in Luxembourg, Austria and Italy provide a more modest tax subsidy (around 1/8), while the other four Member States' systems provide tax relief in between these limits in terms of generosity.<sup>(224)</sup>

With a view to reducing the debt bias of the tax system, a number of Member States have recently changed their rules on mortgage interest tax deductibility and the issue is under discussion in some other countries. France replaced the tax deductibility of mortgage interest rates in 2010 with more targeted subsidised loan schemes. Spain limited the mortgage deductibility to low-income households through the introduction of a ceiling in 2011, i.e. the deductibility was removed above an annual income of €24 170.20. The possibility to deduct part of rent payments for low-income households was also introduced to ensure tax neutrality between renting and owning a house. Ireland is about to phase out interest deductibility by 2017, while Estonia has decided to simultaneously reduce personal income tax (as of 2015) and the ceiling for the tax deductibility (in 2012). The Netherlands has increased the imputed rent for a normal detached house (€1 million) from

0.55% to 0.8% in 2010 and to 1.05% in 2011. However, this imputed rate remains considerably below the 4% rate that applies for other assets.

Despite these recent measures to reduce the tax subsidy for homeownership and house investments, the general picture that Member States' tax systems often tend to favour mortgage debt financing of homeownership remains valid. Nine euro-area countries (Belgium, Estonia, Greece, Spain, Italy, Luxembourg, the Netherlands, Portugal and Finland) still face the challenge of a debt-biased tax system favouring housing investments. Taxes on imputed rents are seldom applied, and if so, either the rate or the tax base is too low. Recurrent property taxes could act as a second-best solution, but also in this case rates and/or the bases are normally too low for the tax to reflect rents paid for housing. Moreover, political considerations often make it difficult to tax property at the level required to make the tax system neutral.

Liquidity constraints of low-income earners and the nature of the asset, i.e. an illiquid asset providing a necessity service, make it socially difficult to treat homeownership in the same way as other financial assets. Another option could therefore be to reduce the debt bias by reducing the interest rate deductibility in the tax systems with a view to gradually phasing it out completely. If countries want to retain the tax deductibility of mortgage interest payments, the rules should be strictly targeted at low-income households and/or first-time homebuyers. However, in this case subsidised loans — as currently applied in, for example, Slovakia and France — could potentially be more efficient to target certain categories of homebuyers.<sup>(225)</sup>

### 5.3.3. Increasing VAT efficiency

As discussed in detail in section 2 of Chapter 4, from an efficiency perspective VAT should in general be levied as far as possible on a broad base at a single rate. Member States are free neither to multiply the number of rates, nor to arbitrarily

<sup>(224)</sup>Hemmelgarn et al. (2011) confirm the generosity of the Dutch system when calculating an effective personal income tax rate on housing covering eight EU Member States.

<sup>(225)</sup>Since 2010, subsidised loan schemes targeted at first-time buyers, low-earners, housing shortage areas and the purchase of new dwellings have been in place in France. These schemes replaced the previous tax relief on mortgage interest payments. In Slovakia interest rate subsidies are granted to low-income households.

grant a reduced rate or exemption to any goods or services, but they enjoy wide latitude to determine rates. In particular, there is no obligation to adopt reduced rates at all; in practice, however, Member States do make substantial use of reduced rates and exemptions. Denmark is the only Member State that does not apply any reduced rates.<sup>(226)</sup>

### Breadth of VAT base

To give an idea of the share of consumption expenditure benefiting from favourable treatment, it is instructive to look at Table 5.14, which compares actual VAT revenue with the revenue that would accrue if all private consumption<sup>(227)</sup> were taxed at the standard rate and revenue effectively collected.<sup>(228)</sup> This share gives a good first indication of the impact of exemptions and reduced rates, i.e. of ‘policy efficiency’. However, it is also affected by the share of tax evasion or tax compliance (‘collection efficiency’), which also diminishes the share (unless, due to the existence of the informal sector, private consumption is understated by national accounts in an equal proportion to the share of VAT evasion, which seems unlikely).

Table 5.14 suggests that the impact of reduced rates and exemptions is indeed significant, as actual VAT revenue is typically some 30-40% below the theoretical total. This figure may be an overestimation as it includes (untaxed) imputed rents in the indicator base. However, the country ranking is largely left unchanged by this aspect.<sup>(229)</sup> Transposing this result into the effect

<sup>(226)</sup> However, Denmark applies zero rates to supplies such as newspapers and exempts supplies such as education and passenger transport.

<sup>(227)</sup> Note that, although this is a reasonable approximation, private consumption is in some respects narrower than the VAT base (as the latter includes certain construction work, which is classified as investment in the national accounts) and in some respects wider than it (some items belonging to personal consumption are exempt from VAT, such as spending on financial services or on public services).

<sup>(228)</sup> This measure is analogous to the ‘C-efficiency’ or the ‘VAT revenue ratio’ computed by the OECD, see OECD (2011b).

<sup>(229)</sup> The consumption of housing services by owner-occupiers, an item on which VAT cannot be levied, on average accounts for slightly less than 12% of final consumption, which is used as a proxy for the potential tax base. On the other hand, while this results in a downward bias in the ratio, other items tend to boost it, one example being sales of residential housing, which yield VAT revenues but are not part of final consumption. Overall, excluding consumption of housing services by owner-occupiers does

on the standard VAT rate, as done by the ‘VAT reduced rate and base indicator’ (see European Commission, 2011a), suggests that on average, exemptions and tax evasion together might be equivalent to some 5 percentage points of the VAT rate.

While being quite high on average, the impact of reduced rates and exemptions varies quite significantly among Member States. Although one might think, given the accumulating evidence that extensive rate differentiation is a costly way to achieve redistribution, that more recent members of the EU should show a higher share, this is only marginally the case — the average for the EU-12 differed from that of the EU-15 by just a couple of points in 2009. Furthermore, the difference between the standard and the reduced VAT rate is actually somewhat higher, on average, in the EU-12 than in the EU-15.

The significant cost of reduced rates — not only in budgetary terms, but also in terms of administrative and compliance costs — raises the question of whether there is any trend to reduce the extent of rate differentiation in the EU, particularly as the economic and financial crisis has made the budgetary situation more acute. The answer to this question is, unfortunately, rather uncertain. Looking at Table 5.14, data seem to show a relatively long-lasting upward trend, from 2001 to 2007. However, the actual revenue share dropped sharply in the following two years. The fact that the sharp drop coincided with the recession, whereas the previous long rise coincided with a long upswing, seems to show that this indicator is sensitive to the cycle, making it difficult to judge whether the growing trend reflected a gradual, structural broadening of the tax base or simply stronger economic growth.

There are a number of good reasons why the indicator should be susceptible to cyclical developments, even though VAT is a proportional tax. First, the extreme depth of the recession is likely to have shifted consumption patterns towards primary goods, which are normally

not have a major impact on the ranking of countries in terms of the ratio. An alternative calculation, e.g. the one made in the OECD review of France, identifies the same countries as having the narrowest VAT base (see OECD, 2011a, page 17).

subject to lower VAT rates. Second, the share calculated here is affected <sup>(230)</sup> by the decline in construction activity, which was particularly marked in this recession. Third, rising bankruptcies reduce the amount of VAT paid, as do inventories involuntarily accumulated by businesses during the recession. <sup>(231)</sup> Last but not least, many countries have introduced measures aimed at granting companies the possibility to defer tax payments, including VAT.

Table 5.14: **Actual VAT revenues as a percentage of theoretical revenues at standard rates**

Country	2001	2005	2007	2008	2009	2007-2009
BE	47.8	50.0	51.3	48.9	47.2	49.1
DE	57.2	54.4	54.5	54.9	54.8	54.7
EE	68.2	75.2	80.1	66.6	69.8	72.2
IE	61.6	67.1	64.2	56.5	46.7	55.8
EL	50.4	43.9	46.2	44.2	37.8	42.8
ES	52.1	56.6	54.9	46.1	35.0	45.3
FR	50.8	50.9	50.7	49.5	46.1	48.8
IT	43.5	40.6	42.8	40.7	37.6	40.4
CY	82.0	89.1	102.0	100.2	77.1	93.1
LU	74.4	89.4	93.4	95.6	92.8	93.9
MT	53.0	58.6	57.7	57.3	56.6	57.2
NL	58.4	58.0	61.8	59.9	54.8	58.8
AT	61.6	60.9	60.8	61.2	61.0	61.0
PT	58.6	52.1	52.6	53.4	44.1	50.0
SI	64.6	66.6	68.7	67.8	62.7	66.4
SK	44.2	61.0	53.2	53.5	47.5	51.4
FI	58.4	60.4	59.9	58.0	55.8	57.9
BG	52.2	66.1	68.9	75.6	64.1	69.5
CZ	43.3	59.3	56.3	58.9	57.3	57.5
DK	60.8	62.7	65.0	62.4	58.6	62.0
LV	49.0	59.8	63.9	48.9	37.9	50.2
LT	51.3	52.1	61.0	57.9	46.7	55.2
HU	48.6	48.6	59.0	56.8	50.1	55.3
PL	40.5	47.5	54.1	50.6	46.8	50.5
RO	41.5	53.9	56.8	56.3	47.5	53.5
SE	52.5	54.9	57.2	58.3	57.5	57.7
UK	47.9	47.7	47.8	45.7	46.4	46.6
EU-27	51.7	51.7	52.5	50.7	47.6	50.3
EA-17	52.9	52.1	52.7	50.7	47.0	50.1

*Note:* The ratio consists of actual VAT revenues divided by the product of the VAT standard rate and net final consumption expenditure, i.e. final consumption expenditure minus VAT receipts. A low value of the ratio suggests that exemptions, reduced rates, or tax evasion have a significant impact. Averages are GDP-weighted. 2007-2009 refers to the arithmetic average of the average of the three years.

*Source:* Commission services.

The consequence of all this is that the upward trend in the share visible until 2007, like its sharp subsequent drop, is likely to be at least partly a statistical artefact. Indeed, looking at the trends in reduced rates, these hardly show any tendency for reduced rates to converge to the standard rate in the last few years; on the contrary, the difference between the average reduced rate and the average standard rate has increased slightly in 2010 and 2011 as reduced rates have failed to keep up completely with the increase in standard rates. Although base broadening could occur also without changes in reduced rates, this can hardly explain the scale of the changes.

Given the cyclical nature of VAT revenues, an average of the ratio for the period 2007-2009 will be used <sup>(232)</sup> to assess which euro-area Member States face an above euro-area average challenge of increasing the share of actual VAT revenues in total potential revenues: Italy, Greece, Spain, France, Belgium and Portugal.

Although EU VAT systems retain, to this day, significant scope for reduced rates and exemptions, the increased need for cost-effectiveness after the crisis might still trigger some policy initiatives.

### VAT compliance gap

As mentioned above, the difference between theoretical and actual tax revenue is also due to VAT fraud and evasion. It is certainly very difficult to quantify this variable. The 2009 study by Reckon is the most comprehensive recent report attempting to do so. <sup>(233)</sup> It quantifies and analyses the VAT 'compliance' gap in the EU-25 Member States over the period 2000-2006. The study compares accrued VAT receipts with a theoretical net VAT liability. This net liability is calculated by identifying the categories of expenditure that give rise to irrecoverable VAT and combining them with appropriate VAT rates.

<sup>(230)</sup> This is because VAT paid on construction is counted in the numerator of the ratio, but is excluded from the denominator (not being consumption expenditure). This statistical bias ensures that any decline in construction activity will tend to have an over-proportional impact on the share.

<sup>(231)</sup> National accounts data indicate, however, that a destocking of inventories took place in 2009.

<sup>(232)</sup> Using the average of those three years takes both the cyclical nature of the indicator into account and acknowledges the fact that only data for rather recent years should be taken into consideration in order to reflect tax reforms as far as possible.

<sup>(233)</sup> See Reckon (2009). The report was commissioned by the European Commission's Directorate-General for Taxation and Customs Union and produced by Reckon LLP.



The study stresses the distinction between VAT gap and VAT fraud; though related, they are not interchangeable or equivalent measures. Discrepancies between these two measures can arise because the VAT gap might include VAT not paid as a result of legitimate tax avoidance measures. Although the VAT gap is estimated on the basis of national accounts data, it depends on the quality of such data. Finally, the VAT gap measure does not remove the VAT that is not collected due to insolvencies. The report also cautions about the shortcoming of the top-down approach used to obtain the VAT gap (i.e. comparing total accrued tax receipts with a theoretical tax liability derived from general economic data), in that it does not help much in identifying what sectors and types of business are more suited/prone to VAT fraud.

Table 5.15: VAT 'compliance' gap, EU-25, in %

Country	2000	2002	2004	2006
BE	10	13	12	11
DE	12	13	14	10
EE	12	15	21	8
IE	5	3	4	2
EL	24	20	29	30
ES	9	12	8	2
FR	5	7	7	7
IT	22	24	27	22
CY	---	---	---	---
LU	12	5	2	1
MT	17	4	14	11
NL	7	9	6	3
AT	13	10	13	14
PT	5	7	8	4
SI	16	13	8	4
SK	27	27	24	28
FI	2	4	5	5
CZ	15	16	13	18
DK	9	8	7	4
LV	31	32	31	22
LT	15	18	28	22
HU	15	25	24	23
PL	22	20	19	7
SE	6	4	4	3
UK	16	17	15	17
EU-25	12	14	14	11
EA-17	12	13	13	10

*Note:* The study covers the EU-25 Member States. No data is available for Cyprus. The VAT gap compares VAT receipts with a theoretical net VAT liability. The latter is calculated by identifying the categories of expenditure that give rise to irrecoverable VAT and combining them with appropriate VAT rates.

*Source:* Reckon (2009).

The aggregate VAT gap for the EU-25 (excluding Cyprus) was estimated at the level of €106.7 billion in 2006, which constituted 12 per cent of theoretical liability. The estimates of the VAT gap

in Table 5.15 show no common trend across the 24 Member States studied. However, Member States joining the EU in 2004 show more widely a fall in the estimated VAT gap between 2004 and 2006, due perhaps to the effort to gain fiscal efficiency and the VAT legislation reforms that this new affiliation involved.<sup>(234)</sup>

The variable found to have the strongest relationship with the size of the VAT gap was the one connected with the perceived level of corruption in the country. The relationship implies that lower perceived corruption is associated with a lower VAT gap. The main difference between the Reckon analysis and the results obtained by other studies is due to the relationship between the VAT gap and the VAT burden. If the VAT burden, characterised by the ratio between the theoretical VAT liability and GDP, is treated as a candidate explanatory variable, then the Reckon study finds that it has a significant positive relationship with the VAT gap. This is in line with the limited literature on this topic, and with the theory that a higher tax burden should lead to higher levels of evasion. However, there was a risk identified that this estimated relationship may be biased by measurement errors in the estimation of the theoretical liability. Once this risk has been taken into account by using an instrumental variable regression, the Reckon study found no statistically significant relationship between the VAT gap and the VAT burden. Based on the 2006 results of the Reckon study, in particular the following euro-area Member States face the challenge of addressing a high VAT gap: Greece, Slovakia, Italy, Austria and, to a lesser extent, Malta. All these countries are characterised by an indicator value higher than the weighted euro-area average.

#### 5.3.4. Towards more environmentally friendly taxation

Environmentally related taxes, in particular energy taxes, were often introduced with a fiscal purpose. However, as the tax will induce behavioural changes it will automatically serve both fiscal and environmental purposes. The Europe 2020

<sup>(234)</sup>Notwithstanding the differences due to the different methodology applied and datasets, the authors of the study found that Reckon's estimates of the VAT gap for Germany, Italy and the UK follow a similar trend to the published estimates for these countries that were computed by national tax agencies or statistical offices.

Strategy, including its Broad Economic Policy Guidelines, explicitly refers to using market-based instruments, including taxation, in the energy and climate policy and to work to phase out environmentally harmful subsidies. <sup>(235)</sup> To minimise the cost of reaching the agreed EU climate and energy policy targets, it is crucial to utilise the taxation framework as efficiently as possible. This is particularly acute in the context of austerity measures and budget consolidation, which reduces the possibility to undertake environmental policy measures on the expenditure side of the budget. It is equally important to ensure that the overall policy framework is consistent.

A first step should therefore be to improve the current tax frameworks by ensuring that environmentally harmful tax subsidies are phased out. Secondly, energy taxes and environmental taxes should be designed so that they provide the appropriate incentives to reduce emissions, and thus provide consistent tax rates between various products (e.g. across fuels). There are several measures that could be taken at national level to improve on existing tax systems. This concerns in particular the energy consumption subsidies embedded in the VAT regime and the company car taxation schemes, as well as the inconsistent structure of excise duty rates on fossil fuels. <sup>(236)</sup> Moreover, the environmental objectives as outlined in Europe 2020 Strategy call for further use of market-based instruments. Environmental taxation has an important role to play in this context due to its cost-efficiency. However, the mix of various environmental policy instruments in the context of the policy on resource efficiency is beyond the scope of this analysis.

### Reduced VAT on energy

A broadening of the VAT base, i.e. removing reduced rates, zero rates and exemptions, would improve efficiency through reducing distortions generated by differential treatment while at the same time generating more revenue. It is also essential to ensure overall consistency across EU policy, and to remove environmentally harmful subsidies. At present, the Member States have the

possibility to levy lower VAT rates on electricity and natural gas, as well as district heating. This is in conflict with the overall ambitions in the energy and climate policy as it reduces the consumer price of these energy sources and as such reduces incentives to undertake energy-saving efforts and to reduce energy consumption. Reduced VAT could potentially also counteract incentives put in place by the excise duties on energy. Moreover, excise duties are generally a more economically efficient policy instrument when steering towards the use of certain fuel or energy sources.

According to European Commission (2011f), Greece, France, Ireland, Italy, Luxembourg, Malta <sup>(237)</sup> and Portugal were reported to tax natural gas and electricity at a reduced VAT rate at the beginning of this year. Moreover, Belgium, Ireland, Luxembourg and Portugal apply reduced VAT rates on fuel oil and/or solid fuels (European Commission, 2011i). Thus, these euro-area countries face the challenge to phase out these subsidies. Support to vulnerable households could potentially be provided more efficiently through general welfare payments, rather than broadly supporting energy consumption. Energy efficiency measures could be a flanking policy to support investments in more energy-efficient housing and/or appliances. This can be particularly relevant if market failures related to energy efficiency investments are concentrated on low-income households. <sup>(238)</sup>

### Taxation of company cars

Company cars are defined as passenger light-duty vehicles leased or owned by companies, but used by their employees for business or personal travel. Copenhagen Economics (2009) conclude that the current favourable taxation of company cars in many EU Member States is distorting and imposes welfare costs on society. These rules tend to encourage car ownership and affect the choice of car model, as well as driving habits. Roughly 50 per cent of all new cars sold in the EU in 2008 were company cars, which implies that these schemes have a large and long-term impact on the overall composition of the car fleet. According to Copenhagen Economics (2009) the private use of

---

<sup>(235)</sup> European Commission (2010c).

<sup>(236)</sup> This list is not conclusive, but highlights common structural issues to be improved in the environmental tax area. The use of environmental taxes for consolidation and tax shifts is covered in section 5.2.2.

---

<sup>(237)</sup> Electricity only, as natural gas supplied by public authorities in Malta is defined as outside the scope of VAT.

<sup>(238)</sup> Fullerton et al. (2010).

company cars has been heavily subsidised in several euro-area countries. The subsidy (measured as the percentage gap in imputed tax base) has been more than 20% in Austria, Belgium, Germany, Greece, Italy, Luxembourg, Slovakia, Slovenia, Spain and Portugal. Against this background these countries should consider reviewing the tax treatment of company cars.

The company car schemes in particular mitigate and counteract the incentives to reduce fuel consumption provided through energy taxation. The value of the fuel provided by the company is difficult to assess correctly for tax authorities. Consequently, many countries do not explicitly take into account the benefit of the fuel provided when assessing the imputed value of the company car. This creates incentives to drive the car for private purposes, and reduces the marginal cost of private trips. According to Copenhagen Economics (2009), Austria, Estonia, Portugal, Slovakia, Spain and the Netherlands are the euro-area countries that do not explicitly include fuel costs when calculating the tax base for company cars.<sup>(239)</sup> Thus, these countries face the challenge to review their tax systems in this respect and investigate the possibility to better mirror the fuel costs in the tax base used to calculate the imputed benefit of a company car.

It is also relevant to consider the incentives to buy large cars embedded in the company car tax regimes, as these vehicles have a detrimental environmental impact through increased overall fuel consumption. Due to their large share of new cars sold, company cars also have an impact on the overall composition of the car fleet. Systems where the tax base is not proportionally dependent on car value can be regarded as providing higher subsidies to large cars. The euro-area countries that are found to face a challenge to review their systems of company car taxation in this respect are Austria and Greece.<sup>(240)</sup>

#### Structure of excise duty rates on fossil fuels

The main historical objective behind excise duties on energy is fiscal, even if a number of Member States have introduced environmental taxes,

including carbon taxes, as part of their frameworks. The current Energy Tax Directive (2003/96/EC) and its predecessor the Mineral Oil Directive (92/81/EEC) mainly aim to avoid distortions of competition on the internal market. In the current context of budget consolidation needs and austerity measures, while facing the serious challenge of climate change, it becomes crucial to use these taxes to their full extent in the climate and energy policy in order to minimise the overall cost of the policy. As excise duties are levied as a fixed amount on the quantity of energy products used, they are suitable for introducing the 'polluter pays' principle and to internalise the external cost of carbon emissions.<sup>(241)(242)</sup>

The current structures of excise duty rates do not, however, normally reflect the environmental and energy properties of the various fuels. In fact, the current energy tax structures implicitly promote fuels that are relatively more detrimental to the environment and/or less energy-efficient.<sup>(243)</sup> It is particularly important that the relative tax rates rank close substitutes correctly according to their environmental and energy properties. A carbon tax would be based on the carbon content of the fuel and thereby rank the various fuels according to their carbon content. A neutral energy tax, in terms of promoting energy efficiency equally across energy products, would tax the fuels according to their energy content.

The low tax rates on diesel vis-à-vis petrol are a preferential treatment favouring the transport service sector. It reflects the different tax treatment of fuels mainly used for commercial versus private use, also partly motivated by tax competition. Hence, the low rate on diesel is often combined with a higher circulation tax on diesel cars in order to try to mitigate the impact of the lower fuel cost. The market share of diesel cars has, however, increased substantially in the EU since 1995. At present their market share is about 60% and expected to increase to 65% with current policies.

<sup>(241)</sup> This is due to the fact that CO<sub>2</sub> emissions are proportional to the carbon content of the fuel and the damage to the environment is broadly the same regardless of where emissions take place (see e.g. Stern, 2007).

<sup>(242)</sup> The situation in terms of energy use differs widely among the Member States. Thus, national circumstances will have an impact on the formulation of the national energy tax policy.

<sup>(243)</sup> The Commission proposal to revise the Energy Tax Directive (COM(2011) 169) addresses these issues.

<sup>(239)</sup> No information is available for Cyprus, Greece or Malta.

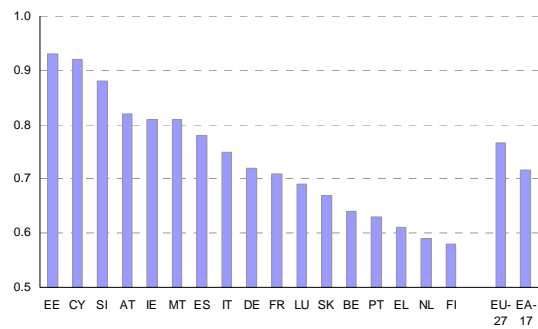
<sup>(240)</sup> Data is missing for France, Estonia, Cyprus, Malta and Ireland.

Model simulations indicate that rebalancing the national tax rates on diesel and petrol would help to mitigate the expected further growth of the market share of diesel cars by maintaining the market share at the current level. <sup>(244)</sup> The rising share of diesel cars also has energy security implications, as the EU currently imports diesel while exporting a surplus of petrol. <sup>(245)</sup> More consistent and neutral taxation of all transport fuels, while providing proper incentives for carbon emission improvements, would give a neutral technology advantage to carbon- and energy-efficient fuels without favouring certain fossil fuels. <sup>(246)</sup>

A potential carbon tax on motor fuels would mean that the tax rate on diesel would need to be around 20% higher than the tax on petrol in terms of litres. A tax based only on energy content would require a rate around 13% higher for diesel. A combination of these two types of taxes would result in a rate which is within this range. <sup>(247)</sup> In contrast, euro-area countries currently tend to strongly promote diesel through their relative tax rates (see Graph 5.5). Some countries, however, provide a larger subsidy to diesel drivers than other countries. In particular Belgium, Germany, Greece, France, Luxembourg, the Netherlands, Portugal, Slovakia and Finland are the euro-area countries that face the challenge of reviewing how to phase out the preferential tax treatment of

diesel, while at the same time providing proper incentives for emission reductions. <sup>(248)(249)</sup>

Graph 5.5: Diesel/petrol excise duty ratio, January 2011



Source: Commission services.

Similar inconsistencies also exist in the taxation of fossil-based heating fuels. Normally, heating oil is taxed heavily, while natural gas and coal have relatively low rates. This rate structure is based on the tradition of taxing oil heavily, while coal and natural gas have been brought into the energy tax framework more recently at lower rates. <sup>(250)</sup> Thus, normally coal, but also natural gas, are given a tax advantage as a heating fuel. The situation is complex as conditions vary considerably between Member States according to industrial structure and fuel mix. The issue mainly concerns businesses falling outside the scope of the Emissions Trading System and households. Several countries also exempt household consumption of heating fuels. There is scope to ensure that energy tax rates are more consistent across fuels and uses, and that the tax system does not unduly favour fossil-based solutions. Consistent tax rates are also important in order to provide correct framework incentives for technology development.

<sup>(244)</sup> European Commission (2011j).

<sup>(245)</sup> European Commission (2010j).

<sup>(246)</sup> Diesel cars have currently an advantage due to lower fuel use and thereby lower CO<sub>2</sub> emissions vis-à-vis a comparable petrol car. However, the fact that diesel buyers have to a greater extent than petrol buyers shifted to large and more powerful cars have significantly counteracted the advantage of the lower fuel use. As a consequence, new diesel cars, bought in 2009, had only 1.6% lower emissions than petrol cars. Moreover, past emission reductions can mainly (95%) be attributed to efficiency improvements of new vehicles (both petrol and diesel), while only a small share of the reductions (5%) is estimated to be due to the increased share of diesel cars (see SEC(2011) 409 for a discussion and detailed references).

<sup>(247)</sup> To achieve a cost-efficient climate policy, a common price signal on CO<sub>2</sub> emissions is required across sectors and countries. Additional taxation on motor and heating fuels in order to internalise other externalities, to provide incentives for energy efficiency or to generate revenue could be levied through a tax based on the energy content of the fuel. The Commission proposal (COM(2011) 169) to revise the ETD applies this structure and includes a carbon tax component of EUR 20 per tCO<sub>2</sub>.

<sup>(248)</sup> Based on a threshold equal to the euro-area average of 0.72.

<sup>(249)</sup> Some countries apply a higher circulation tax on diesel cars in view of the low fuel tax on diesel, e.g. Finland and Germany. The share of diesel cars has, however, increased also in these countries; see EEA (2011).

<sup>(250)</sup> At the level of EU legislation, heating oil was covered by the Mineral Oil Directive (92/81/EEC), while natural gas and coal have been covered since the adoption of the Energy Tax Directive (2003/96/EC).

### 5.3.5. Tax governance issues

The recent economic crisis has led several Member States to step up efforts to fight tax evasion and the shadow economy, which are considered to be important factors limiting revenue collection. Many empirical studies suggest that in particular high taxes on labour income (including social security contributions), high tax rates on profits, and high consumption taxes encourage households and other economic actors to move away from the formal economy towards more informal arrangements. Yet, most of the studies seem to confirm the existence of a vicious cycle: tax evasion by actors in the informal economy reduces the economies of scale and productivity in formal companies, distorts the playing field and creates unfair competition between formal and informal actors, ultimately leading to more informality.<sup>(251)</sup> As a consequence, tax administrations are forced to collect more taxes from a shrinking tax base and place high tax rates on the income and profits of formal businesses in terms of number of taxes, number of tax payments and tax burden.<sup>(252)</sup> Tax revenue mobilisation can also be negatively affected by policy measures, in particular the introduction of tax expenditures, which deliberately reduce the tax burden on certain economic activities or groups of taxpayers.

### Trends and challenges in tax compliance

Many researchers have worked on measuring the size of the shadow economy, and on analysing its consequences for the formal economy.<sup>(253)</sup> According to Dell'Anno and Schneider (2003), the shadow economy includes those economic activities and the income derived from them that circumvent or avoid government regulation or taxation. A large share of the shadow economy in official GDP can, therefore, be due to the avoidance of tax and social security contribution

payments, but also due to the avoidance of labour protection legislation and consumer rights protection laws.

Schneider (2010) argues that the economic crisis has had a widespread effect on the shadow economy, as the income loss in the formal economy was partly compensated by additional activities in the informal economy. Economic crises are also considered to have a negative effect on tax and benefit morale as, e.g., investigated in Heinemann (2009) for a set of 20 OECD countries. Sancak et al. (2010) show that VAT proceeds are significantly affected by changes in tax evasion during the business cycle. VAT proceeds are reduced during economic contractions, since firms and households are more likely to evade taxes when they are credit constrained and financially distressed.

Reflecting the difficulties in quantifying the size of the shadow economy, different studies come to rather different results for some Member States. Therefore, available results provide an indication of the magnitude of the problem rather than precise estimates.

According to Schneider (2010), the size of the shadow economy increased steadily between 2008 and 2010. In 2010, Estonia had the largest shadow economy in the euro area, equivalent to 29.9 per cent of its gross domestic product, followed by Cyprus, with 26.8 per cent, Malta, with 26.0 per cent, and Greece, with 25.2 per cent (see Table 5.16). While the estimates collected by the Employment Committee and Eurostat for the share of undeclared work over the period 2002-2006 provide rather similar estimates for many Member States, the results are very different for several of them. It is noticeable that Estonia is estimated to have a share of undeclared work below the European average.

Given today's fiscal environment, the incidence of tax and social security contribution evasion varies considerably across and within the EU Member States. It tends to be concentrated in a small number of non-tradable sectors. Tax administrations have taken action to achieve a higher degree of tax compliance, by adopting efficient and effective operating practices that should not only reduce costs, but also create a more favourable environment for voluntary tax

<sup>(251)</sup> On the other hand, according to Schneider and Enste (2002), at least two thirds of the income earned in the shadow economy is immediately spent in the official economy, resulting in a considerable positive stimulus effect on the official economy.

<sup>(252)</sup> See Spiro (2005) and PwC et al. (2010).

<sup>(253)</sup> The phenomenon is addressed in the literature under many other different names: informal, unofficial, irregular, unrecorded, parallel, underground, hidden, invisible, shadow, black economy, etc. Work on measuring the shadow economy can be found, among others, in Dixon (1999), Tanzi (1999), Schneider and Enste (2000) and Schneider (2004, 2010).

compliance. With a view to closing existing loopholes and preventing tax evasion more effectively, governments face the challenge to undertake incentive-oriented policy measures to reduce tax gaps, which should pay attention to the following three dimensions. <sup>(254)</sup>

Table 5.16: Size of the shadow economy and undeclared work in the EU

Country	Size of shadow economy (in % of GDP)			Undeclared work (share of GDP or employment, 2002-2006)
	2008	2009	2010	
BE	17.5	17.8	17.9	21.5
DE	14.2	14.6	14.7	6.0
EE	29.0	29.6	29.9	8.0-9.0
IE	12.2	13.1	13.2	28.6
EL	24.3	25.0	25.2	
ES	18.7	19.5	19.8	20.9
FR	11.1	11.6	11.7	
IT	21.4	22.0	22.2	14.8-16.7
CY	26.0	26.5	26.8	
LU	8.5	8.8	8.8	
MT	25.8	25.9	26.0	
NL	9.6	10.2	10.3	
AT	8.1	8.5	8.7	11.0
PT	18.7	19.5	19.7	22.5
SI	24.0	24.6	25.0	17.0
SK	16.0	16.8	17.3	13-15
FI	13.8	14.2	14.3	4.2
BG	32.1	32.5	32.9	22-30
CZ	16.6	16.9	17.2	
DK	13.9	14.3	14.4	5.5
LV	26.5	27.1	27.3	11.7
LT	29.1	29.6	30.0	15-19
HU	23.0	23.5	23.8	15-20
PL	25.3	25.9	26.1	
RO	29.4	29.4	30.2	30.0
SE	14.9	15.4	15.6	4.5
UK	10.1	10.9	11.1	1.7
EU-27	15.2	15.7	15.9	10.7
EA-17	15.3	15.9	16.0	13.0

*Note:* The size and development of the shadow economy is calculated with the MIMIC (Multiple Indicators and Multiple Courses) estimation procedure. The currency demand approach was only used for a few countries (Austria, Germany and Poland). These values have been calibrated into absolute ones.

*Source:* Schneider (2010), Employment Committee (EMCO) and Eurostat.

Firstly, the design of the tax system should be as neutral as possible as regards the source of revenues so as to minimise interference in the allocation process.

Secondly, the quality of governance and better understanding of taxpayers' behaviour are of key importance for optimising the overall performance of the tax system, and at the same time reduce tax administration costs.

<sup>(254)</sup> See Schneider (2004), and Perry et al. (2007).

Thirdly, the effectiveness of enforcement activities will mainly depend on the resources put into detecting breaches of the rules, the penalties associated with violating rules, and the extent of corruption in the enforcement process.

As mentioned in sub-section 5.3.2, Reckon (2009) provides estimates for the VAT gap in 25 Member States, which includes, among other things, fraud, legal avoidance <sup>(255)</sup> and unpaid VAT liability due to insolvencies (see Table 5.13). Although the exact amount involved in VAT fraud is difficult to quantify, it is believed that filing of false returns and unauthorised deductions of VAT are a key factor in revenue loss. For this reason, some Member States have tightened their measures to combat VAT fraud, by imposing new obligations on taxpayers in the chain of production and distribution to submit additional information to the tax authorities.

In addition, new legislative measures have been introduced with the goal of improving the efficiency of tax administration and controls. Similarly, effective project management arrangements have been implemented to align tax compliance management more closely with businesses' life-cycles, as well as anti-evasion plans to restore tax discipline and improve compliance. Procedural rules should also be strengthened in order to assure an efficient and timely tax litigation system. <sup>(256)</sup>

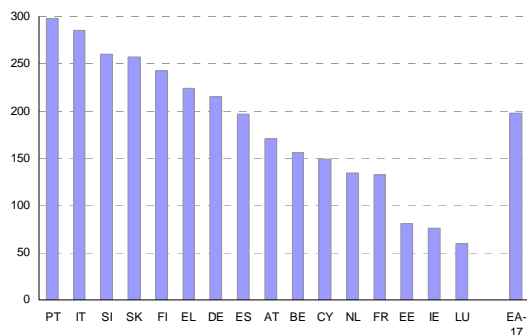
However, new innovative forms of evasion are constantly under development, often with a high degree of sophistication. As a result, fiscal cooperation and tax information exchange and transparency have been considerably strengthened. This has resulted in a large increase in the number of bilateral agreements to exchange tax information. However, there is still scope for further strengthening compliance improvement strategies and reinforcing tax legal frameworks.

<sup>(255)</sup> Although legal, tax avoidance involves the abusive exploitation of 'loopholes' in national or international laws, allowing companies to shift profits from one country to another with the intention of reducing the amount of taxes they pay.

<sup>(256)</sup> Other proposals include: modernising tax processes and systems through state-of-the-art information and communication technology, integrating tax services and operational activities, and streamlining the structures and functions of the organisation.

In order to identify which euro-area Member States face particular challenges in the area of tax compliance costs, tax administration costs and the effectiveness of tax collection, a wide set of indicators is available. The most commonly used indicator for the measurement of tax compliance costs for small and medium-sized enterprises is the 'paying taxes' indicator<sup>(257)</sup> published annually by Price Waterhouse Coopers, the World Bank and IFC. According to the latest available information for the year 2010, in particular Portugal, Italy, Slovenia, Slovakia and Finland have high tax compliance costs as compared to the euro-area average of 198 hours (see Graph 5.6).

Graph 5.6: Administrative burden of tax systems for a medium-sized company



*Note:* Total hours to comply across the EU include: corporate income tax time, labour income tax time, and consumption tax time. Data for Malta are not available.

*Source:* PwC et al. (2010).

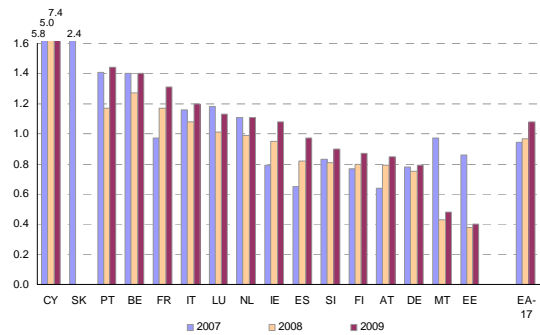
Another aspect that is important in the area of tax governance is the question of how costly tax collection is for the public administration. According to OECD (2011c), the average costs of tax collection in euro-area countries for which data are available amounted to 1.1 (costs per 100 units of revenue). No clear trend is discernible for the period 2005-2009.<sup>(258)</sup> In 2009, Cyprus, Portugal, Belgium, France, Italy and Luxembourg were characterised by rather high costs of tax collection.

<sup>(257)</sup> As measured by the time to prepare, file and pay (or withhold) corporate income tax, value added or sales tax and labour taxes, including payroll taxes and social contributions, based on a case study company (see PwC et al., 2010).

<sup>(258)</sup> The trend in the 'cost of collection' ratio is influenced by a series of factors, such as: (i) changes in tax rates over time; (ii) macro-economic changes; (iii) abnormal expenditure by the tax administrations; and (iv) changes in the scope of taxes. As a consequence, its value as an indicator of effectiveness is rather limited.

Slovakia had high costs in 2007, the latest year for which data are available.

Graph 5.7: Administrative cost per net revenue collection (costs per 100 units of revenue, 2007 to 2009)



*Note:* No data available for Greece. Data for Slovakia are limited to year 2007.

*Source:* OECD (2011c).

Revenues have also been eroded, as poor payment compliance and weak enforcement during the economic crisis gave rise to a large stock of unpaid tax debt. At the end of 2009, the value of tax debt for the euro-area countries amounted to 20% of annual net revenue, an increase of 3.4 percentage points as compared to 2008.<sup>(259)</sup> Facing this steep increase, the vast majority of national tax administrations have significantly reinforced their debt collection functions.

The following two criteria are applied to identify those countries that appear to have a particular need and scope for improving the revenue collection system: (i) the size of the shadow economy is estimated to be above the euro-area average; and (ii) either the administrative burden of tax systems for mid-sized companies, or the administrative costs per net revenue collection is above the euro-area average. These criteria apply to Belgium, Greece, Italy, Cyprus, Portugal, Slovenia and Slovakia.

#### Measures planned: the example of programme countries

Member States under financial assistance programmes are a valuable source of information given the detailed scrutiny they have received. While Ireland did not show special needs in the

<sup>(259)</sup> Excluding Italy, Luxembourg and Malta due to data constraints; un-weighted average; see OECD (2011c).

field, the economic adjustment programmes for Greece and Portugal state the need to make progress in tax administration reform and put an end to the de facto impunity for tax evaders, which is seen as a crucial priority to gradually limit the risks of revenue shortfalls, and also to progressively increase fairness in sharing the adjustment burden.

Greece plans to implement a number of additional reforms to address its high tax gap in line with the economic adjustment programme agreed between Greece, the European Commission, the ECB and the IMF. <sup>(260)</sup> In particular, the programme includes: (i) specific measures to combat tax evasion and tax avoidance (e.g. short-term anti-tax evasion plans), (ii) reorganising the audit and enforcement mechanisms (by transforming the administrative body for tax audits into an operational service, instead of advisory bodies, and by establishing a central directorate-general for debt collection and a large taxpayers unit), (iii) strengthening the administrative dispute resolution mechanisms and the judicial systems (by setting up a fast-track administrative dispute resolution process for large dispute cases, making a newly created arbitration agency operational and creating dedicated court chambers for tax cases) and (iv) improving the legal and administrative framework (by simplifying and improving the taxation framework, as well as correcting distortions and facilitating entrepreneurship).

In Portugal, the Memorandum of Understanding on Specific Economic Policy Conditionality agreed between the EC, the ECB and the IMF <sup>(261)</sup> includes several measures aimed at improving the revenue administration. Among other things, a simplification of Portugal's tax structure will be implemented by the end of 2012. The government also plans to set up a new entity, by merging the tax administration, the customs administration and the information technology service. The share of total tax administration staff devoted to auditing is also to be raised to at least 30% by the end of 2012, and a review of audit performance, based on both qualitative and quantitative indicators, is to be carried out by the end of 2011. Last but not least,

the MoU calls for specific bottlenecks in the tax appeal system to be addressed.

#### 5.4. OVERVIEW OF TAX POLICY CHALLENGES

The chapter analysed three types of potential challenges that euro-area countries are currently facing in the area of tax policy: (i) the need to address severe fiscal consolidation challenges also on the revenue side, (ii) the need to make the tax structure more growth-friendly and (iii) the need to improve the design of the tax system for individual types of tax. This analysis focused on fiscal and efficiency aspects of national tax policies, rather than looking at taxation as one of the available policy instruments in e.g. environment, labour market or innovation policy. Table 5.17 provides a synoptic overview of euro-area Member States that may need to consider tax policy measures in the different areas.

According to the quantitative screening in section 5.1, at least three countries (Ireland, Spain and Cyprus) could consider making use of taxation — in addition to expenditure control — to consolidate their public finances and bring them onto a more sustainable path (see column one of Table 5.17). These countries show unsustainable initial budgetary situations (taking account also of ageing-related implicit liabilities) but, at the same time, appear to have some room for increasing tax revenues. Two other euro-area Member States (Portugal and Greece) are identified as borderline cases, where some room is still available for tax revenue increases to respond to fairly demanding consolidation needs. Finally, focusing on the initial budgetary component of the sustainability gap yields Slovakia as an additional country displaying both a need and scope for raising tax revenues. Clearly, the need to raise tax revenues might also be addressed by improving tax compliance and administration rather than by discretionary tax hikes. It has to be noted that the assessment is subject to an implementation risk, in that it is based on the projected consolidation path for 2011 and notably includes the measures agreed — but not necessarily implemented yet — under the adjustment programmes for countries receiving financial assistance. An in-depth assessment of the microeconomic effects of increasing specific types of tax remains beyond the scope of this report but

<sup>(260)</sup> An overview of the revenue effects of key changes in the tax system can be found in Greece's adjustment programme. See European Commission (2010i). See also European Commission (2011k).

<sup>(261)</sup> See European Commission (2011g).



Table 5.17: Overview table: Tax policy challenges in euro-area Member States

Country	Contribution of tax increases to consolidation	Need and room for tax shift	Cutting tax expenditure in direct taxation	Debt bias in corporate taxation	Debt bias in housing taxation	Increasing VAT efficiency	More environmentally friendly taxation: Review			Tax governance challenges
							Reduced VAT on energy	Company car taxation	Excise duty rates on fossil fuels	
BE		X	X		X	X	X	X	X	X
DE		X						X	X	
EE					X					
IE	X						X			
EL	(X)		X	X	X	X	X	X	X	X
ES	X		X		X	X		X		
FR		X	X	X		X	X		X	
IT		X	X		X	X	X	X		X
CY	X									X
LU				X	X		X	X	X	
MT				X		X	X			
NL		(X)			X				X	
AT		(X)	X			X		X		
PT	(X)		X		X	X	X	X	X	X
SI		(X)						X		X
SK	(X)					X		X	X	X
FI		X			X				X	

Note: (X) depicts borderline cases, i.e. where the applied criteria or sub-criteria are either not strictly met or the assumed values remain very close to the thresholds.

Source: Commission services.

would be imperative before drawing firm tax policy conclusions.

According to the analysis in section 5.2, about one third of euro-area Member States might enhance economic growth by shifting their tax structure away from labour (Belgium, Germany, Finland, France, Italy; see column two of Table 5.17). In these Member States, a high tax burden on labour is matched by a relatively low share of revenues from consumption and other indirect taxes (such as real estate taxes in the case of Germany and Finland). Similarly, while the level of consumption and overall indirect taxes is already somewhat above the euro-area average, increasing housing taxation could be a way to alleviate the high tax burden on labour in Austria. Any reduction in the tax burden on labour should be focused on low-skilled workers and/or second earners, given that these groups often face particularly strong disincentives to work.

Moreover, high tax burdens on vulnerable groups in the Netherlands and Slovenia might call for re-profiling labour taxation away from low-skilled workers and second earners towards other categories of taxpayers. Given the room for increasing the level of indirect taxation in the Netherlands and of recurrent housing taxation in Slovenia, shifting taxes away from labour income

of vulnerable groups towards indirect/housing taxes might also be considered.

Apart from the countries mentioned so far, six others (Spain, Greece, Cyprus, Luxembourg, Portugal, Slovakia) either have low revenue shares from consumption/indirect taxes or display below-average implicit tax rates on consumption (or both). Optimising tax structures through revenue-neutral tax shifts might be indicated in these cases, even if the tax burden on labour is not excessive from a euro-area perspective, particularly where room for higher consumption taxes is accompanied by unsatisfactory labour market performance.

Section 5.3 analysed more specific challenges, related to the design of individual types of tax.

As argued in Chapter 4, tax expenditures lower the efficiency of the tax system. The combined analysis of OECD estimates of tax expenditure and a comparison of statutory and ‘actual’ tax rates in sub-section 5.3.1 is suggestive of a need to review tax expenditure in either personal or corporate taxation (or both) in Belgium, Greece, Spain, France, Italy, Austria and, according to a country-specific study by the OECD, also in Portugal.

However, several other euro-area countries are likely also concerned by this challenge, given that

the estimates of tax expenditure compiled by the OECD cover only less than half of the euro-area Member States.

The ‘debt bias’ in direct taxation affecting both corporate finance and investment in housing is also an issue that needs to be addressed to enhance macroeconomic stability, by limiting possibly excessive expansions of credit in good times and harmful credit tightening in bad times.

Most euro-area countries share a ‘debt bias’ in corporate finance, as their tax system subsidises debt-financed investment, chiefly via the deductibility of interest payments. As the recent crisis has made clear, the debt bias creates economic distortions and leads to excessive corporate debt-to-GDP ratios, with harmful economic effects. This is especially true in the banking sector as spillover effects are stronger and moral hazard issues more pervasive due to systemic risks of bank failures. While the effective marginal tax rate for debt-financed investment was actually negative in almost all euro-area economies, the effective marginal tax rate for new equity-financed investment was positive everywhere. A simple approach to identify the countries that face the biggest challenges in this area is to take the difference between the two rates.

It turns out that, in 2010, France, Malta and Luxembourg showed a gap clearly larger than the euro-area average, although not as wide as in the case of Greece.<sup>(262)</sup> Viable policy options to address the debt-bias issue are either to eliminate interest deductibility from taxes via a comprehensive business income tax (CBIT) or to introduce an equivalent (tax deduction) allowance for corporate equity (ACE) or a mixture of both.

Despite recent measures to reduce the tax subsidy for homeownership in some Member States, the general picture that tax systems tend to favour mortgage debt financing of homeownership remains valid. Belgium, Estonia, Greece, Spain, Italy, Luxembourg, the Netherlands, Portugal and Finland are found to have a debt-biased tax system favouring housing investments, although the extent of this bias differs widely between them.

---

<sup>(262)</sup> The data for Greece could be subject to revision due to a special surcharge that was first introduced in 2010 and later withdrawn.

In many euro-area Member States, VAT revenues actually collected are far below the level that could theoretically be collected if a uniform consumption tax was established. The revenue shortfall can in particular be due to the application of reduced VAT rates or tax exemptions to a wide range of goods and services. Italy, Greece, Spain, France, Belgium and Portugal seem to have particular scope for increasing VAT revenues by broadening the VAT base. Moreover, the revenue shortfall can be driven by a high collection gap that is at least partly attributable to VAT fraud. There are indications that deficiencies in VAT collection have a negative impact on VAT revenues in Greece, Slovakia, Italy, Austria and, to a lesser extent, Malta.

In the current economic climate, it is important to utilise the taxation framework as efficiently as possible in environmental policy. Hence, environmentally harmful tax subsidies should be phased out, while environmental taxes need to be properly designed. At present, several Member States subsidise different energy products through reduced VAT rates. Greece, France, Ireland, Italy, Luxembourg, Malta and Portugal tax consumption of natural gas and electricity at a reduced VAT rate, while Belgium, Ireland, Luxembourg and Portugal (also) apply reduced rates for fuel oil and/or solid fuels. Support to vulnerable households could potentially be provided more efficiently through more targeted welfare payments.

Company car tax rules tend to have an adverse environmental impact as they encourage car ownership and private use of company cars. Austria, Belgium, Germany, Greece, Italy, Luxembourg, Slovakia, Slovenia, Spain and Portugal provide generous tax subsidies to company cars and may benefit most from reviewing their schemes.

The current excise duty rates on energy do not properly reflect the environmental and energy properties of the various fuels (e.g. fossil and renewable fuels). In particular, diesel is generally favoured by a relatively low tax compared to petrol. All euro-area Member States provide such preferential treatment to some extent. However, the tax subsidy to diesel drivers is especially high

in Belgium, Germany, Greece, France, Luxembourg, the Netherlands, Portugal, Slovakia and Finland.

Last but not least, the chapter addressed tax governance issues. A number of euro-area Member States face the challenge of undertaking incentive-oriented policy measures to reduce tax gaps, by improving the efficiency of their tax collection and more effectively preventing tax evasion. In this

respect, the analysis made use of the following two conditions: (i) the size of the shadow economy is estimated to be above the euro-area average; and (ii) either the administrative burden of tax systems for medium-sized companies, or the administrative cost per net revenue collection is above the euro-area average. The analysis indicates that there seems to be particular scope for improving revenue collection systems in Belgium, Greece, Italy, Cyprus, Portugal, Slovenia and Slovakia.

## REFERENCES

- Acemoglu, D., Aghion, P., Bursztyn, L., and D. Hemous (2009), The environment and directed technical change, *NBER Working paper 15451*.
- Admati, A., DeMarzo, P., Hellwig, M. and P. Pfleiderer (2010), Fallacies, irrelevant facts, and myths in the discussion of capital regulation: Why bank equity is not expensive, the Rock Center for corporate governance at Stanford University, *Working Paper No. 86*.
- Adrian, T and M. K. Brunnermeier (2010), CoVar, mimeo, Princeton University.
- Agell, J., Englund, P. and J. Södersten (1995), Svensk skattepolitik i teori och praktik, Statens offentliga utredningar 1995:104, Stockholm, Sweden.
- Aghion, P., Veugelers, R., and D. Hemous (2009), No green growth without innovation, *Bruegel Policy Briefs 7*, pp. 1-8.
- Altshuler, R. and H. Grubert (2003), Taxes, repatriation strategies and multinational financial policy, *Journal of Public Economics* 8, pp. 73-107.
- Andersen, T. M. and M. Svarer (2008), The role of workfare in striking a balance between incentives and insurance in the labour market, University of Aarhus, *Working Paper 5*.
- Anderson, Barry (2008), PowerPoint presentation at the Asian Senior Budget Officials meeting, 10-11 January 2008, Bangkok, Thailand.
- Andrews, D. (2010), Real house prices in OECD countries: The role of demand shocks and structural and policy factors, *OECD Economics Department Working Paper 831*, OECD Publishing.
- Andrews, D. and A. Caldera Sánchez (2011), Drivers of homeownership rates in selected OECD Countries, *OECD Economics Department Working Paper 849*, OECD Publishing.
- Andrews, D., Caldera Sánchez, A. and Å. Johansson (2011), Housing markets and structural policies in OECD Countries, *OECD Economics Department Working Paper 836*, OECD Publishing.
- Annicchiarico, B., Dio, F., Felici, F. and F. Nucci (2011), Macroeconomic modelling and the effects of policy reforms: an assessment for Italy using ITEM and QUEST, *Ministry of Economy and Finance Working Paper 1*.
- Arnold, J. (2008), Do tax structures affect aggregate economic growth?: Empirical evidence from a panel of OECD countries, *OECD Economics Department Working Paper 643*, OECD Publishing.
- Arpaia, A. and G. Carone (2004), Do labour taxes (and their composition) affect wages in the short and the long run?, *European Commission Economic Paper 216*.
- Arpaia, A. and G. Mourre (2009), Institutions and performance in European labour markets: taking a fresh look at evidence, *CEB Working Paper 49*.
- Arulampalam, W., Devereux, M. P., and G. Maffini (2010), The direct incidence of corporate income tax on wages, *IZA Discussion Paper 5293*.
- Atkinson, A. B. and J. E. Stiglitz (1976), The design of tax structure: direct vs. indirect taxation, *Journal of Public Economics* 6, pp. 55-75.
- Auerbach, A., Devereux, M. and H. Simpson (2010), Taxing corporate income, in: *The Mirrlees Review: dimensions of tax design*, Adam, S., Besley, T. and R. Blundell (eds.), Oxford University Press.
- Barro, R. J. (1990), Government spending in a simple model of endogenous growth, *Journal of Political Economy* 98, pp.103-125.
- Bertola, G., Blau, F. D. and L. M. Kahn (2002), Comparative analysis of labor market outcomes: lessons for the US from international long-run evidence, in: *The roaring nineties: can full employment be sustained?*, Krueger, A. and Solow, R. (eds.), New York: Russel Sage and Century Foundations.
- Bettio, F. and A. Verashchagina (2009), Fiscal system and female employment in Europe, EU Expert Group on Gender and Employment (EGGE), report financed by European Commission, Directorate-General for

- Employment, Social Affairs and Equal Opportunities.
- Boadway, R. and N. Bruce (1984), A general proposition on the design of a neutral business tax, *Journal of Public Economics* 24, pp. 231-239.
- Boadway, R., Chamberlain, E., and C. Emmerson (2010), Taxation of wealth and wealth transfers, in: *The Mirrlees Review: dimensions of tax design*, Adam, S., Besley, T. and R. Blundell (eds.), Oxford University Press.
- Bocconi University (2011), The role and impact of labour taxation policies, study for the European Commission, final report, forthcoming.
- Boeters, S., Boehringer, C., Büttner, T. and M. Kraus (2006), Economic effects of VAT reform in Germany, *ZEW Discussion Paper 06-030*, Mannheim.
- Bond, S., Hawkins, M. and A. Klemm (2004), Stamp duty on shares and its effect on share prices, *IFS Working Paper 04/11*.
- Bordignon, M., Giannini, S. and P. Panteghini (1999), Corporate taxation in Italy: an analysis of the 1998 reform, *FinanzArchiv* 56.
- Botmann, D. and S. Danninger (2007), Tax reform and debt sustainability in Germany: an assessment Using the Global Fiscal Model, *IMF Working Paper 07/46*.
- Bretschger, L and F. Hettich (2001), Globalisation, capital mobility and tax competition: theory and evidence for OECD countries, mineo.
- Bucovetsky, S. and J-D. Wilson (1991), Tax competition with two tax instruments, *Regional Science and Urban Economics* 21, pp. 333-350.
- Buddelmeyer, H., Mourre, G. and M. Ward (2008), Why Europeans work part-time? A cross-country panel analysis, *ECB Working Paper 846* and *Research in Labor Economics* 28, October, Emerald Press.
- Buettner, T., Overesch, M., Schreiber, U. and G. Wamser (2006), The Impact of thin-capitalization rules on multinationals financing and investment decisions, *CESifo Working Paper Series 1817*.
- Bundesministerium der Finanzen (2010), Analyse und Bewertung der Strukturen von Regel- und ermäßigten Sätzen bei der Umsatzbesteuerung unter sozial-, wirtschafts-, steuer- und haushaltspolitischen Gesichtspunkten.
- Capozza, D. R., Green, R. K. and P. H. Hendershott (1996), Taxes, mortgage borrowing, and residential land prices, in: *Economic effects of fundamental tax reform*, Aaron, H. and W. Gale (eds.), Brookings institution, pp. 171-198.
- Carone, G., Pierini, F., Stovicek, K. and E. Sail (2009), Recent reforms of the tax-benefit systems in the framework of flexicurity, European Commission, Directorate General for Economic and Financial Affairs, *Occasional Paper 43*.
- Caspersen, E. and Metcalf, GE. (1994), Is a Value Added Tax Regressive? Annual versus Lifetime Incidence Measures, *National Tax Journal* 47, pp. 731-746.
- Castanheira, M., Profeta, P. and G. Nicodeme (2011), On the political economics of tax reforms, *CESifo Working Paper 3538*.
- Chamley, C. (1986), Optimal taxation of capital income in general equilibrium with infinite lives, *Econometrica* 54, pp. 607-622.
- Clark, K. and Tomlinson, M. (2001), The determinants of work effort: evidence from the employment in Britain survey, Web. 8 July 2011.
- Cobham, A. (2008), Tax evasion, tax avoidance and development finance, *QEH Working Paper Series 129*.
- Coenen, G., McAdam, P. and R. Straub (2007), Tax reform and labour-market performance in the euro area: a simulation-based analysis using the new area wide model, *ECB Working Paper Series 747*.
- Collins, J. H. and D. A. Shackelford (1997), Global organization and taxes: an analysis of the dividend, interest, royalty, and management fee payments between U.S. multinational' foreign affiliates, *Journal of Accounting and Economics* 24, pp. 151-173.

- Conte, A., Labat, A., Varga J. and Žarnić, Z. (2010), What is the growth potential of green innovation? An assessment of EU climate policy options, *Economic Paper 413*.
- Copenhagen Economics (2007), Study on reduced VAT applied to goods and services in the Member States of the European Union, final report.
- Copenhagen Economics (2008), Reduced rates for environmentally friendly products, final report.
- Copenhagen Economics (2009), Company car taxation - subsidies, welfare and environment, *Taxation Paper 22*.
- Corlett W. J. and D. C. Hague (1953), Complementarity and the excess burden of taxation, *Review of Economic Studies 21*, pp. 21-30.
- Cour des Comptes (2010), Rapport sur la situation et les perspectives des finances publiques.
- Crawford, I., Keen, M. and S. Smith (2010), Value added tax and excises, in: *The Mirrlees Review: dimensions of tax design*, Adam, S., Besley, T. and R. Blundell (eds.), Oxford University Press.
- Cremer, H. and P. Pestieau (2003), Wealth transfer taxation: a survey, *CESifo Working Paper Series 1061*, CESifo Group Munich.
- Crowe, C., Dell'Araccia, G., Igan, D. and P. Rabanal (2011), How to deal with real estate booms: lessons from country experiences, *IMF Working Paper 11/91*.
- Da Rin, M., Di Giacomo, M. and A. Sembenelli (2010), Corporate taxation and the size of new firms: evidence from Europe, *European Economic Association 8(2-3)*.
- Dahlby, B. (2008), The marginal cost of public funds: theory and applications, MIT press, London, England.
- Davis, E.H. and J.A. Kay (1985), Extending the VAT base: Problems and Possibilities, *Fiscal Studies 6*, pp. 1-16.
- De Meza, D. and D. C. Webb (1987), Too Much Investment: a problem of asymmetric information, *The Quarterly Journal of Economics 102(2)*, pp. 281-292.
- De Mooij, R. (2011a), The tax elasticity of corporate debt: a synthesis of size and variations, *IMF Working Paper 11/95*.
- De Mooij, R. (2011b), Tax biases to debt finance: assessing the problem, financing solutions, *IMF Staff Discussion Note 11/11*.
- De Mooij, R. and G. Nicodeme (2006), Corporate tax policy, entrepreneurship and incorporation in the EU, *CESifo Working Paper 1883*.
- De Mooij, R. and M. Devereux (2009), Alternative systems of business tax in Europe: an applied analysis of ACE and CBIT Reforms, *Taxation Paper 17*.
- De Mooij, R. and M. Devereux (2011), An applied analysis of ACE and CBIT reforms in the EU, *International Tax and Public Finances 18*, pp. 93-120.
- Dell'Anno, R. and F. Schneider (2003), The shadow economy of Italy and other OECD Countries: What do we know?, *Journal of Public Finance and Public Choice 21*.
- Desai, A. and J. R. Hines Jr. (2002), Value-Added taxes and international trade: the evidence, University of Michigan, mimeo.
- Desai, M. A., Foley, C. F. and J. R. Hines (2004), A multinational perspective on capital structure choice and internal capital markets, *Journal of Finance 59*, pp. 2451-2488.
- Devereux, M. and A. Gerritsen (2010), The tax treatment of debt and equity, in: *Naar een Europese winstbelasting*, Papers uitgebracht ter gelegenheid van het jubileumcongres in verband met het 40-jarig bestaan van het Fiscaal-Economisch Instituut van de Erasmus Universiteit Rotterdam, Kluwer, Deventer, Albregtse, D.A. and P. Kavelaars (eds.), pp. 67-74.
- Devereux, M. P. and Griffith, R. (1999), Taxes and the location of production: evidence from a panel of US multinationals, *Journal of Public Economics (68)3*, pp. 335-367.

- Devereux, M. P. and R. Griffith (2003), Evaluating tax policy for location decisions, *International Tax and Public Finance* 10, pp. 450-493.
- Devereux, M. P., Griffith, R. and A. Klemm (2002), Corporate income tax reforms and international tax competition, *Economic Policy* 17(2), pp. 450-493.
- Devereux, M. P., Lockwood, B. and Redoano M. (2008), Do countries compete over corporate tax rates?, *Journal of Political Economics* 92, pp. 1210-1235.
- Dhillon, A., Wooders, M. and B. Zissimos (2006): Tax competition reconsidered, *Working Paper 06-W02*, Vanderbilt University.
- Dixon, H. (1999), Controversy: on the use of the 'hidden economy' estimates, *Economic Journal* 109.
- Edwards, J. and M. Keen (1996), Tax Competition and Leviathan, *European Economic Review* 40, pp. 113-134.
- European Commission (1998), Commission notice on the application of the State aid rules to measures relating to direct business taxation, C 384/3.
- European Commission (2001), Environmental Taxes - a statistical guide, Luxembourg.
- European Commission (2003), Council Directive 2003/96/EC restructuring the Community framework for the taxation of energy products and electricity.
- European Commission (2004a), Council Directive 2004/74/EC amending Directive 2003/96/EC.
- European Commission (2004b), Council Directive 2004/75/EC amending Directive 2003/96/EC.
- European Commission (2006), Communication from the Commission to the European Parliament, the Council and the European Economic and Social Committee: Co-ordinating Member States' direct tax systems in the Internal Market, *COM(2006) 823 final*.
- European Commission (2007a), Green Paper on Market-Based Instruments for Environment and related Policy Purposes, *COM(2007) 140 Final*.
- European Commission (2007b), The Integrated Guidelines for Growth and Jobs (2008-2010), *COM(2007)803 final*.
- European Commission (2008a), European competitiveness report, Luxembourg.
- European Commission (2008b), Public Finances in EMU, *European Economy* 4.
- European Commission (2008c), The LIME assessment framework (LAF): a methodological tool to compare, in the context of the Lisbon Strategy, the performance of EU Member States in terms of GDP and in terms of twenty policy areas affecting growth, *European Economy Occasional Paper* 41.
- European Commission (2009a), Monitoring revenue trends and tax reforms in Member States, *European Economy* 4.
- European Commission (2009b), Sustainability report 2009, *European economy* 9.
- European Commission (2009c), The 2009 ageing report, *European Economy* 2.
- European Commission (2010a), Public Finances in the EMU 2010, *European Economy* 4.
- European Commission (2010b), Effective levels of company taxation within an enlarged EU.
- European Commission (2010c), Communication from the Commission, Europe 2020: a strategy for smart, sustainable and inclusive growth, *COM(2010)2020*.
- European Commission (2010d), Taxation trends in the European Union, 2010 edition Luxembourg.
- European Commission (2010e), Monitoring tax revenues and tax reforms in EU Member States: tax policy after the crisis, *Taxation Paper* 24.
- European Commission (2010f), Green Paper on the future of VAT: towards a simpler, more robust and efficient VAT system, *COM(2010) 695 final*.

European Commission (2010g), Communication from the Commission to the European Parliament, the Council and the European Economic and Social Committee: removing cross-border tax obstacles for EU citizens, *COM(2010)*.

European Commission (2010h), European Economic Forecast - Autumn 2010, *European Economy* 7.

European Commission (2010i), Memorandum of understanding between Greece and the EC, the ECB and the IMF on Specific Economic Policy Conditionality.

European Commission (2010j), Staff Working Paper on Refining and the Supply of Petroleum Products in the EU, *SEC(2010)1398/2*.

European Commission (2010k), Macro structural bottlenecks to growth in EU Member States, *European Economy Occasional Paper* 65.

European Commission (2010l), European Competitiveness Report, Commission staff working document *SEC(2010) 1276*.

European Commission (2011a), Taxation trends in the European Union, 2011 edition, Luxembourg.

European Commission (2011b), Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the regions, Annual growth survey: advancing the EU's comprehensive response to the crisis, *COM(2011) 11 final*.

European Commission (2011c), Proposal for a Council Directive on a Common Consolidated Corporate Tax Base (CCCTB), *COM(2011)121/4*.

European Commission (2011d), Proposal of Council Directive, amending Directive 2003/96/EC restructuring the Community framework for the taxation of energy products and electricity, *COM(2011)169/3*.

European Commission (2011e), Communication from the Commission to the European Parliament, the council and the European Economic and Social Committee, Smarter energy taxation for the EU:

proposal for a revision of the Energy Taxation Directive, *COM(2011)168/3*.

European Commission (2011f), Commission staff working paper: Impact Assessment, accompanying document to the Proposal for a Council Directive, amending Directive 2003/96/EC restructuring the Community framework for the taxation of energy products and electricity, *SEC(2011) 409*.

European Commission (2011g), Memorandum of understanding between Portugal and the EC, the ECB and the IMF on Specific Economic Policy Conditionality.

European Commission (2011h), VAT Rates applied in the Member States of the European Union, DG Taxation and Customs Union, situation at 1 January 2011.

European Commission (2011i), Excise duty tables, part II - Energy products and Electricity, by DG Taxation and Customs Union, situation at 1 January 2011.

European Commission (2011j), IA accompanying the proposal to amend 2003/96/EC restructuring the Community framework for taxation of energy products and electricity, *SEC(2011)410*.

European Commission (2011k), The economic adjustment programme for Greece: fourth review - July 2011, *Occasional Paper* 82.

European Commission (2011l), European Commission recommendation for a Council Recommendation on the National Reform Programme 2011 of Germany and delivering a Council opinion on the updated Stability Programme of Germany, 2011-2014, *SEC(2011) 807 final*.

European Commission (2011m), Communication from the Commission to the European Parliament, the council, the European Economic and Social Committee and the Committee of the regions, A resource-efficient Europe – Flagship initiative under the Europe 2020 Strategy, *COM(2011) 21*.

European Council (2011), Conclusions of the European Council of 24/25 of March 2011.



- European Economic Advisory Group (2011), The EEAG report on the European economy 2011, CESifo, Munich.
- European Environment Agency (2011), Size of the vehicle fleet, [Web](#). 1 July 2011.
- Finish Ministry of Finance (2010), Final report of the working group for developing the Finnish tax system, *Ministry of Finance Publications 51*.
- Froot, K. A. and James R. Hines (1995), Interest allocation rules, financing patterns, and the operation of U.S. multinationals, in: *The effect of taxation on multinational corporations*, Feldstein, M., Hines, J.R. and R. G. Hubbard (Eds.), University of Chicago Press, pp. 277-307.
- Fullerton, D., Leicester, A. and S. Smith (2010), Environmental taxes, in: *The Mirrlees Review: dimensions of tax design*, Adam, S., Besley, T. and R. Blundell (eds.), Oxford University Press.
- Garrett, G. (1995), Capital mobility, trade and the domestic politics of economic policy, *International Organisation 49*, pp. 657-687.
- Girouard, N. and C. Andre (2005), Measuring cyclically adjusted budget balances for OECD countries, *OECD Economics Department Working Paper 434*, OECD Publishing.
- Gordon, R. (2011), Taxation and corporate use of debt, presentation at IMF technical workshop on tax-induced debt bias, Washington DC.
- Graham, J. R. (1999), Do personal taxes affect corporate financing decisions?, *Journal of Public Economics 73*, pp. 147-185.
- Graham, J. R. (2011), Do corporate taxes (and interest deductibility) affect corporate decisions?, presentation at IMF technical workshop on tax-induced debt bias, Washington DC.
- Graham, J. R. and M. T. Leary (2011), A review of empirical capital structure research and directions for the future, mimeo.
- Gropp, R. (2011), Tax induced debt bias in financial institutions, presentation at IMF Technical Workshop on Tax-Induced Debt Bias, Washington DC.
- Grubert, H. (1998), Taxes and the division of foreign operating income among royalties, interest, dividends and retained earnings, *Journal of Public Economics 68*, pp. 269-290.
- Hall, B. H. (2005), Exploring the patent explosion, *Journal of Technology Transfer 30*, pp. 35-48.
- Harris, B. (2010), The effect of proposed tax reforms on metropolitan housing prices, Tax Policy Center, Urban Institute and Brookings Institution.
- Heads of state of Euro area (2011), Conclusions of the heads of state or government of the euro area of 11 March 2011.
- Heinemann, F. (2009), Economic crisis and morale, *CEB Working Paper 09/046*.
- Hemmelgarn, T. and G. Nicodeme (2012). Can Tax Policy Help to Prevent Financial Crisis?, in: *Taxation and the financial crisis*, Alworth, J. S. and A. Giampaolo (eds), Oxford University Press, forthcoming.
- Hemmelgarn, T., Nicodeme, G. and E. Zangari (2011), The role of housing tax provisions in the 2008 financial crisis, *Taxation Paper 27*.
- Herwig I., Henrik J. K., Kreiner, C. T. and E. Saez (2007), Welfare reform in European countries: a microsimulation analysis, *The Economic Journal 117*, pp. 1-44.
- Hines, J.R. and R.G. Hubbard (1990), Coming home to America: dividend repatriations by U.S. multinationals, in: *Taxation and the Global Economy*, Razin, A. and J. Slemrod (eds.), Chicago, pp. 161-200.
- Huizinga, H., Laeven, L. and Nicodeme, G. (2008), Capital structure and international debt shifting, *Journal of Financial Economics 88(1)*, pp. 80-118.
- IBFD (2010), European Tax Handbook 2010, IBFD Global Tax Series.
- IBFD (2011), European Taxation Database, [Web](#). 4 April 2011.

- IFC (2007), Designing a tax system for micro and small businesses, Washington.
- IMF (2008), France - selected issues, *SM/08/37*.
- Immervoll, H., Kleven, H.J., Kreiner, C.T. and E. Saez (2007), Welfare reform in European countries: a microsimulation analysis, *The Economic Journal* 117, pp. 1-14.
- Immervoll, H., Kleven, H.J., Kreiner, C.T. and N. Verdellin (2009), An evaluation of the tax-transfer treatment of married couples in European countries, *IZA Discussion Paper* 3965.
- Jaumotte, F. (2003), Female labour force participation: past trends and main determinants in OECD countries, *OECD Working Paper* 376, OECD publishing.
- Jensen, M.C. (1986), Agency cost of free cash flow, corporate finance, and takeovers, *American Economic Review* 76, pp. 323-329.
- Johansson, Å. (2011), Housing Policies in the OECD and candidate for accession countries: survey-based data and implications, *OECD Economics Department Working Paper*, forthcoming.
- Johansson, Å., Heady, C., Arnold, J., Brys, B. and L. Vartia (2008), Tax and economic growth, *OECD Economics Department Working Paper* 620, OECD Publishing.
- Jones, L. E., Manuelli, R. E. and P. E. Rossi (1997), On the optimal taxation of capital income, *Journal of Economic Theory* 73(1), pp. 93-117.
- Judd, K. (1985), Redistributive taxation in a simple perfect foresight model, *Journal of Public Economics* 28, pp. 59-83.
- Keen, M. and M. Syed (2006), Domestic taxes and international trade: some evidence, *IMF Working Paper Working Paper* 06/47.
- Keen, M., Klemm, A. and V. Perry (2010), Tax and the crisis, *Fiscal Studies* 31, pp. 43-79.
- Kleven H. J., Richter, W. F. and P. B. Sørensen (2000), Optimal taxation with household production, *Oxford Economic Paper* 52, pp. 584-594.
- Kleven, H. J. (2004), Optimum taxation and the allocation of time, *Journal of Public Economics* 88, pp. 545-557.
- Korkeamäki, O. and R. Uusitalo (2009), Employment and wage effects of a payroll-tax cut - evidence from a regional experiment, *International Tax and Public Finance* 16, pp. 753-772.
- Kosonen K. and G. Nicodeme, (2009), The role of fiscal instruments in environmental policy, *Taxation Paper* 19, European Commission.
- KPMG (2011), Proposed bank levies – comparison of certain jurisdictions.
- Lipinska, A. and L. von Thadden (2009), Monetary and fiscal policy aspects of indirect tax changes in a Monetary Union, *ECB Working Paper Series* 1097.
- Ljunge, M. (2010), Sick of Taxes? Sick Leave, Effort, Well-Being, and Taxes, Web. 8 July 2011.
- Loayza N., A. M. Oviedo and L. Serven (2006), The impact of regulation on growth and informality: cross-country evidence, in: Linking the formal and informal economy - concepts and policies, Guha-Khasnobis, B., Kanbur, R. and E. Ostrom (Eds.), Oxford University Press.
- Meghir, C. and D. Phillips (2010), Labour supply and taxes, in: *The Mirrlees Review: dimensions of tax design*, Adam, S., Besley, T. and R. Blundell (eds.), Oxford University Press.
- Mills, L. and K. Newberry (2004), Do foreign multinationals' tax incentives influence their US income reporting and debt policy? *National Tax Journal* 57, pp. 89-107.
- Mintz, J. and A. J. Weichenrieder (2005), Taxation and the financial structure of German outbound FDI, *CESifo Working Paper* 1612.
- MODELS (2010), Model Development for the Evaluation of Lisbon Strategies, European Commission, <http://www.ecmodels.eu/index.htm>

- Modigliani, F. and M. Miller (1958), The Cost of Capital, Corporation Finance and the Theory of Investment, *American Economic Review* 48, pp. 261-297.
- Monti, M. (2010), A new strategy for the single market at the service of Europe's economy and society, report to the President of the European Commission José Manuel Barroso, Web. 19 July 2011.
- Moore, P. J. and F. P. Ruane (2005), Taxation and the financial structure of foreign direct investment, Trinity College Dublin, *IIS Discussion Paper 88*.
- Myles, G. D. (2009a), Economic growth and the role of taxation - theory, *OECD Economics Department Working Paper 713*, OECD publishing.
- Myles, G. D. (2009b), Economic growth and the role of taxation - aggregate data, *OECD Economics Department Working Paper 714*, OECD publishing.
- Myles, G. D. (2009c), Economic growth and the Role of Taxation - disaggregate data, *OECD Economics Department Working Paper 715*, OECD publishing.
- Newberry, K. J. and D. S. Dhaliwal (2001), Cross-jurisdictional income shifting by U.S. multinationals: evidence from international bond offerings, *Journal of Accounting Research* 39, pp. 643-662.
- Nicodeme, G. (2006), Corporate tax competition and coordination in the European Union: What do we know? Where do we stand?, *MRPA Paper 107*.
- Nicodeme, G. (2008), Corporate income tax and economic distortions, *CESifo Working Paper Series 2477*, Munich.
- Oates, W. E. (1972), Fiscal federalism, New York.
- OECD (2007), Taxing wages, 2006-2007.
- OECD (2008a), Report on taxation of SMEs, OECD publishing, Paris.
- OECD (2008b), OECD economic surveys: Belgium, OECD publishing.
- OECD (2008c), Tax effects on foreign direct investment, OECD policy brief.
- OECD (2010a), Taxation, innovation and the environment, OECD green growth strategy, OECD Publishing.
- OECD (2010b), Revenue statistics 1995-2009, OECD publishing, Paris.
- OECD (2010c), Choosing a broad base - low rate approach to taxation, OECD publishing.
- OECD (2010d), Tax expenditures in OECD countries, OECD publishing.
- OECD (2010e), OECD economic surveys: Portugal, OECD publishing.
- OECD (2010f), Tax policy reform and economic growth, *OECD Tax Policy Studies 20*, OECD publishing.
- OECD (2010g), Taxing Wages 2009-2010, OECD publishing.
- OECD (2011a), OECD economic survey: France, OECD publishing.
- OECD (2011b), Consumption tax trends 2010: VAT/GST and excise rates, trends and administration issues, OECD publishing.
- OECD (2011c), Forum on tax administration - tax administration in OECD and selected non-OECD countries: comparative information series, OECD Publishing.
- OJ (2009), Council Directive 2008/118/EC of 16 December 2008 concerning the general arrangements for excise duty and repealing Directive 92/12/EEC, *L 9/15 from 14.01.2009*.
- Parry, I. W.H. and W. E. Oates (1998), Policy analysis in a second best world, *Discussion paper 98-48*, Washington, DC.
- Perry, G., Maloney, W., Arias, O., Fajnzylber, P. and A. Mason (2007), Informality: exit and exclusion, World Bank Publications, Washington.

- Piggott, J. and J. Whalley (2001), VAT base broadening, self supply, and the informal sector, *American Economic Review* 91(4), pp. 1084-1094.
- Pirttilä, T. (2004), Poverty alleviation and tax policy, *European Economic Review* 48.
- Poterba, J. (1984), Tax subsidies to owner-occupied housing: an asset-market approach, *The Quarterly Journal of Economics* 99(4), pp. 729-752.
- Prammer, D. (2004), Expansionary fiscal consolidations? An appraisal of the literature on non-Keynesian effects of fiscal policy and a case study for Austria, *Monetary Policy & the Economy, Austrian Central Bank* 3, pp. 35-52.
- Prammer, D. (2011), Quality of taxation and the crisis: Tax shifts from a growth perspective, *Taxation Paper (forthcoming)*, European Commission.
- PwC, IFC and The World Bank (2010), Paying taxes - doing business 2011.
- Ramb, F. and A. J. Weichenrieder (2004), Taxes and the financial structure of German inward FDI, *CESifo Working Paper* 1355.
- Reckon (2009), Study to quantify and analyse the VAT gap in the EU-25 Member States.
- Riedl, A. and S. Rocha-Akis (2009), Testing the tax competition theory: how elastic are national tax bases in OECD countries?, *Vienna University of Economics Working Paper* 112.
- Rodrik, D. (1997), Trade, social insurance, and the Limits of Globalisation, *NBER Working Paper* 5905.
- Roeger, W. and Veld, J. (2010), Fiscal stimulus and exit strategies in the EU: a model-based analysis, *European Economy Economic Paper* 426.
- Saez, E. (2002), Optimal income transfer programs: intensive versus extensive labour supply responses, *Quarterly Journal of Economics* 117(3), pp. 1039-73.
- Samuelson, P.A. (1954), The pure theory of public expenditure, *Review of Economics and Statistics*. 36(4), pp. 387-389.
- Sancak, C, Velloso, R. and J. Xing (2010), Tax revenue response to the business cycle, *IMF Working Paper* 10/71.
- Sandford, C., Godwin, M. and P. Hardwick (1989), Administrative and compliance costs of taxation, Bath: Fiscal Publications.
- Sapir, A. (2006), Globalization and the reform of European social models, *Journal of Common Market Studies* 44(2), pp. 369-390.
- Schneider, F. (2004), The size of the shadow economies of 145 countries all over the world: first results over the period 1999 to 2003, *IZA Discussion Paper* 1431.
- Schneider, F. (2010), Size and development of the shadow economy of 31 European countries from 2003 to 2010, Web. 25 July 2011.
- Schneider, F. and D. H. Enste (2000), Shadow economies: size, causes, and consequences, *Journal of Economic Literature* 38.
- Schneider, F. and D. H. Enste (2002), Hiding in the shadows: the growth of the underground economy, IMF Publications.
- Schneider, F. and R. Klinglmaier (2004), Shadow economies around the world: what do we know, *CESifo Working Paper Series* 1167.
- Schöb, R., (1994), On marginal cost and marginal benefit of public funds, *Public Finance* 49(1).
- Shaw J., Slemrod, J. and J. Whiting (2009) Administration and compliance, in: *The Mirrlees Review: dimensions of tax design*, Adam, S., Besley, T. and R. Blundell (eds.), Oxford University Press.
- Slemrod, J. and V. Venkatesh (2002), The Income Tax Compliance Cost of Large and Mid-Size Businesses, *Ross School of Business Working Paper Series* 914.

- Soerensen, P. B. (2007). Can capital income taxes survive? And should they? *CESifo Economic Studies*, 53(2), pp. 172-228.
- Spiro, P. (2005), Tax policy and the underground Economy in Size, causes and consequences of the Underground Economy, Ashgate Publishing.
- Stern, N. (2007), The economics of climate change: the stern review, Cambridge University Press.
- Stewart, K. and Webb, M. (2006), International competition in corporate taxation: evidence from the OECD time series, *Economic Policy* 21, pp. 153-201.
- Stiglitz, J. E. (1999), Economics of the public sector, W.W Norton & Company, Inc.
- Stiglitz, J. E. and A. Weiss (1981), Credit rationing in markets with imperfect information, *The American Economic Review* 71.
- Swank, D. (1998), Funding the welfare state: globalisation and the taxation of business in advanced market economies, *Political Studies XLVI*, pp. 671-692.
- Swift, Z. L. (2006), Managing the effects of tax expenditures on national budgets, *Policy Research Working Paper 3927*, The World Bank.
- Tanzi, V. (1999), Uses and abuses of estimates of the shadow economy, *The Economic Journal* 109(456).
- Tiebout, C. M. (1956), A pure theory of local expenditures. *Journal of Political Economy*, 64(5), pp. 416-424.
- Toder, E. J. (2005), Tax expenditures and tax reform: issues and analysis, mimeo, The Urban Institute.
- Van den Noord, P. (2005), Tax incentives and house price volatility in the euro-area: theory and evidence, *Économie internationale* 101, pp. 29-45.
- Weichenreider, A. and T. Klautke (2008), Taxes and the efficiency costs of capital distortions, *CESifo* 2431, Munich.
- Whitehouse, E. (1999), The tax treatment of funded pensions, *Social Protection Discussion Paper Series 9910*, The World Bank.
- Wilson, J-D. (1986), A theory of interregional tax competition, *Journal of Urban Economics* 19, pp. 296-315.
- Wöhlbier F. (2002), Humankapitalbildung und Beschäftigung: Eine Finanzpolitische Analyse, Deutscher Universitäts Verlag.
- World Bank and IFC (2011), Doing Business 2011: making a difference for entrepreneurs, Washington: WB & IFC Publications.
- Xing, J. (2010), Does tax structure affect economic growth? Empirical evidence from OECD countries.
- ZEW (Centre for European Economic Research) (2010), Project for the EU Commission, *TAXUD/2008/CC/099*, Intermediate Report 2010.
- Zodrow, R. and P. Mieszkowski (1986), Pigou, Tiebout, Property Taxation, and the Underprovision of Local Public Goods, *Journal of Urban Economics* 19, pp. 356-370.

## Statistical annex

Table A1.1: Total taxes (including social security contributions) and tax structure, % of GDP, 2000-2009, EU-27

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
<b>Structure by type of tax</b>										
<b>Indirect taxes</b>	14.0	13.6	13.6	13.6	13.6	13.7	13.8	13.8	13.4	13.1
VAT	7.0	6.8	6.8	6.8	6.8	6.9	7.0	7.1	6.9	6.6
Excise duties and consumption taxes	3.0	2.9	3.0	3.0	2.9	2.8	2.7	2.6	2.5	2.6
Other taxes on products (incl. import duties)	1.7	1.6	1.6	1.6	1.7	1.7	1.8	1.8	1.6	1.5
Other taxes on production	2.3	2.3	2.3	2.2	2.2	2.3	2.4	2.3	2.3	2.4
<b>Direct taxes</b>	13.9	13.5	13.0	12.8	12.7	13.0	13.5	13.7	13.6	12.6
Personal income	10.0	9.8	9.5	9.3	9.1	9.2	9.3	9.5	9.5	9.5
Corporate income	2.8	2.6	2.4	2.2	2.4	2.6	3.0	3.0	2.7	1.9
Other	1.1	1.1	1.1	1.3	1.2	1.2	1.1	1.2	1.3	1.2
<b>Social contributions</b>	12.7	12.6	12.5	12.7	12.5	12.5	12.4	12.2	12.5	12.8
Employers´	7.2	7.2	7.2	7.3	7.2	7.2	7.1	7.1	7.2	7.4
Employees´	4.1	4.0	3.9	3.9	3.9	3.8	3.8	3.7	3.8	3.8
Self- and non-employed	1.4	1.4	1.4	1.4	1.5	1.5	1.5	1.4	1.5	1.6
<b>Total taxes (including SSC)</b>	<b>40.5</b>	<b>39.6</b>	<b>39.0</b>	<b>39.0</b>	<b>38.8</b>	<b>39.1</b>	<b>39.6</b>	<b>39.6</b>	<b>39.3</b>	<b>38.4</b>
<b>Structure by economic function</b>										
<b>Consumption</b>	11.4	11.1	11.1	11.1	11.0	11.1	11.0	11.0	10.8	10.6
<b>Labour</b>	20.3	20.1	19.9	20.0	19.6	19.6	19.4	19.3	19.7	20.0
Employed	18.7	18.6	18.3	18.3	17.9	17.9	17.8	17.8	18.1	18.3
Paid by employers	7.8	7.8	7.7	7.9	7.8	7.7	7.7	7.7	7.8	8.0
Paid by employees	10.9	10.8	10.6	10.5	10.2	10.2	10.1	10.1	10.3	10.3
Non-employed	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.5	1.6	1.7
<b>Capital</b>	8.9	8.5	8.1	8.0	8.2	8.6	9.3	9.4	8.9	7.9
Capital and business income	6.2	5.8	5.4	5.3	5.4	5.8	6.3	6.5	6.1	5.3
Income of corporations	3.2	3.0	2.7	2.6	2.8	3.0	3.4	3.4	3.1	2.3
Income of households	0.9	0.8	0.7	0.7	0.8	0.8	0.9	1.0	1.0	0.9
Income of self-employed (incl. SSC)	2.1	2.0	1.9	2.0	1.9	1.9	2.0	2.1	2.0	2.0
Stocks of capital / wealth	2.8	2.7	2.7	2.7	2.8	2.8	2.9	2.9	2.8	2.6

*Note:* GDP-weighted EU-27 averages. Totals may be affected by rounding.

*Source:* Commission services.

Table A1.2: Total taxes (including social security contributions) and tax structure, % of GDP, 2000-2009, EA-17

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
<b>Structure by type of tax</b>										
<b>Indirect taxes</b>	13.9	13.5	13.5	13.5	13.5	13.7	13.8	13.8	13.3	13.1
VAT	6.9	6.8	6.7	6.6	6.6	6.7	6.8	6.9	6.8	6.6
Excise duties and consumption taxes	2.7	2.7	2.7	2.7	2.6	2.5	2.5	2.3	2.3	2.4
Other taxes on products (incl. import duties)	1.7	1.7	1.7	1.7	1.8	1.9	2.0	1.9	1.7	1.7
Other taxes on production	2.5	2.4	2.4	2.4	2.4	2.5	2.6	2.6	2.5	2.5
<b>Direct taxes</b>	12.9	12.5	12.1	11.9	11.7	11.8	12.3	12.7	12.5	11.7
Personal income	9.4	9.2	9.0	8.8	8.5	8.5	8.7	8.9	9.1	9.0
Corporate income	2.6	2.5	2.2	2.1	2.3	2.4	2.7	2.9	2.5	1.7
Other	0.9	0.9	0.9	1.1	1.0	0.9	0.9	0.9	0.9	1.0
<b>Social contributions</b>	14.5	14.3	14.3	14.5	14.3	14.2	14.1	13.9	14.1	14.4
Employers´	8.2	8.1	8.1	8.2	8.1	8.0	8.0	8.0	8.1	8.2
Employees´	4.6	4.5	4.4	4.4	4.3	4.3	4.2	4.2	4.2	4.3
Self- and non-employed	1.8	1.7	1.8	1.8	1.8	1.8	1.8	1.7	1.8	1.9
<b>Total taxes (including SSC)</b>	<b>41.1</b>	<b>40.2</b>	<b>39.8</b>	<b>39.7</b>	<b>39.4</b>	<b>39.6</b>	<b>40.1</b>	<b>40.2</b>	<b>39.7</b>	<b>39.1</b>
<b>Structure by economic function</b>										
<b>Consumption</b>	11.1	10.8	10.8	10.7	10.7	10.7	10.8	10.8	10.5	10.4
<b>Labour</b>	21.5	21.3	21.2	21.2	20.7	20.6	20.5	20.3	20.8	21.1
Employed	19.6	19.5	19.4	19.3	18.9	18.7	18.6	18.6	19.0	19.3
Paid by employers	8.8	8.8	8.8	8.9	8.7	8.7	8.7	8.6	8.7	8.9
Paid by employees	10.9	10.7	10.6	10.5	10.1	10.0	10.0	10.0	10.3	10.4
Non-employed	1.8	1.8	1.8	1.9	1.8	1.9	1.8	1.7	1.8	1.9
<b>Capital</b>	8.7	8.2	7.9	7.9	8.0	8.3	9.0	9.3	8.6	7.7
Capital and business income	6.2	5.8	5.4	5.4	5.5	5.7	6.3	6.6	6.2	5.3
Income of corporations	3.1	2.9	2.7	2.6	2.7	2.9	3.3	3.4	3.0	2.2
Income of households	0.8	0.7	0.7	0.7	0.7	0.7	0.8	0.9	0.9	0.8
Income of self-employed (incl. SSC)	2.3	2.2	2.1	2.1	2.1	2.1	2.2	2.3	2.2	2.2
Stocks of capital / wealth	2.5	2.4	2.5	2.5	2.6	2.6	2.7	2.7	2.4	2.5

*Note:* GDP-weighted EA-17 averages. Totals may be affected by rounding.

*Source:* Commission services.

Table A1.3: Development of implicit tax rates, in %

	Implicit tax rate on labour			Implicit tax rate on consumption			Implicit tax rate on capital		
	1995	2000	2009	1995	2000	2009	1995	2000	2009
BE	43.6	43.6	41.5	20.5	21.8	20.9	25.6	29.6	30.9
BG	30.8	38.1	25.5	17.3	18.5	21.4	:	:	:
CZ	40.5	40.7	36.4	22.1	19.4	21.6	26.3	20.9	19.3
DK	40.2	41.0	35.0	30.5	33.4	31.5	29.9	36.0	43.8
DE	39.4	40.7	38.8	18.8	18.9	19.8	21.8	28.4	22.1
EE	36.9	37.8	35.0	20.3	19.5	27.6	14.1	6.0	14.0
IE	29.7	28.5	25.5	24.8	25.5	21.6	:	:	14.9
EL	:	34.5	29.7	:	16.5	14.0	:	19.9	:
ES	31.0	30.5	31.8	14.2	15.7	12.3	:	29.9	27.2
FR	41.2	42.0	41.1	21.5	20.9	18.5	32.5	38.4	35.6
IT	38.2	42.2	42.6	17.4	17.9	16.3	27.4	29.5	39.1
CY	22.1	21.5	26.1	12.6	12.7	17.9	:	:	:
LV	39.2	36.6	28.7	19.4	18.7	16.9	20.5	11.2	10.3
LT	34.5	41.2	33.1	17.7	17.9	16.5	12.7	7.2	10.9
LU	29.3	29.9	31.7	21.0	23.0	27.3	:	:	:
HU	42.3	41.4	41.0	29.6	27.5	28.2	14.8	17.1	18.8
MT	19.0	20.6	20.2	14.8	15.9	19.5	:	:	:
NL	34.6	34.5	35.5	23.3	23.8	26.2	21.4	20.7	15.4
AT	38.5	40.1	40.3	20.5	22.1	21.7	27.1	27.7	27.0
PL	36.8	33.5	30.7	20.7	17.8	19.0	20.9	20.5	20.5
PT	22.3	22.3	23.1	18.1	18.2	16.2	21.3	31.3	33.8
RO	31.4	33.5	24.3	:	17.0	16.9	:	:	:
SI	38.5	37.7	34.9	24.6	23.5	24.2	12.7	15.7	21.0
SK	38.5	36.3	31.2	26.4	21.7	17.3	35.0	22.9	17.1
FI	44.2	44.0	40.4	27.6	28.5	25.7	27.1	36.4	29.9
SE	46.8	46.8	39.4	27.8	26.3	27.6	20.0	42.8	33.5
UK	25.7	25.6	25.1	19.6	18.9	16.8	34.6	44.0	38.9
<b>EU-27 average</b>									
GDP-weighted	37.0	37.0	36.0	:	19.9	18.9	:	:	:
arithmetic	35.2	35.7	32.9	:	20.8	20.9	:	:	:
<b>EA-17 average</b>									
GDP-weighted	38.4	39.3	38.2	19.4	19.6	18.5	25.8	30.4	28.9
arithmetic	34.2	34.5	33.5	20.4	20.4	20.4	24.2	25.9	25.2
<b>EU-25 average</b>									
GDP-weighted	37.1	37.1	36.1	20.0	19.9	18.9	26.8	32.9	30.2
arithmetic	35.5	35.7	33.5	21.4	21.0	21.0	23.5	25.5	24.9

Source: Commission services.



Table A1.4: Statutory tax rates, in %

	Top personal income tax rate					Standard VAT rate					Adjusted top corporate income tax rate				
	1995	2000	2005	2010	2011	1995	2000	2005	2010	2011	1995	2000	2005	2010	2011
BE	60.6	60.6	53.7	53.7	53.7	20.5	21	21	21	21	40.2	40.2	34.0	34.0	34.0
BG	50.0	40.0	24.0	10.0	10.0	18	20	20	20	20	40.0	32.5	15.0	10.0	10.0
CZ	43.0	32.0	32.0	15.0	15.0	22	22	19	20	20	41.0	31.0	26.0	19.0	19.0
DK	63.5	59.7	59.0	51.5	51.5	25	25	25	25	25	34.0	32.0	28.0	25.0	25.0
DE	57.0	53.8	44.3	47.5	47.5	16	16	16	19	19	56.8	51.6	38.7	29.8	29.8
EE	26.0	26.0	24.0	21.0	21.0	18	18	18	20	20	26.0	26.0	24.0	21.0	21.0
IE	48.0	44.0	42.0	41.0	41.0	21	21	21	21	21	40.0	24.0	12.5	12.5	12.5
EL	45.0	45.0	40.0	45.0	45.0	18	18	19	23	23	40.0	40.0	32.0	24.0	20.0
ES	56.0	48.0	45.0	43.0	45.0	16	16	16	18	18	35.0	35.0	35.0	30.0	30.0
FR	59.1	59.0	53.5	45.8	46.7	18.6	19.6	19.6	19.6	19.6	36.7	37.8	35.0	34.4	34.4
IT	51.0	45.9	44.1	45.2	45.6	19	20	20	20	20	52.2	41.3	37.3	31.4	31.4
CY	40.0	40.0	30.0	30.0	30.0	8	10	15	15	15	25.0	25.0	10.0	10.0	10.0
LV	25.0	25.0	25.0	26.0	25.0	N/A	18	18	21	22	25.0	25.0	15.0	15.0	15.0
LT	33.0	33.0	33.0	15.0	15.0	18	18	18	21	21	29.0	24.0	15.0	15.0	15.0
LU	51.3	47.2	39.0	39.0	42.1	15	15	15	15	15	40.9	37.5	30.4	28.6	28.8
HU	44.0	44.0	38.0	40.6	20.3	25	25	25	25	25	19.6	19.6	17.5	20.6	20.6
MT	35.0	35.0	35.0	35.0	35.0	15	15	18	18	18	35.0	35.0	35.0	35.0	35.0
NL	60.0	60.0	52.0	52.0	52.0	17.5	17.5	19	19	19	35.0	35.0	31.5	25.5	25.0
AT	50.0	50.0	50.0	50.0	50.0	20	20	20	20	20	34.0	34.0	25.0	25.0	25.0
PL	45.0	40.0	40.0	32.0	32.0	22	22	22	22	23	40.0	30.0	19.0	19.0	19.0
PT	40.0	40.0	40.0	45.9	46.5	17	17	21	21	23	39.6	35.2	27.5	29.0	29.0
RO	40.0	40.0	16.0	16.0	16.0	18	19	19	19	24	38.0	25.0	16.0	16.0	16.0
SI	50.0	50.0	50.0	41.0	41.0	N/A	19	20	20	20	25.0	25.0	25.0	20.0	20.0
SK	42.0	42.0	19.0	19.0	19.0		23	19	19	20	40.0	29.0	19.0	19.0	19.0
FI	62.2	54.0	51.0	49.0	49.2	22	22	22	23	23	25.0	29.0	26.0	26.0	26.0
SE	61.3	51.5	56.6	56.4	56.4	25	25	25	25	25	28.0	28.0	28.0	26.3	26.3
UK	40.0	40.0	40.0	50.0	50.0	17.5	17.5	17.5	17.5	20	33.0	30.0	30.0	28.0	27.0
EU-27 arithmetic	47.3	44.7	39.9	37.6	37.1	:	19.2	19.6	20.1	20.7	35.3	31.9	25.5	23.3	23.1
EA-17 arithmetic	49.0	47.1	41.9	41.4	41.8	:	18.1	18.9	19.2	19.7	36.8	34.4	28.1	25.6	25.3

*Note:* The top PIT rates reflect the statutory tax rate for the highest income bracket. The rates include surcharges, state and local taxes. Only the 'basic' (non-targeted) top CIT rate is presented here. Existing surcharges and averages of local taxes are included. For details of the calculation of the top PIT rates and CIT rates see European Commission (2011a).

*Source:* Commission services.

Table A1.5: Energy tax revenues in relation to final energy consumption

	Nominal				Real (2000 deflator)			
	1995	2000	2005	2009	1995	2000	2005	2009
BE	91.6	92.4	116.3	119.0	97.9	92.4	106.9	103.3
BG	14.7	40.6	62.7	108.4	429.9	40.6	51.9	72.0
CZ	38.7	55.2	95.9	130.8	50.0	55.2	93.0	125.1
DK	200.3	301.0	315.7	330.7	219.3	301.0	290.2	285.6
DE	168.3	192.7	209.3	215.5	172.4	192.7	202.2	202.8
EE	6.3	31.6	75.3	127.8	9.6	31.6	63.8	89.9
IE	112.2	140.7	170.8	199.2	136.5	140.7	154.0	176.5
EL	157.7	117.3	115.7	135.5	206.1	117.3	100.4	105.8
ES	128.1	137.9	140.3	157.5	147.5	137.9	119.3	122.7
FR	169.6	174.2	176.1	182.2	177.6	174.2	163.8	158.3
IT	236.3	245.8	229.2	259.6	268.7	245.8	201.7	207.8
CY	26.4	43.1	145.8	142.1	30.6	43.1	129.4	113.8
LV	10.1	48.2	71.8	96.5	13.7	48.2	54.8	51.9
LT	12.3	57.9	81.7	116.5	14.9	57.9	78.4	94.9
LU	140.9	164.4	193.7	210.1	173.8	164.4	174.0	166.2
HU	58.5	79.7	100.8	:	111.6	79.7	85.0	:
MT	67.5	180.8	135.5	202.4	78.8	180.8	128.5	170.3
NL	110.4	153.4	197.9	230.3	121.0	153.4	182.1	201.7
AT	122.9	141.6	155.7	171.5	128.5	141.6	145.9	149.7
PL	20.6	59.0	96.1	107.3	34.7	59.0	84.5	83.8
PT	164.6	111.8	167.5	:	191.4	111.8	149.2	:
RO	15.1	58.2	59.4	86.0	160.3	58.2	24.7	26.6
SI	126.2	118.6	145.4	226.8	180.2	118.6	114.6	163.2
SK	29.9	42.4	77.2	100.8	40.1	42.4	64.7	80.3
FI	96.7	108.7	115.4	129.9	103.1	108.7	110.6	118.4
SE	133.5	179.7	211.0	210.0	140.3	179.7	196.8	178.6
UK	142.6	245.8	233.8	221.1	152.3	245.8	211.5	177.4
<b>EU-27 averages</b>					<b>EU-27 averages</b>			
GDP-weighted	157.5	187.8	191.7	200.3	GDP-weighted	171.1	187.8	175.5
base-weighted	96.4	123.1	144.3	168.7	base-weighted	133.0	123.1	129.0
<b>EA-17 averages</b>					<b>EA-17 averages</b>			
GDP-weighted	165.0	178.6	185.5	199.7	GDP-weighted	177.7	178.6	170.7
base-weighted	115.0	129.3	151.0	175.6	base-weighted	133.2	129.3	135.9

*Note:* Nominal: EUR per tonne of oil equivalent; Real: EUR per tonne of equivalent, deflated with cumulative % change in final demand deflator (2000 = 100). 2009 are provisional data.

*Source:* Commission services.

Table A1.6: The composition of tax wedge in 2010, single average income worker

Country	Income tax plus employees' and employers' social security contributions (as % of labour costs, 2010)				Annual change 2010/09 (in percentage points)			
	Tax wedge (1)	Income tax (2)	Employee SSC (3)	Employer SSC (4)	Tax wedge (1)	Income tax (2)	Employee SSC (3)	Employer SSC (4)
BE	55.4	21.6	10.8	23.0	0.0	0.1	0.0	-0.1
BG*	33.8	7.4	11.0	15.5	-1.3	0.1	0.2	-1.6
CZ	42.2	8.6	8.2	25.4	0.2	0.2	0.0	0.0
DK	38.3	27.9	10.7	0.0	-1.2	-0.9	0.0	0.0
DE	49.1	15.7	17.2	16.2	-1.8	-1.6	-0.1	-0.1
EE	40.0	12.3	2.1	25.6	0.8	-0.2	0.8	0.3
IE	29.3	13.0	6.6	9.7	0.4	-0.2	0.6	0.0
EL	36.6	2.2	12.5	21.9	-1.6	-1.6	0.0	0.0
ES	39.6	11.7	4.9	23.0	1.4	0.1	0.0	1.3
FR	49.3	9.9	9.6	29.7	0.1	0.1	0.0	0.0
IT	46.9	15.4	7.2	24.3	0.0	0.0	0.0	0.0
CY***	13.9	2.1	5.9	5.9	-0.2	-0.2	0.0	0.0
LV**	41.6	14.9	7.3	19.4	-0.8	-0.8	0.0	0.0
LT*	40.7	10.1	6.9	23.8	-0.9	-5.5	4.6	0.0
LU	34.0	12.7	10.9	10.3	0.2	0.2	0.0	0.0
HU	46.4	11.0	13.2	22.2	-6.6	-4.6	0.4	-2.5
MT*	22.3	8.5	6.9	6.9	-0.5	-0.3	-0.1	-0.1
NL	39.2	14.5	15.3	9.4	1.2	-0.5	1.4	0.3
AT	47.9	11.4	14.0	22.6	0.1	0.1	0.0	0.0
PL	34.3	5.9	15.5	12.9	0.1	0.1	0.0	0.0
PT	37.7	9.7	8.9	19.2	0.3	0.3	0.0	0.0
RO*	44.4	9.3	12.8	22.3	2.0	-0.2	0.5	1.7
SI	42.4	9.5	19.0	13.9	0.1	0.1	0.0	0.0
SK	37.8	6.4	10.6	20.8	0.1	0.1	0.0	0.0
FI	42.0	18.0	5.8	18.2	-0.3	-0.5	0.7	-0.5
SE	42.7	13.5	5.3	23.9	-0.5	-0.5	0.0	0.0
UK	32.7	14.7	8.3	9.7	0.2	0.1	0.1	0.1
EU-27 arithmetic	39.3	11.8	9.9	17.6	-0.3	-0.6	0.3	0.0
EU-17 arithmetic	39.0	11.4	9.9	17.7	0.0	-0.2	0.2	0.1

**Note:** \*Data for non-OECD-EU countries (SI, LT, EE and MT, BG and RO) are only available for 2009; \*\* LV data for 2008; \*\*\* CY data for 2007. For these countries, changes in tax wedge refer to period 2009-2010 (for LV to period 2007-2008, CY to period 2006-2007).

**Source:** Commission services.